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The Effect of Personality on the Intention of Undergraduate Accounting Students to be a Public Accountant

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Abstract

A public accountant becomes one of the graduate profiles of the undergraduate accounting students at Maranatha Christian University. To decide on a career as a public accountant, ideally, the students have to possess the investigative or conventional personality as the primary code of Holland, besides carrier prospect. If they do not have one of two personality types, it will not be easy for them to work in this field. The objective research is to prove and analyze the effect of personality on the students who choose a public accountant career. The validity and reliability tests get done on carrier prospect first before analyzing data by a logistic regression model. After examining data and discussing the hypothesis testing results, this study infers that the conventional personality students positively tend to select the carrier as a public accountant. Similarly, this tendency applies to the carrier prospect impact.

Keywords: Public Accountant, Carrier Prospect, Holland Personality Types

1. INTRODUCTION

A public accountant is one of the careers for the graduated accounting students to select besides internal, governmental, and educating accountants (Mulyadi, 2017). This career can facilitate them to work professionally (Chan, 2012). This carrier becomes essential because of the dramatic increase in the number of appearing companies in Indonesia (CNN Indonesia, 2019). To get hired in a public accounting firm, they first need to follow and pass a chartered accountant's exam. This condition becomes the requirement to take a certified public accountant (Januarti & Chariri, 2019) held by the Indonesian Institute of Certified Public Accountants (Indonesian Institute of Certified Public Accountants, 2018).

After that, the positions in a public accountant wait for them. Firstly, a junior auditor. At this level, someone has to do the procedure's detail and make paperwork to file the executed audit. The second is a senior auditor. Someone at this level is responsible for matching the audit schedule to realize, directing, and assessing the junior auditor's works. Thirdly, a supervising manager. This manager has to assist a senior auditor in planning the audit program and schedule. The top position is a partner. At this level, someone is accountable for the relation with clients and the whole auditing (Mulyadi, 2017).

The research about the relationship between the personality and the student's intention to be a public accountant gets already done (Chan, 2012; Suyono, 2014; Saadullah, Shawish, & Abdulbasith, 2017; Asmoro, Wijayanti, & Suhendro, 2015; Susanti, Dewi, & Sufiyati, 2019; Rosalina, Yuliari, Purnamasari, & Zati 2020). Unfortunately, the results do not reach a consensus. For example, Chan (2012), Suyono (2014), and Rosalina et al. (2020) find a positive influence of personality on student career choice to be a public accountant occurs. However, Asmoro et al. (2015) and Susanti et al. (2019) cannot illustrate the effect.

Unlike Chan (2012), Suyono (2014), Asmoro et al. (2015), Susanti et al. (2019), Rosalina et al. (2020), using the answer of the students based on a set of question items, this research uses the personality type of Holland (1997), followed by Saadullah et al. (2017). Hence, this study investigates the impact of personality on the undergraduate accounting students' intention at Maranatha Christian University to be a public accountant. This situation is relevant because it aligns with the Curriculum of Higher Education's accounting department documents based on the National Qualification Framework in Indonesia validated by Rector Decree No. 058/SI/AK/UKM/IX/2019. This document declares that this profession becomes one of the graduate profiles besides an internal auditor, an internal accountant, the tax and public sector accountants, and an entrepreneur.

The personality proposed by Holland (1997) is a brilliant concept. Psychologists frequently use this concept to find a suitable employee in a specific position. Furthermore, Holland (1997) divides the personality into five types: realistic, investigative, artistic, social, enterprising, and conventional. The recommended works based on these personality types can get looked at in Table 1 as follows.

Table 1. The right work field according to the personality type of Holland

Type of personality	The right work field
Realistic	Farming, forestry, engineering, architecture
Investigative	Medicine, geology, mathematics, physics
Artistic	Fine art, music, mass communication, and theatre arts
Social	Foreign service, Social welfare, lecturing-and-guidance, as well as counseling
Enterprising	Law, catering, political science, public administration, and estate management
Conventional	Accounting, banking, library science, and secretarial work

Source: Holland (1997)

The suitable character type for the student career choice as a public accountant is investigative because of the positive relationship with auditing grade (Saadullah, Shawish, & Abdulbasith, 2017). The persons with this type tend to use their intelligence to think, manage notions, attempt to comprehend all things (Onoyase & Onoyase, 2009). Unlike Saadulah et al. (2017), Onoyase & Onoyase (2009) show the appropriate kind of personality to be the accountant is conventional, who tends to enjoy the sequential steps and follow the guidelines for their activity. The study conducted by Chan (2012), Suyono (2014), Rosalina et al. (2020) concludes that the student with the appropriate personality has a positive intention to be public accountants. Based on this research evidence, hypothesis one gets declared like this.

H_1:   The students with a conventional personality code of Holland tend to select a public accountant career.

2. RESEARCH METHOD

2.1.   Variable definition

The utilized variables in this study consist of two types. The first variable is the dependent variable named the career selection classified into the three categories, i.e., a public accountant, another accountant, and the non-accountant. The second variable is the explaining variables, i.e., the dummy indicating the presence of conventional personality based on the determination of the instrument of Holland (1997), D = 1 if the students have the conventional one, and D = 0 if they have the other ones.

2.2.   Method to take the samples and collect data

This study's population is the undergraduate students taking the accounting study program at Maranatha Christian University, Bandung. The students researching, including those who need the extra time to complete it, become the intended ones in the even semester 2019/2020. According to the academic administration, the number of students is 58. Moreover, 58 become the total population (N).

To calculate the total samples (n), we utilize the Slovin formula in Suliyanto (2009) with a 10% margin of error (e). Furthermore, this formula is available in equation one.

$$n = \frac{N}{1+Ne^2}$$ (Equation 1)

Through this formula, the total samples (n) we get is $\frac{58}{1+58(10\%)(10\%)} = \frac{58}{1.58} = 35.90 \approx 36$ students. Likewise, 36 students get grabbed by the simple random sampling method.

After we know the 36 students' names, we distribute the online questionnaire to take their answers. For career choice, we demand the students select the type of work based on their preference. For personality, we require the students to complete the instrument of Holland's characters.

2.3.   Method to analyze the data

By devoting the kind of research variables, this study employs the multinomial logistic regression model. This model is appropriate when the dependent have the categorical scale (Ghozali, 2016). By following Ghozali (2016), the total equations in this regression become two because of the three categories in the dependent variable, as seen in equations two and three.

$$\text{Ln} \frac{P(Y_i = Non-accounting\ career)}{P(Yi = Public\ accountant)} = \beta_{0i1} + \beta_1.DConventional_i + \varepsilon_{i1}$$ (Equation 2)

$$\text{Ln} \frac{P(Y_i = Other\ accounting\ careers)}{P(Yi = Public\ accountant)} = \beta_{0i2} + \beta_2.DConventional_i + \varepsilon_{i2}$$ (Equation 3)

Before testing the statistical hypothesis, we examine the goodness of fit model, as required by Ghozali (2016). To execute it, by following Widarjono (2013), we apply the likelihood ratio by seeing the significance of the additional independent variable, i.e., D_Coventional, from the model containing intercept (β_0) or restricted model.

Furthermore, the chi-square statistic gets calculated by substracting the -2* log-likelihood (LL) of the complete model from -2*LL of the restricted one. To test the meaningfulness of the change in -2*LL, we compare the probability of that change with a 10% relaxed significance level (α) by referring to this rule:
a.   If the probability is lower than α, the additional variable is meaningful; therefore, the model fits the data.
b.   If the probability is the same as or higher than α, the additional variable is meaningless; therefore, the model does not fit the data.

3. RESULT AND DISCUSSION

3.1. Results

The results presented in this section cover the students' profiles joining the survey as the samples of 36 and the statistical testing associated with the research model.

A.   The student profiles consist of the totals according to batch, gender, and the latest grade point average.
-    Table 2 provides information about the number of students joining this survey based on the batch. The number of students from 2016 is the largest, i.e., 19 (52.8%), but the lowest is from 2017, i.e., 1 (2.8%).

Table 2: The total students based on batch

Batch	Frequency	Percent
2013	3	8.3
2014	5	13.9
2015	6	16.7
2016	19	52.8
2017	1	2.8
2018	2	5.6
Total	36	100.0

Source: Output of IBM SPSS 20.

-    Table 3 illustrates information on the total students participating in this survey based on gender. The total males are 20 (55.5%), and females are 16 (44.4%).

Table 3: The number of the students based on gender

Gender	Frequency	Percent
Male	20	55.6
Female	16	44.4
Total	36	100.0

Source: Output of IBM SPSS 20.

-    Table 4 displays information about the total students based on their grade point average (GPA). Based on GPA, the highest number of students contains 15 (41.67%) from 3.01 to 3.50. However, the lowest one consists of 6 (16.67) from 2.76 to 3.00.

Table 4. The total students based on the last GPA

Range of GPA	Frequency	Percent
2.00 – 2.75	7	19.44%
2.76 – 3.00	6	16.67%
3.01 – 3.50	15	41.67%
3.51 - 4.00	8	22.22%
Total	36	100.00%

Source: Output of IBM SPSS 20

-    Table 5 presents information about the total students based on career selection. The first preference of the students is to be another accountant. It can be seen from their number of 17 (47.2%). The students' second choice is a non-accounting career with a total of 13 (36.1%). A public accountant becomes their third selection with a sum of 6 (16.7%).

Table 5: The total students based on the career selection

	Description	N	Marginal Percentage
Student	Non-Accounting career	13	36.1%
Career	A career as another accountant	17	47.2%
Choice	Public Accountant	6	16.7%
	Total	36	100.0%

Source: Output of IBM SPSS 20

B.   The result of the statistical test

The test of the goodness of fit is essential to perform before estimating the regression coefficient. We employ the likelihood ratio to execute it, and the result can be seen in Table 6. In this table, the DCONV has the probability of the Chi-square statistic of 0.097. Because it is still lower than a 10% significance level, it means that the model is suitable for the data.

Table 6: The result of the Likelihood Ratio Test

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Probability
Intercept	11.467	0.123	2	0.941
DCONV	16.002	4.657	2	0.097

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model gets formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

Source: Modified Output of IBM SPSS 20.

After the model passes the goodness of fit examination, the next step is estimating the multinomial logistic regression model, in which the result is displayed in Table 7.

Table 7: The estimation result of the multinomial logistic regression model

Career (The reference category is: Public Accountant)		Regression Coefficient	Std. Error	Wald	df	Probability
Non-accountant career	Intercept	0.000	0.632	0.000	1	0.999
	DCONV	2.079	1.235	2.835	1	0.092
Another accountant career	Intercept	0.182	0.606	0.091	1	0.763
	DCONV	2.216	1.207	3.368	1	0.066

Source: Modified Output of IBM SPSS 20.

From Table 7, there are two estimated models:
a.   The first model informs the conventional personality impact testing on choosing a public accountant using the two groups' students. Group one consists of those selecting a career outside the accountant. Group two contains those preferring a public accountant career, where this career becomes the reference category. In this model, the probability of the Wald statistic of DCONV is 0.092, still lower than the 10% significance level, and the regression coefficient shows a positive sign. It means a conventional personality positively affects the probability of picking a public accountant.
b.   The second model notifies conventional personality impact testing on choosing a public accountant using the two groups' students. The first group consists of those selecting another accountant career. Group two contains those preferring a public accountant career, where this career becomes the reference category. In this model, the probability of the Wald statistic of DCONV is 0.066, still lower than the 10% significance level, and the regression coefficient shows a positive sign. It means a conventional personality positively affects the probability of picking a public accountant.

3.2.   Discussion

The statistical test shows that the conventional personality positively affects student selection to be a public accountant. This research is not in line with Saadulah et al. (2017), indicating that the students with an investigative personality will choose this profession. Fundamentally, auditing work is based on orderly activities and standards as a rule. Thus, only students with conventional characteristics will take this job in the future. In other words, this positive effect supports the personality theory of Holland (1997) and the study of Onoyase & Onoyase (2009). By considering this evidence, we suggest collaboration between the accounting and physiology departments at Maranatha Christian University to detect students' personalities based on Holland's characters before they take the auditing as their primary concentration.

4. CONCLUSION

Education can facilitate undergraduate students to reach their dreams. To be a public accountant is one of the plans of accounting students. Through this research, the students can become public accountants if they have a conventional personality counting on working based on sequence and standards.

This research contains some limitations, such as a single determinant of career selection to be a public accountant, i.e., personality, and 58 students as a small population.

- The subsequent scholars can add some determinants in the research model, like gender, social value, financial compensation, working environment, community recognition, professional training, job marketplace consideration.
- To overcome the second limitation, they can apply the larger sample size, for example, 100 students, by utilizing the undergraduate accounting students from some university in Bandung. This way is helpful to produce the summary widely.

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Developing Data-Driven Administrative Policy for International Montessori Center, Thailand

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Abstract

This institutional survey research was used to improve administrative policies at International Montessori Center (IMC), a private international kindergarten in Bangkok, Thailand. The main goal of the study was to gather input from school stakeholders regarding daily conditions and functions, with the ultimate goal of improved administrative policy implementation. A literature review indicated no direct prior research. A survey gathered input from four stakeholder groups, including 15 teachers, 104 parents, 17 staff, and 3 administrators, regarding Physical Safety, Child Sense of Being Valued (classroom atmosphere), Classroom Conditions, Information Availability, Parent-Teacher Meeting Quality, Administrative Support, Parental Support (overall), Educational Tools and Technology, Quality of Peer Professional Relationships, and Availability of Needed Supplies. Stakeholders rated the daily operations areas using five-point Likert-style questions and responded to two open-ended questions. In sum, findings highlighted a number of useful perspectives for the little-studied early-childhood administrative community: a) seemingly mundane school functions are important to those who experience them on a regular basis; b) all stakeholder input is valuable when gathering school daily operations feedback; c) similarities *and* differences in stakeholder input help administrators develop a more holistic perspective of school functioning; and d) stakeholder input is a valuable tool for administrators to use when critically considering responsive policy formulation. Conclusions reached were limited to correlations and patterns found in one institution. However, it is clear that this original research is a valuable step in improving administrative policy implementation at the private international kindergarten level.

Keywords: Administrative Policy, Montessori, Thailand

INTRODUCTION

International Montessori Center (IMC), a small, private Montessori kindergarten, currently has an extended family orientation in its administrative policy implementation. The researcher, as the school's lead administrator, is too

often over-loaded with day-to-day tasks involving basic school operations, which require a case-by-case approach, because a comprehensive set of data-driven policies has not been developed.

Thus, it was clear that IMC's administration of everyday operations relied too heavily on an extended family model of decision-making and not enough on evidence-based policies. Gathering and interpreting such survey evidence was the focus of this study, with the ultimate goal being clear policy formulation and effective administrative policy implementation.

While there is little doubt that clear and written policies are necessary for schools in to function properly, a review of the literature found a paucity of research directly related to anonymous online school improvement surveys (or self-study survey instruments) that: a) target teachers, administrators, support staff, and parents as relevant stakeholders in a 360 degree or multi-perspective approach; and b) target stakeholder feedback regarding basic school operations, as a source of data for developing clear and relevant administrative policies that were intended to improve day-to-day private school operations, as well as stakeholder interest and cooperation, through transparent administrative practices.

More generally speaking, another reason this study was done was the distinct lack of literature regarding private schools in *developing* countries (Day Ashley et al., 2014, p. 47). Thus, the study was intended to augment the scarce literature regarding: a) private schools in developing countries; b) the use of anonymous, multi-perspective self-study surveys for private school basic operations improvement; and c) using stakeholder survey feedback to develop a more a data-driven basis for administrative policy implementation regarding day-to-day private kindergarten operations. (Note: IMC kindergarten students were not considered as relevant stakeholders for the purposes of this study because they lacked the requisite level of understanding to be able to respond to survey questions.)

Thus, it was clear that data needed to be gathered regarding basic school operations from relevant stakeholders, in the form of anonymous survey feedback, with the ultimate purpose of developing a clear set of policy guidelines that could lead to transparent and evidence-driven administrative policy implementation.

1. Related Literature

The studies reviewed below support aspects of the IMC study design directly or indirectly. Specific comments are added, when applicable.

1.1 School Administrator Credibility

According to Beam, Claxton, & Smith (2016), in private schools, such as IMC, leaders often suffer from a lack of credibility with the school stakeholders. A major part of building such credibility is creating a more professional administrative structure that is based on formal, written policies (Ayres, 2018).

1.2 Management Style

According to Ayres (2018), the development of policy-driven management can address five plausible disadvantages of IMC's current paternalistic management style, which include employee dissatisfaction regarding bad administrative decisions, employee over-dependency, loyalty-building issues, staff competition for administrator attention, and power struggles based on unclear roles (para. 11, 12, 13, 15, 17). Thus, an underlying purpose of the study was to transform the administration of IMC from an extended family model of management (Rouse, 2016, para. 1) to a more data-driven management system, which relies on systematic data collection, analysis, reporting, and exploitation, for improved school operations and communication with stakeholders (American Association, 2002, p. 2).

1.3 Stakeholder Input

According to Honig (2006), policy-making in a school should not be focused on the inherent nature of the policy to succeed, as if success is *preordained,* but on what's feasible for whom and under what conditions (p. 3). Logically, this means being transparent with and inclusive about policy formulation with school stakeholders and being responsive to their feedback. This is supported by a study by Olowoselu, Fauzi, and Muhamad (2016), that advises school administrators, who are interested in improved leadership, to recognize and be responsive to the input of parents, staff, and students (p. 61). Such responsiveness was key to the IMC study.

1.4 Evidence-based Decision-making

An interview study by Crum, Sherman, and Myran (2010) found that successful elementary school principals employ a constant stream of data for effective policy implementation choices. These school leaders' best practices included using data-driven introspection to honestly assess their own strengths and weaknesses, and improve their critical thinking skills (p. 55). Facts and evidence, rather than intuition, were reportedly used to address sagging student performance (p. 59), building infrastructure issues (p. 55), and pedagogical environment improvement (p. 53). Such self-reflection was key to the head administrator's decision to improve IMC through data-driven administrative policy choices.

1.5 School Policy Development

According to Berk (2005), policies that involve basic school operations should be developed using an anonymous needs-assessment instrument, which gathers views from any school personnel or parent who is in a position to comment effectively.

1.6 Data Gathering and Stakeholder Motivation

According to Moore (2009), a well-developed 360-degree, anonymous survey can improve school operations through increased stakeholder motivation, increased transparency, and relevant data that is valid and reliable, which can be used to build an improved policy base for more effective administrative policy implementation.

1.7 Better Policies and Better Education

Studies indicate that more effective administrative policy implementation can have beneficial effects on teaching and learning outcomes (Akpan, 2016; Shaari & Ahmad, 2016; Penn State Center, 2015).

1.8 Data-based Decisions, Work Flow, and Stakeholder Participation

According to van Geel, Visscher, and Teunis (2017), there is a growing global focus on improving school operations through evidence-based decision-making. Findings indicated that school dimensions that were strongly associated with successful implementation of data-driven administrative interventions included robust instructional leadership, proactive immersion in the intervention process, establishing a standardized work flow process, and strong participation of school staff (p. 443).

1.9 Physical Aspects of Schools.

(IMC survey question: Physical Safety Conditions) According to Penn State Center (2015), School facilities can have a significant effect on teaching and learning outcomes. School amenities impact instructor recruitment, retention, effort, and commitment. School facilities also affect student health, behavior, engagement, learning, and achievement (para. 1). The same study concluded that the quality of facilities, including their overall safety, support the physical and emotional health of teachers and students (para. 4). A 2016 study concluded that a school's physical learning environment has important effects on Malaysian preschoolers' school readiness (Shaari & Ahmad, 2016). Malaysian preschoolers are comparable to the Thai kindergarteners of IMC.

1.10 Classroom Atmosphere

(IMC survey question: Child Sense of Being Valued) According to Teachstone (2014), research found that emotionally positive teacher-student interactions or a *welcoming classroom* in early childhood education (ages 3 to 8, which includes kindergarten) were associated with more positive and less negative peer and teacher interactions, as well as higher engagement in learning activities such as mathematics and reading (p. 3).

1.11 Resources Including IT

(IMC survey question: Educational Technology Support) Clearly, reliable educational resources support school success. According to Usman (2016), there are a number of practices that schools can follow to ensure that educational resources are managed effectively. Those which are relevant to the IMC study include: a) school administrators developing a prudent resource management scheme; b) ongoing professional development training for administrators and staff, including an emphasis on respect for school property and resources; c) regular administrative oversight; and d) modernized resources to support the execution of school responsibilities on a more professional level (p. 36). Educational technology, common in classrooms across the world, can enhance teaching and learning if teachers are effectively trained and if there is a sufficient supply in the educational setting, according to Stosic (2015).

1.12 School / Administrative Support

(IMC survey question: Administrative Support) According to Crum, Sherman, and Myran (2010), the following aspects illustrate core best-practice themes for effective school leaders: a) evidence-based leadership; b) transparency and relationship-building with stakeholders; c) imbuing stakeholders with ownership and team spirit; d) recognition of leadership and support for its development among school staff; and e) pedagogical awareness and engagement. Of particular note is that these best-school-leader practices have been connected to high student achievement (p. 48). The above sources of school leader support are potential results of an improved policy implementation structure at IMC.

1.13 Teacher-parent Cooperation

(IMC survey question: Parent and Teacher Meeting Quality) Studies show that a cooperative and supportive relationship between parents and teachers is a key part of a school success, and has been connected to: a) more student involvement and higher academic achievement, particularly in school settings where there are language barriers (Albertson, 2012); b) greater parental perceptions of security and support (Sandberg & Ottosson, 2010, p. 741); and c) raising parental awareness for constructive cooperation (Bicaj, Bytyqi, Azizi, & Xhemajli, 2019, p. 94). One overall goal of the IMC research process included teachers and parents benefitting from an increase in relationship transparency.

1.14 Parental Involvement

(IMC survey question: Parental Support Quality) Bridgemoha's (2001) review of the literature reveals a number of advantages associated with parental involvement for elementary and preschool students. In summary, these include beneficial effects in the areas of student achievement, retention rates, behavioral issues, and school-work-associated enterprise and perseverance—as well as overall school effectiveness and educational progress from a policy-making and practitioner perspective (p. 2).

Ikunyua (2012), who studied the impact of parental involvement in early childhood education student socialization, found that parents tend to support the academic and social development of their children in a variety of ways that include providing school supplies, ensuring that there is time to study, supporting children during their study time, attending school meetings to discuss issues affecting children, supporting school programs, and communicating with teachers regarding concerns (p. 56-57).

1.15 Quality of Peer Professional Relationships

(IMC survey question: Quality of Peer Professional Relationships) Research shows that supportive relationships between and among teachers, administrators, and other school personnel help to promote school improvement. More specifically, cooperative professional relationships enhance knowledge exchange, shared leadership, learning outcomes, commitment levels, resourcefulness, teacher trust and openness, administrator engagement, and student confidence (Sorajjakool, 2017, p. 35).

1.16 Stakeholder access to needed information.

(IMC survey question: Information Accessibility) Research shows that when school stakeholders are welcomed and have unfettered access to information, they are more likely to participate in activities that promote improvements in school climate, in part, because of a more positive perception of factors that serve as learning conditions, such as physical conditions, relationships, emotional safety, teacher and staff practices, organizational activities, and support and connection mechanisms (Yoder et al., 2017, p. 1).

1.17 Availability of Needed Supplies

(IMC survey question: Availability of Supplies as Needed) A review of the literature indicates that availability of supplies is a source of job satisfaction for elementary and secondary teachers (Ouyang & Paprock, 2006). It is common sense that school stakeholders expect and need educationally-relevant equipment and materials to be present and readily available to support the smooth, day-to-day functioning of kindergartens. Teachers and support staff are often involved the organization and distribution of supplies during the school day and take this responsibility seriously.

It is the administration's job to adequately fund and plan for the procurement of needed materials in schools. However, it is not just a matter of spending more. More precisely, for countries where the cumulative spending per pupil, between the ages of 6 and 15, does not exceed 50,000 USD in purchasing power parity, which includes Thailand, there is a positive correlation between funding and student performance on the PISA international test (OECD, 2017, p. 32-33). In countries where such funding is higher than 50K USD, there is no such correlation. This indicates that it's how school resource funds are allocated, not the total amount spent.

1.18 Classroom Conditions

(IMC survey question: Classroom Conditions) Research shows that comfortable physical conditions in classrooms help promote engagement, learning, and a sense of well-being among students. These include lighting, air quality, hygiene, spaciousness, safety, and user-friendly desks, tables, and other educational equipment (Paul & Kumari, 2017). However, Paul and Kumari also took into consideration the individual learning styles of students, in suggesting that classrooms have lighter and darker spaces to work in and that classrooms afford students the ability to move about as they learn (p. 214). These findings are particularly relevant to kindergarten students, who are sensitive to environmental conditions and who may show a host of learning preferences that need to be practically and reasonably supported in classrooms.

2.   Conceptual Framework

2.1 Research Objectives

The study sought to connect the status of IMC specified day to day factors with the stakeholder feedback that impact the administration of those factors, as they may be operationalized in new administrative policies regarding those factors. Figure 1 shows the IMC study conceptual framework, which embodies the following research objectives:

- To study the current status of implementation of school administrative operations in terms of: a) school safety; b) physical and social teaching environment; c) educational resources, including IT; d) parent and administrative support; and e) parent-teacher cooperation.
- To study the factors that influence the implementation of school administrative oversight of the aforementioned daily operations parameters.
- To collect information regarding said influential factors, with the goal of administrative, data-driven policy development, with the ultimate goal of improving school administrative policy implementation for daily school operations .

2.2 Literature Support for Conceptual Framework

According to Walker and Quong (2003), school leaders can used 360-degree (i.e. multi-rater) school operations surveys of administrators, teachers, parents, and staff (i.e. stakeholders), regarding school operation strengths and challenges, to: a) promote trust and teamwork among stakeholders; b) build a highly-motivated team; c) clarify bottlenecks to administrative success; d) identify administrative performance goals; and e) delineate leadership strengths (p. 3).

Multi-rater stakeholder feedback has been shown to improve validity and reliability of results (Edwards, 1996, as cited in Moore, 2009, p. 39) through codification, which can be used to improve the school leader's organizational management skills, which are associated with improved school performance (Grissom & Loeb, 2009, p. 28). Improved school administrator performance can provide a foundation for formulating: a) policy implementation strategies (Hanover Research, 2014, p. 6); and b) administrative policy implementations goals, as well as increased delegation of authority and responsibility to school personnel (Morake, Monobe, & Mbulawa, 2012, p. 155), based on their specific roles.

Improved school leadership can also produce a more transparent, multi-perspective administrative structure (Morake, Monobe, & Mbulawa, 2012, p. 161), which can foster greater satisfaction among relevant school stakeholders due to increased participation in the process of school improvement (Edwards, 1996, as cited in Moore, 2009, p. 39) via policy clarification and planning, which leads to: a) more effective communication between and among all stakeholder groups regarding needs-based interventions (Taguma, Litjens, & Makowiecki, 2012, p. 15); and b) increased administrator awareness of school operations, augmenting business & instructional leadership, leading to improved educational outcomes (The Wallace, 2013, p. 19).
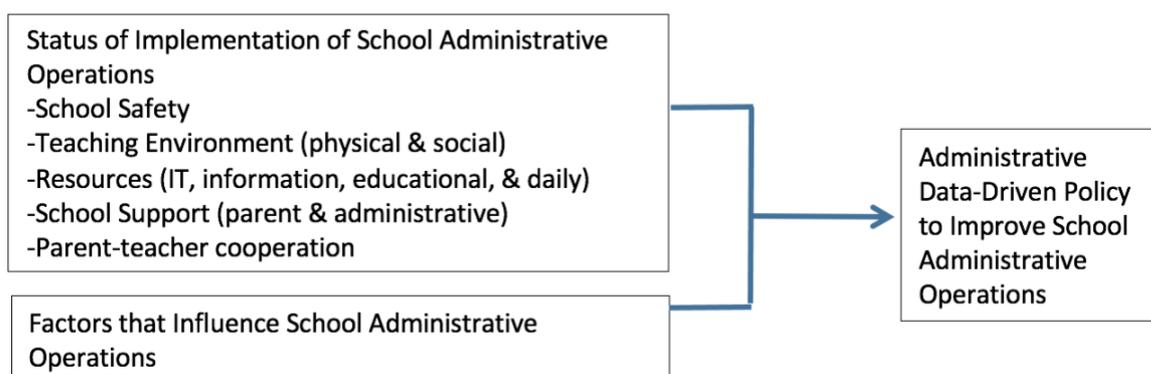
Figure 1: Conceptual Framework

3. Methods and Materials

3.1 Research Design

The basic study design was Summative School Evaluation, which is the collection of quantifiable or category-prone data from all school stakeholders with the purpose of clarifying and addressing specific school operation

problem areas (Agresti, 2007). More specifically, this institutional research (Alford, 2011) was designed to address administrative policy implementation issues, with regard to IMC daily school operations. The scope of the study was a single school, since there are no comparable, small, private Montessori kindergartens in Thailand. Thus, this was a descriptive study, which used the strength of association (correlation) between certain variables and data patterns to draw conclusions, whose application were limited to IMC.

3.2 Data Collection

An online survey was created using Google Forms, which covered 10 basic areas of IMC school operations, had questions in Thai and English, gathered stakeholder group information, and gathered email addresses for tracking purposes. Each of the ten major school operations sets of questions included: a) a five-point Likert-scaled question for respondent ratings (i.e. from excellent to needs significant improvement); b) open-ended questions that provided space for respondents to make positive remarks and critical comments; and c) open-ended questions that provided space for respondents to make suggestions to address specific areas of concern. The ten areas of investigation regarding daily IMC operations included: a) Physical Safety; b) Classroom Atmosphere (i.e. Child Sense of Being Welcome); c) Educational Resources (including IT); d) School / Administrative Support; e) Quality of Teacher-Parent Meetings; f) Parental Support (i.e. overall); g) Availability of Needed Supplies (i.e. daily support materials); h) Information Availability; i) Quality of Peer Professional Relationships (i.e. within school personnel); j) Classroom Conditions (i.e. physical conditions that support learning).

3.3 Statistical Analysis

Quantitative data from Likert rating questions (Joshi, Kale, Chande, & Pal, 2015) were analyzed with one-way ANOVA for nonparametric data, using the Kruskal-Wallis test, because study samples did not fit the definition of normally distributed data (Chan & Walmsley, 1997). Mean ratings across groups and patterns were examined. Considering this study's highly variable and generally smaller sample sizes, a 90% confidence level was used ($p < .10$).

Qualitative data from open-ended questions were analyzed thematically based on the 10 areas of school administrative operations surveyed. Response data were transformed into categorical and numeric data (Agresti, 2007), so that group differences and patterns could be analyzed more clearly (Powers & Xie, 2000).

4. Results

4.1 Quantitative Analysis: Summary of Kruskal-Wallis Test for Likert Ratings across Groups

Table 1 indicates that the distribution of Likert ratings varied significantly by group for survey questions regarding Child Sense of Being Valued (CSBV), Educational Technology and Tools (ETT), and Administrative Support (AS). Figures 1 and 2, respectively, depict significantly lower IMC staff ratings for CSBV and AS compared to parents, teachers, and administrators. Figure 3 depicts a significantly lower parent rating for ETT compared to teachers and staff.

Table 1: Kruskal-Wallis Hypothesis Test Summary

	Null Hypothesis (Ho)	Test[c]	Sig.[a,b]	Decision
1	Distribution of Physical Safety is the same across groups.	ISKW	.560	Retain Ho
2	Distribution of Child Sense of Being Valued is the same across groups.	ISKW	.003	Reject Ho
3	Distribution of Classroom Conditions is the same across across groups.	ISKW	.188	Retain Ho
4	Distribution of Educational Technology & Tools is the same across groups.	ISKW	.000	Reject Ho
5	Distribution of Availability of Supplies is the same across groups.	ISKW	.137	Retain Ho
6	Distribution of Information Accessibility is the same across groups.	ISKW	.590	Retain Ho
7	Distribution of Quality of Peer Prof. Relationships is the same across groups.	ISKW	.178	Retain Ho
8	Distribution of Administrative Support is the same across groups.	ISKW	.084	Reject Ho
9	Distribution of Parent-teacher Meeting Quality is the same across groups.	ISKW	.102	Retain Ho
10	Distribution of Parental Support Quality is the same across groups.	ISKW	.414	Retain Ho
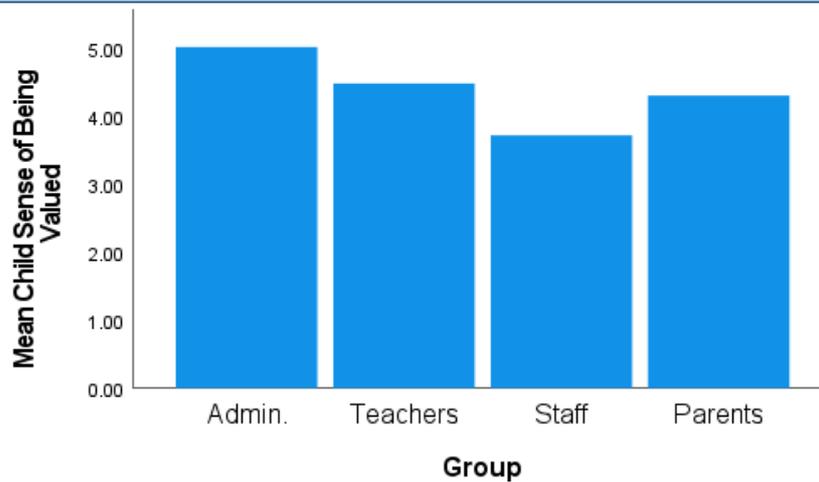
Figure 1: Means of Likert Ratings for IMC Child Sense of Being Valued by Group
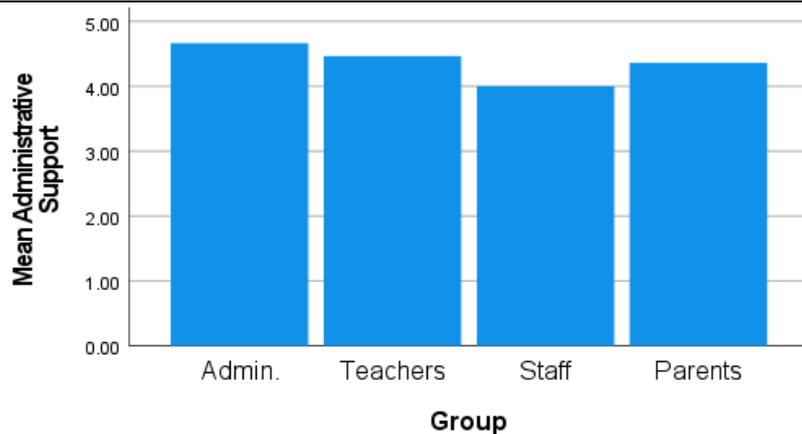
Figure 2: Means of Likert Ratings for IMC Administrative Support by Group
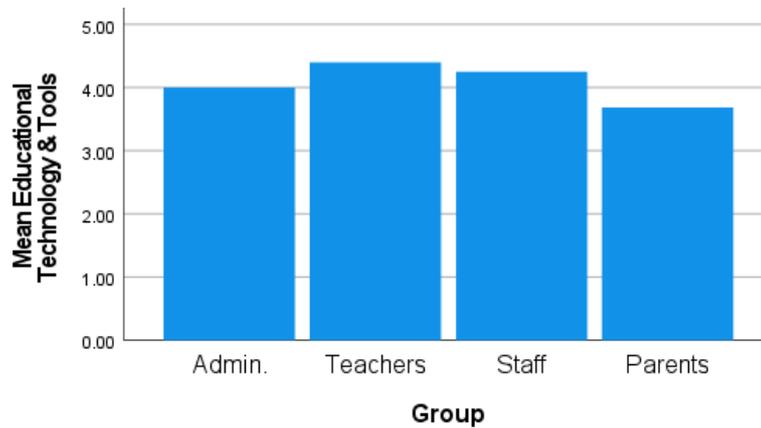
Figure 3: Means of Likert Ratings for IMC Educational Technology & Tools by Group

4.2 Qualitative Analyses of Responses to 10 Open-ended Survey Questions

Figures 4 and 5 are bar chart exemplars of respondent critical comments and positive remarks regarding the survey question on Child Sense of Being Valued (CSBV), by group (space does not permit all 20 charts). Below, question responses are analyzed from the most criticized to the least (i.e. 10 to 1).
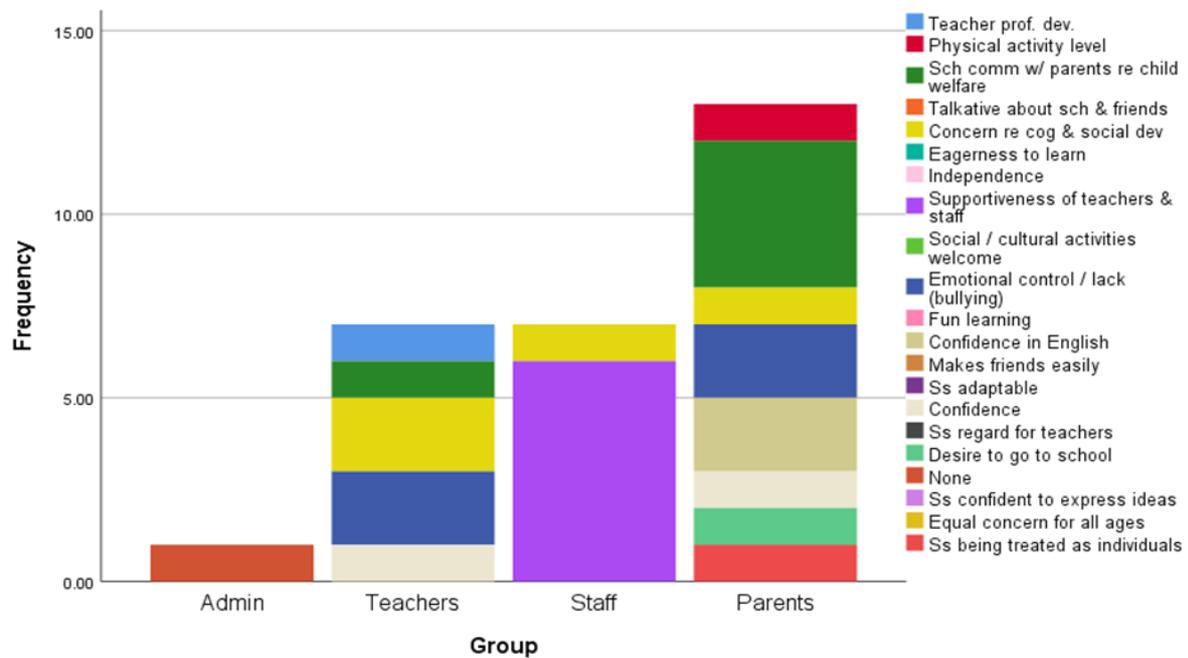
Figure 4: IMC CSVB Aspects that Need Improvement, by Group
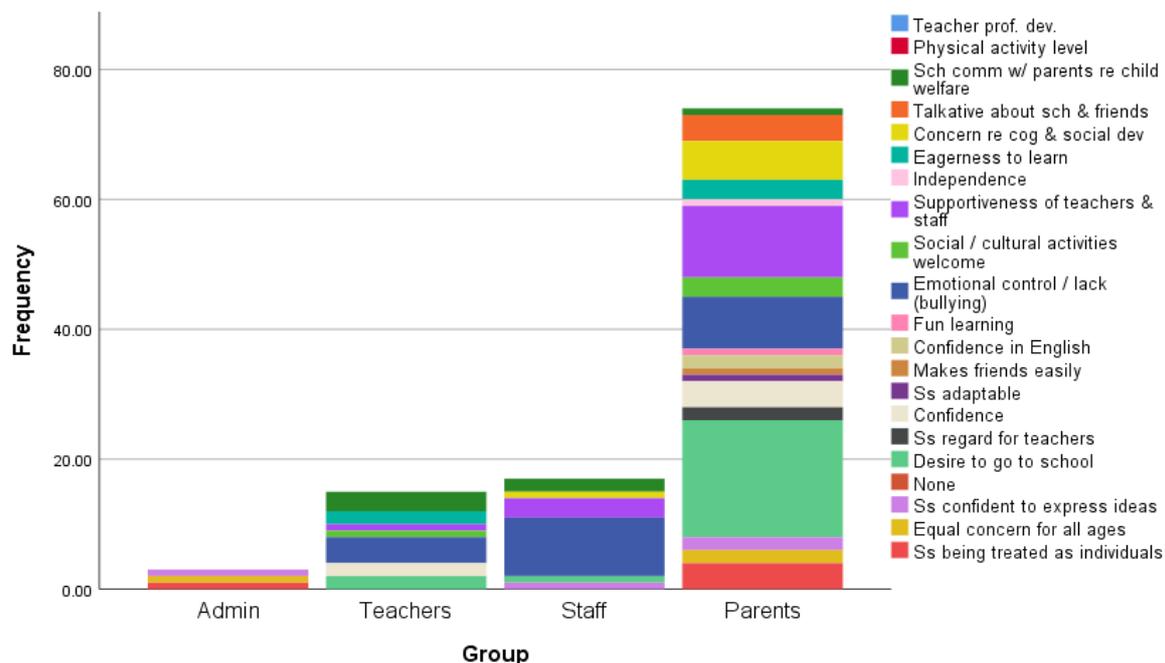
Figure 5: IMC CSBV Aspects that Work Well, by Group

4.2.1 PT ranked 10

The area regarded least well was Parent-teacher meeting quality, for which negative comments made up 32% of 94 total comments (i.e. 68% positive comments). There were 30 total negative comments and 64 total positive remarks.

Of the critical PT comment areas, parents focused on parent-teacher meeting preparation and management; staff on parent cooperation for sharing vital information and general involvement, as well as on preparation and management; and teachers and administrators exclusively on parent cooperation for sharing vital information and general involvement.

Of the positive PT remark areas, parents and teachers focused their complements on the useful, clear, and detailed nature of parent-teacher meetings for problem-solving regarding child development; administrators on the regularity of parent-teacher discussions; and staff on the collaborative, friendly, inclusive, and cooperative nature of meetings.

4.2.2 ETT ranked 9

The next higher-ranked area was Educational Technology & Tools, for which negative comments made up 30% of 115 total comments (i.e. 70% positive comments). There were 35 total negative comments and 80 total positive remarks.

Of the critical comment areas, parents were focused on sufficiency of educational technology and tools (ETT), as well as on their necessity and suitability; staff on ETT child development quality; administrators united on ETT necessity and suitability; and teachers on parental involvement in ETT use, teacher training, student training, and sufficiency of ETT.

Of the positive remark areas, parents focused their compliments on educational tools and technology modernness, necessity and suitability, and variety; staff on modernness; teachers on variety; and administrators on modernness.

4.2.3 Physical Safety ranked 8.

The next higher-ranked area was Physical Safety, for which negative comments made up 27% of 166 total comments (i.e. 73% positive comments). There were 45 total critical comments and 121 positive remarks.

Of the critical comment areas, parents focused on physical safety planning and safety for the play area and equipment in general; staff on planning, washroom equipment, and IMC security; and teachers on monitoring. Administrators had no major concerns about IMC safety.

Of the positive remark areas for physical safety, parents focused their support on IMC staff assistance for arrival and departure of children, IMC security, monitoring, play equipment and area safety, general equipment safety, and safety planning; staff on IMC security; teachers on monitoring; and administrators split on IMC security, planning, and monitoring.

4.2.4 IA ranked 7

Information Availability was the next higher-ranked area, for which negative comments made up 25% of 119 total comments (i.e. 75% positive remarks). There were 30 total critical comments and 89 total positive remarks.
Of critical comment areas, parents focused on the quality of management of information availability, as well as on its problem-solving quality regarding safety and in general; staff on ease and equality of access; teachers on problem-solving quality regarding safety and in general, as well as on management of access; and administrators split on speed and update management.

Of positive remark areas for information availability, parents focused on information being equally accessible to different levels of stakeholders and the technologies of access to that information being user-friendly; staff on ease and equality of access; teachers on technologies of access, as well as on ease and equality of access; and administrators on ease and equality of access.

4.2.5 CSBV ranked 6

Child Sense of Being Valued was the next most criticized area, for which negative comments made up 20% of 137 total comments (i.e. 80% positive comments). There were 28 total negative comments and 109 total positive remarks.

Of the negative comment areas for children's sense of being valued, administrators focused on concerns that children be treated as individuals; teachers on concerns regarding cognitive and social development, as well as on children's emotional control; staff on concerns regarding supportiveness of teachers and staff; and parents on concerns regarding IMC communication with parents regarding child welfare.

Of the positive remark areas for children's sense of being valued, notable areas of support were as follows. Both teachers and staff complimented children's ability to control their emotions, parents applauded their child's desire to go to school, and administrators were equally split in complimenting students' confidence to express ideas, IMC's equal concern for all students, and IMC's treatment of all students as individuals.

4.2.6 CC ranked 5

Classroom Conditions was the next most criticized area, for which negative comments made up 20% of 166 total comments (i.e. 80% positive comments). There were 33 total negative comments and 133 total positive remarks.
Of the negative comment areas for classroom conditions, parents focused their concerns on environmental control measures (i.e. air quality, lighting, cleanliness), the developmental nature of toys, and parents' ability to anonymously observe children in the classroom. Teachers focused on teaching preparedness and administrative curriculum guidance; and staff on environmental control measures, quality of teaching materials, overall classroom appearance, teacher-student connection, and teacher preparation and curriculum guidance.

Of the positive remark areas for classroom conditions, the greatest aspect of CC praise for administrators was age-appropriateness, for teachers and staff cleanliness, and for parents classroom spaciousness.

4.2.7 QPP ranked 4

Quality of Peer Professional Relationships was the next most criticized area, for which negative comments made up 15% of 92 total comments (i.e. 85% positive comments). There were 14 total negative comments and 78 total positive remarks.

Of the negative comment areas for quality of peer professional relationships, administrators, teachers, staff, and parents focused their concerns on administrative support.

Of the positive remark areas for quality of peer professional relationships, notable areas of support were as follows. Administrator, teacher, staff, and parent praise was focused on QPP's positive impact on school, peers, parents, and students. Teacher praise also focused on cooperation and collaboration. Parent praise also focused on cooperation.

4.2.8 PS ranked 3

Parental Support was the next most criticized area, for which negative comments made up 15% of 93 total comments (i.e. 85% positive comments). There were 14 total negative comments and 79 total positive remarks.

Of the negative comment areas for parental support, teachers and parents focused their concerns on improved parental commitment, while staff focused on improved school management of parental support.

Of the positive remark areas for parental support, notable areas of support were as follows. Administrator and teacher PS praise was focused on the supportive quality of parental involvement for students, teachers, and parents themselves; staff on cooperation; and parents on parental focus on activities and commitment level.

4.2.9 AS ranked 2

Administrative Support was the next most criticized area, for which negative comments made up 14% of 95 total comments (i.e. 86% positive comments). There were 13 total negative comments and 82 total positive remarks.

Of the negative comment areas for administrative support, teachers focused their concerns on administrative management of safety and hygiene; staff on improved openness to and cooperation with staff, teacher, and parent input; and parents on improved parent education and information.
Of the positive remark areas for administrative support, notable areas of support were as follows. Administrators focused AS praise on administration direct accessibility for problem-solving and information; teachers on administration openness to and cooperation with staff, teacher, and parent input; and staff on administration care, friendliness, supportiveness, helpfulness, and responsiveness (via staff) to parents and students, as well as on administration information usefulness, accuracy, and clarity.

4.2.10 ANS ranked 1

Availability of Needed Supplies was the least criticized area, for which negative comments made up only 12% of 116 total comments (i.e. 88% positive remarks). There were a total of 14 critical comments and 102 positive remarks.

Of the negative comment areas for availability of needed supplies, staff focused concerns on cost management for supplies, on their variety, and on their child-development quality; and teachers focused concerns on supply chain management.

Of the positive remark areas, parents focused their supportive comments on IMC's sufficiency of needed supplies (ANS), as well as on their child-development quality; staff compliments focused on ANS sufficiency, availability for teachers and students, and the quality of their preparation for class activities; teachers focused their compliments on ANS sufficiency and their age-appropriateness; and administrators were united in their praise for ANS sufficiency.

5. Discussion

5.1 Quantitative Results Discussion

Regarding overall stakeholder ratings comparisons, the average Likert rating for all stakeholder groups, across all questions, was 4.2 (ranging from 3.8 to 4.3). Thus, stakeholders, on average, viewed all surveyed IMC daily operations areas favorably, as 4.2 would be slightly better than a 'very good' rating.

The Likert questions for which there were significant differences in group responses suggest three conclusions. It is possible that IMC staff, in their positions *behind the scenes,* have a different perspective about the degree to which IMC students feel valued, having rated CSBV significantly lower than parents, teachers, and administrators. Exactly why staff perceive the that students feel less valued in IMC classrooms than other stakeholders is not clear. It is possible that staff experience the degree to which the administration supports IMC daily functions differently than other stakeholders, having rated AS significantly lower than parents, teachers, and administrators. Precisely why staff ranked administrative school support lower than other stakeholders is unclear. Finally, it is possible that parents experience the degree to which existing IMC educational technology and tools support daily classroom functions differently than other stakeholders, having rated ITT significantly lower than teachers and staff. Parents may feel that ETT are not supporting IMC well enough or that ETT are less essential, as compared to teachers and staff. And, since no significant difference was found between teacher and administrator ETT ratings, it is possible that these two stakeholder groups rated educational technology lower that teachers and staff for the same possible reasons delineated above or for different reasons entirely.

5.2 Qualitative Results Discussion

5.2.1 Critical comments
For all 10 categories of survey questions, critical comments tended to be consistent with stakeholders' natural interests. Several questions (below), however, garnered critical comments from administrators, staff, and / or teachers that were noteworthy and need further exploration.

5.2.1.1 Classroom conditions (CC). It is not clear exactly why no CC aspects rose to the level of concern for administrators, why staff seemed inordinately concerned with teacher-student connections and teacher preparation, why parents seemed overly focused on being able to observe their children surreptitiously during class time, or why teachers expressed a distinct concern over their own preparation time and curriculum guidance.

It is interesting that parents expressed a desire to secretly observe their children in the classroom, as there are competing concerns regarding classroom observation, including parent's rights to see their children's education, teachers' rights to professional privacy, and students' rights to privacy in the learning process. Although there are no reliable data confirming best practices, evidence suggests that teachers and parents need training to optimize parental involvement outcomes for children. Such training can make teachers more comfortable with parental involvement and teach parents how to best support their child's learning experience (Goodall & Vorhaus, 2010), especially given that kindergarten students can easily be distracted by parents' presence or the knowledge that parents are watching.

5.2.1.2 Parent-teacher meeting quality (PT). The origin of staff concerns about PT cooperation are not immediately apparent as staff do not appear to be directly involved in this relationship.

5.2.1.3 Physical safety. It is not clear what may have led administrators to make no major critical comments about safety, although a perspective of years of experience, improvements, and monitoring may be in play.

5.2.1.4 Quality of peer professional relationships (QPP). Clearly, IMC stakeholders viewed maintaining effective administrative leadership as a foundational element for QPP, although exactly why clearly needs to be explored in administrative policy development process.

5.2.1.5 Parental support (PS). It is not clear if parents' expressed concerns about *parental commitment* meant their own commitment or that of other parents. The source of staff concerns about parental support of school management are not immediately clear. It is not known why no aspect of IMC PS rose to the level of concern for administrators.

5.2.1.6 Administrative support (AS). It is not know why administrators evinced no criticisms of their own level of school support and that for other stakeholders.

5.2.1.7 Availability of needed supplies (ANS). The origin of staff concerns regarding supplies' costs, variety, and child-development characteristics is not immediately apparent. It is not clear why both administrators and parents submitted no critical ANS comments.

In sum, the precise nature of these parent, teacher, staff, and / or administrator heightened concerns (or lack thereof) are not clear. Further exploration may be useful, as such data could contribute improved administrative policy formulation for IMC daily operations.

Another not altogether unexpected, but not completely understood result was the keen interest in the day-to-day functioning of IMC displayed by the support staff. As a professional educator, head administrator at IMC, and author of this study, I have found that support staff are not only vital in their expected role of providing safe, hygienic, and well-organized classrooms and school grounds, but also play important roles in the daily lives of students, teachers, parents, and administrators. Indeed, *LeaderInMe,* a website that supports best practices in education, asserts that noncertified staff offer a diverse set of perspectives and experiences that can lead to better school environments (Leader, 2019). Clearly, this little-studied area needs further exploration.

5.2.2 Positive remarks.
For all 10 categories of survey questions, positive remarks made were consistent with stakeholder natural interests. Some notable themes across all stakeholder groups were as follows: a) support for the modernness of Educational Tools and Technology; b) defined praise for ease of Information Availability and equality of access; c) a clear priority on sufficiency of Availability of Needed Supplies; and d) distinct approval for direct access to the administration as an aspect of Administrative Support. Some notable areas of positive focus for different stakeholder groups were as follows: a) for teachers, monitoring was a prominent aspect of Physical Safety; and b) regarding Administrative Support, IMC staff seemed to highly prize their role in communicating information from the administration to parents and children. These results will be further explored in the post-study phase of administrative policy development.

5.2.3 Shared areas for concern and praise
It is notable that within both teacher's *safety* criticisms and compliments, monitoring was prominent. This is logical since safety monitoring for young children is an never-ending process for which there may be unexpected events with each new school day.

Within CSBV comments, it is notable that teachers showed focused concern and staff showed focused praise for IMC kindergarteners' abilities to control their emotions. This particular facet of childhood development, known as *delay of gratification,* has vast implications for emotional and cognitive well being well into adulthood. Research has consistently found that children who are able to delay short-term gratification in favor of longer-term rewards will enjoy greater overall success over the course of their lifetimes (Carlson et al., 2017).

5.3 Quantitative Significance Versus Qualitative Results

A comparison of quantitative and qualitative findings reveals that statistically lower ratings for three stakeholder groups for particular survey questions in the quantitative section may or may not have correlated with a greater variety of critical remarks from those groups for those respective questions in the qualitative section. This distinction depended on the exact nature of stakeholder views.

For example, staff rated Child Sense of Being Valued lower than teachers and parents, but made less and / or a lower variety of critical comments than teachers or parents, focusing almost exclusively on the supportiveness of the teachers and staff. In addition, staff rated Administrative Support significantly lower than teachers and parents, but made less and a lower variety of critical comments, focusing on improving administration updating of staff, as well as on improving openness to and cooperation with staff, teacher, and parent input.

In contrast, staff rated Child Sense of Being Valued lower than administrators, and made more and a greater variety of critical comments. Staff rated Administrative Support significantly lower than administrators and made more and a greater variety of critical comments. Parents rated Educational Tools & Technology lower than staff and teachers and made more critical comments than those two groups, which tended to focus on improving sufficiency and suitability of ETT.

5.4 Ultimate Use of Survey Results Discussion

5.4.1 Administrative policy formulation
Stakeholder interest, as highlighted by the richness of survey results, indicates that IMC needs to formalize its policy structure concerning various aspects of daily operations. While it would be wise to address all survey question topic response sets in terms of policy formulation, those where there was a significantly lower quantitative rating, as well as a greater number and / or variety of negative comments would certainly be logical place to start. These include lower staff ratings for Child Sense of Being Valued and Administrative Support, as compared to administrators, as well as lower parent ratings for Educational Tools and Technology, as compared to staff and teachers.

Policy formulation should also address survey questions where administrators made zero negative comments. In no case did other stakeholder groups submit zero negative responses to survey questions. Thus, it is clear there is a perceptual difference regarding certain IMC daily operational issues, which include Physical Safety, Classroom Conditions, Availability of Needed Supplies, Administrative Support, and Parental Support Quality. The basis for such perceptual differences needs to be clarified so that developed policies are relevant.

5.4.2 Administrative policy implementation
An OECD literature review study suggests a number of planning guidelines for educational policy implementation, which are adapted herein: a) focusing on a limited number of basic and measurable goals for each policy; b) using stakeholder monitoring to get ongoing and trustworthy data regarding the implementation process; c) using stakeholder feedback to adjust the implementation process; d) determining the proper resources for policy execution; e) formulating a practical schedule; and f) ensuring that plan requirements are sustainable for the duration of implementation (Viennet & Pont, 2017, p. 45).

5.4.3 Administrative delegation of authority
Policy implementation will include opportunities for the head administrator to delegate selected responsibilities to either teachers or staff. Viennet and Pont (2017, p. 45), as part of their coherent implementation of policy scheme, list several strategies that are relevant to delegation of authority regarding policy implementation in educational settings. These are adapted for the purposes of this study. The head administrator will consult with teachers and staff (key players) to: a) develop delegated responsibilities; b) make delegation practical; c) agree on the redistribution of responsibilities and tasks; d) build key players' capacity to take on delegated tasks; e) develop a fair accountability scheme; and f) develop or ensure clear and easy communication mechanisms for key players.

6. Conclusion

Private international kindergartens are often founded in circumstances that present an exceptional set of educational needs in terms of language, culture, religion, and economic factors. This may be the reason for the paucity of research regarding administrative policy implementation for daily operations at the private international kindergarten level.

Indeed, there are no comparable schools to IMC in all of Thailand. Nevertheless, the same basic need for effective administrative policy implementation exists in all private early-education settings. Therefore, the IMC study was able to suggest a number of new perspectives to the early-childhood administrative community, which include the following; 1). What seems like mundane aspects of everyday school functions are actually important to those who experience these features on a regular basis, as the concern for young students' daily health and welfare is of equal importance to pedagogical issues. 2). It is valuable to include all potential stakeholder input when gathering school daily operation feedback, as it gives an opportunity for those who have ideas or concerns to be heard and have influence, regardless of their level; 3). It is not only the differences between different stakeholder group's input regarding everyday aspects of school functioning, but also the similarities, that help administrators address gaps, but also continue to build on existing best practices; and 5). Stakeholder answers can be used to build more comprehensive information that helps administrators respond to stakeholder concerns, through responsive policy formulation and implementation.

7. Recommendation

Regarding future, related survey research, it is recommended that question structure and vocabulary be extensively checked for clarity, especially in a multi-language setting, to reduce the need for follow-up, clarification interviews. Conclusions reached were limited to correlations and patterns found in one institution. However, it is clear that this original research is a valuable step in improving administrative policy implementation at the private international kindergarten level.

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Application of the Zoom Meeting Application in Online Learning During the Pandemic

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Abstract
In the midst of the Covid-19 pandemic outbreak, almost all Indonesians, including Bengkulu province, expect to experience the spike in positive cases of Covid-19, particularly in the Rejang Lebong Regency, resulting in many very significant changes in almost all fields, especially in the field of education. The learning process, consisting of synchronous learning, is carried out internet (online), namely face-to-face by video calls/ zoom meetings and asynchronous, namely by assignments. Using observational data methods, interviews, and notes, the research approach used is a qualitative research method. The aim of this study is to provide some explanations of the use of the zoom meeting application during a pandemic in online learning, to evaluate the constraints of using the zoom meeting application and the benefits of the application for zoom meeting from several features during a pandemic in online learning. The findings of this study show that it can be easier for lecturers and students to interact synchronously in the learning process by applying the zoom meeting application to learning during this pandemic.

Keywords: Zoom Application, Conference, Online Learning, Covid-19 Pandemics

PRELIMINARY

Currently the Covid-19 pandemic that is taking place in Indonesia has caused many very significant transformations in almost all fields to experience the negative impact of the conditions experienced in the current pandemic conditions (Atsani, 2020). The surge in positive cases of Covid-19 is also felt in the economic sector and in the field of education, there are many changes that have occurred at this time. The spread of the inclusion of the Covid-19 virus in Indonesia, especially in Bengkulu province, Rejang Lebong district, has made related institutions and governments have to present other ways in the learning process. Therefore, in education this creates a new system in terms of providing material for the learning process in order to keep education going well through synchronous and asynchronous learning processes.

This online educational activity uses a synchronous education system and asynchronous. In the application of the learning process, for now, there are only two options, namely synchronous and asynchronous learning, because

the learning process requires the learning process to adjust to practicing learning from home via online media. It is not uncommon for students, educators, lecturers, students and moreover parents to be so unprepared, because the education system, which initially studied face-to-face, is now all done online. Starting with the existence of a policy from the government that requires working from home, studying from home, or also worshiping from home. This situation requires learning institutions to continue implementing the latest innovations in the educational process. One form of this innovation is by implementing education online (Astini, 2020).

Online learning, of course, requires media as a means of learning both in schools and colleges, of course, by using various applications to facilitate the delivery of learning material. Some of these applications include zoom meetings, google Classroom, Jitsi Meet, Google Meet, Whatsapp and so on (Haqien & Rahman, 2020). According to (Indiani, 2020) The various media that have been presented in several applications are not certain to create optimal output. There are many aspects that must be prepared in the online media education process so that it can be maximized, not only from the readiness of educators but the selection of applications in online media is an important factor in the implementation of the learning process.

This learning is so that it can be synchronized into the presentation and explanation of the material, namely through the zoom application. Zoom is a free HD application with video and screen sharing for up to 100 people and even more and is also a learning medium using video and audio. And this application can also be used in a variety of mobile devices, leptops, and netbooks, so for now the zoom meeting application is an option for lecturers and students alike. Thus, from this application, lecturers can ensure their students take part in learning at the same time, even though in different places.

The use of information technology is very helpful in the learning process during the Covid-19 pandemic (Astini, 2020). Because since the beginning of the pandemic that occurred in Indonesia, many universities and schools have started using this online learning system. One of the colleges that uses an online learning system, namely the Curup State Islamic Institute (IAIN), is currently implementing a learning system through the Zoom Meetings application. The teaching and learning system uses the Zoom application via a smart phone or computer device. This system is carried out to anticipate the spread of the covid-19 virus in Rejang Lebong Regency, Curup so that the learning system can continue to run smoothly even though using online media.

This study aims to determine how to apply the zoom application in online learning during the pandemic to educators or lecturers who teach at the Curup State Islamic Institute (IAIN). In online learning activities by utilizing the zoom meeting application, according to (Haqien & Rahman, 2020) there are two theories that can review the learning activity process, namely about changing behavior seen from an experience and emphasizing the formation of behavior seen from the learning process. This theory in education also becomes a foundation in the learning process. Because in the learning process, of course, communication is definitely carried out by the lecturer and the student or the student and the lecturer in the learning process through the zoom meeting application.

There have been many studies that have examined the application, constraints and advantages of the zoom meeting application, but each region must have its own method and problems in using the application. Research conducted by (Hutauruk & Sidabutar, 2020) entitled Obstacles to Online Learning During the Pandemic Period Among Mathematics Education Students: A Descriptive Qualitative Study examines the obstacles faced by students during the online learning process at a private tertiary institution in North Sumatra. The findings of the research are that the obstacles faced by students are fundamental, including obstacles in the field of internet networks, limited features of online learning applications, and obstacles in terms of learning services.

The obstacles that are owned by this zoom meeting application are in addition to the internet network. However, it is also related to their involvement during the learning process, namely the expenditure of large internet quotas, and difficulties in the monitoring process or the process of developing student understanding related to the material that has been delivered by the lecturer. These findings can be related to the research by the author because in this discussion it is not only the problem of internet network problems but how to monitor the

development of student understanding regarding the presentation of the material that has been delivered by the lecturer.

The next research article by (Nasir, Bagea, Herlina, & Safitri, 2020) with the title Maximizing the "Breaking Rooms" Feature in Early Childhood Education during the Covid-19 Pandemic, in this study only aims to compile a guide for setting breakout rooms for teachers in maximize the use of the zoom meeting application, and conduct due diligence. From these findings, it can be related to findings from researchers about the advantages of several features possessed by the zoom meeting application in the learning process during a pandemic, apart from the breaking rooms feature.

An article by (Herawati, Gulyanto, & Sudarti, 2020) entitled Application of Zoom Application to Indonesian Language Student Speaking Skills Material that using the zoom meeting application is applied to speaking skills material for students of the Indonesian language and literature education process and this application was applied when the Indonesian government decided to make rules for the whole community to keep their distance and not hold mass activities anywhere. And in this study students must be able to use the zoom application properly, so that the material presented by the lecturer can be understood and applied in life. So that in this case there needs to be an understanding and also understand how to implement the zoom meeting application.

The need for each of the research journals that have been previously mentioned is related to a collection of theories and references that either support or do not support research. The several journals that were collected were shown so that the research carried out became stronger, because the content contained in each journal could be used as a reference. Thus, it can be concluded that the research to be carried out is relatively new and has not been much done by previous researchers.

RESEARCH METHOD

This research is a qualitative descriptive research that aims to examine the condition of natural objects and emphasize understanding the deep meaning of a symptom (Sugiyono, 2018). And also using the interview method, observation and documentation. This research is a research that is used to collect information and data with the help of a variety of materials sourced from journals and from books. To support the data, interviews, observations and in-depth documentation were conducted to several lecturers at the Curup State Islamic Institute (IAIN). So that the purpose of this study is to determine the application of the zoom meeting application in online learning during a pandemic, the constraints of using the zoom meeting application in online learning during a pandemic and the advantages of the zoom meeting application apart from being used in virtual terms in learning from during the pandemic at the Islamic Institute of Religion. Negeri (IAIN) Curup.

RESULTS AND DISCUSSION

The spread of the covid-19 virus in Indonesia has had a major impact on the education sector. So that from many provinces, including Bengkulu province, the related institutions and government must present other ways in the learning process. Activities that involve large numbers of people are now starting to be limited, especially in Rejang Lebong district. The government has urged for now in learning activities both at school and in other universities and also activities such as meetings or seminars to still use the online system until the issuance of the latest circular so as not to increase the number of patients exposed to Covid-19.

The Minister of Education and Culture, Nadiem Makarim, followed up on circular number 4 of 2020, concerning the implementation of education policies in the emergency period of the spread of Covid-19. In this case the second point states, the learning process from home is carried out with the following conditions: a) Learning from home through online/distance learning is carried out to provide meaningful learning experiences for students without being burdened by the demands of completing all curriculum achievements for grade promotion and graduation; b) Learning from home can be focused on life skills education, including regarding the Covid-19 pandemic; c) Activities and learning assignments from home may vary between students including considering gaps in access to learning from home, d. Evidence or products of learning activities from home are given

qualitative and useful feedback from the teacher, without being required to give a score or quantitative value (Menteri Pendidikan, 2020).

This learning process system must also be balanced with an increase in lecturer competence. The students faced by lecturers today are millennial generation students who are aware of the existence of technology, therefore lecturers must also be required to always improve scientific competence and carry out innovations or updates on educational procedures. And while students have to improve their readiness to learn independently because online learning uses more self-directed learning, so students' self-directed learning becomes important (Wilson, 2020).

Online learning is divided into two, namely synchronous learning and asynchronous. In implementing the learning process, for now there are only two options, namely synchronous and asynchronous learning, because in the education level it requires the learning process to adapt to implementing learning from home through online media. Learning online can use digital technology such as applications that help guide the learning process such as zoom meetings, google meet, google classroom, or even live chat and so on. But what is certain to be done is by giving assignments or what is called asynchronous learning through monitoring mentoring by lecturers via WhatsApp group so that students or students really do their job.

The discussion of research data is obtained in the form of interview data, observation, documentation and also some literature references from journals through this data. The discussion formulation of the application of the zoom meeting application in online learning during the pandemic is divided into three aspects. the first aspect, regarding how to apply the zoom meeting application in learning, the second aspect, the constraints of using the zoom meeting application in online learning during the pandemic, and the third aspect of the advantages of using the zoom meeting application in online learning during the pandemic, focused on several features that facilitate the learning process online.

1. *Application of zoom meeting application in online learning during pandemic.*

Online learning is a learning process that is electronic or online-based. One of the media used in online learning can be via a smartphone or android and a computer developed in the form of a web, so that it is then developed into a wider computer network, namely the internet so that the presentation of the online learning process can run interactively (Suhery, Putra, & Jasmalinda, 2020).

In dealing with this new normal era, various efforts were made by the Curup State Islamic Institute (IAIN) campus so that the learning process continues to run effectively and interactively. So in this case, that the learning carried out by lecturers and students carries out video conferences using the zoom meeting application media. According to, Mr Dr. Fakhruddin M.Pd.I as the Director of Postgraduate who is also a lecturer at IAIN Curup stated that the application of the zoom meeting application in learning can be understood that learning in this network is done indirectly because we use the internet network with certain applications for transformation and communication. in learning. In fact, online learning has been around for a long time or has been used frequently for several courses and at other universities. Meanwhile, at the IAIN Curup campus, it happened that during this pandemic period it was finally forced to post online learning.

The process of applying zoom meeting media in the learning process is almost applied in every subject on the Curup State Islamic Institute (IAIN) campus. In the application of the zoom meeting application in a process it is necessary to prepare a syllabus, RPS, then prepare teaching materials to be shared with students via WhatsApp group, then to go through the learning process using the zoom meeting application so that in this pandemic period it is effective to use the zoom meeting application media. Meanwhile, according to Mrs. Asri Karolina, M.Pd.I, in the learning process it is necessary to make an attendance list using google form and create a zoom link to make it easier for students to enter the zoom meeting. So that the application of the use of the zoom meeting application is by first explaining to students then students participate to respond and explain and present the results of their observations or interviews. So that in addressing this, what encourages researchers to be

interested in examining how the application of the zoom meeting application in online learning during a pandemic.

So it can be concluded that the application of the zoom meeting application in online learning makes it easier for students and lecturers to implement learning. First, what must be done in the online learning process through the zoom meeting application is to create a link to share with students via the whatsapp group. Second, allowing students to click the zoom link to enter the zoom meeting with the approval of the meeting host. Third, lecturers begin to share learning materials to be discussed together according to the material contained in the syllabus and RPS. Then for each course there must be a division of groups so that it requires groups to present the material to be delivered so that students remain active in the learning process.

2. *Constraints from using the zoom meeting application in online learning during the pandemic*

Every application of zoom media that is applied to each course must have obstacles which are the main factors, such as students having difficulty getting an internet network, internet quota is increasingly wasteful, and so on (Herawati, Gulyanto, & Sudarti, 2020). Meanwhile, according to Mr Dr. Fakhruddin, M.Pd.I, of course, has become a common problem, namely the network. Because sometimes different cards or the use of these cards also cause difficulties when holding a zoom meeting such as "why don't you come in?", There is a problem in the signal, then difficulties in the monitoring process or the process of developing student understanding related to the material that has been delivered. Then the independence of students in the lecture process, sometimes students are also constrained when they want to provide the media. So that the need for understanding and the ability of students to carry out online lectures does not occur in terms of their competence. But the problem is with the network. The same thing was stated by (Haqien & Rahman, 2020) that the use of the zoom meeting application has several obstacles, namely the signal is not supportive for students who do not use a wifi signal and frequent strange sound disturbances that interfere with learning activities when turning on the voice. So it can be concluded that in using this zoom application there are obstacles, namely the most dominant in the application or use of the zoom meeting application in online lectures, this is a signal that is sometimes less supportive.

Meanwhile, according to (Anugrahana, 2020) that the problem with using the zoom meeting application is that when communicating via zoom, sometimes the signal is not smooth and the network becomes an obstacle in collecting tasks. Meanwhile, according to (Rosyid , Thohari, & Lismanda, 2020) the most dominant obstacle in using the zoom meeting application is dominated by user devices. Likewise, with the use of this application, of course there are several kinds of obstacles that can hinder the process of taking online lectures using the zoom meeting application. So it can be concluded that the most dominant obstacles in the application or use of the zoom meeting application in online lectures, including that many students are constrained by signals, large internet quota expenditures, and difficulties in the monitoring process or the process of developing student understanding related to it. with the material that has been delivered.

3. *The advantages of using the zoom meeting application in online learning during a pandemic are focused on several features that make the learning process easier*

Zoom Meeting is a communication application that uses various devices both cellular and deskop and in this application is also used to conduct face-to-face remotely with a large number of participants. The zoom meeting application also has its advantages, there are several features that make it easier for users in the learning and teaching process, including:

   a. Video and Audio Features
      This zoom application has video and audio that has the resulting image and sound quality because it is supported by high definition or HD quality. So that according to (Mustopa & Hidayat, 2020) in this application it can be used so that lecturers can see students while teaching and can interact via audio voice. With the ease of application, lecturers and students are trained to be more creative and active in carrying out the learning process during a pandemic.
   b. Share Screen feature

This share screen feature can make it easier for lecturers and students to share or present material in the form of power points, words and so on so that in this case they can display presentation slides through this feature.

c. Breaking Rooms feature

According to (Chandler, 2016) that breaking rooms are virtual spaces that are separate from the main room on the zoom meeting application. With breaking rooms, lecturers can provide more personal time for students to carry out activities, discuss together and facilitate work independently. In addition, lecturers can also enter the "room" if students need clarification or support about an assignment so that the interaction in this feature can also provide a peer-to-peer learning experience which is very valuable for building a solid group. By dividing students into small groups, this will reduce the distance between lecturers and students. So it can be concluded that the Breaking Rooms feature makes it easier for lecturers and students who are in the zoom to easily discuss and share in groups.

d. Security Features

In this zoom there is an end-to-end encyption feature that can be used by all meeting participants via the zoom application, making the security of its users unquestionable because additional security can be obtained from a password that only the user knows the password for, then recordings and transcripts in In this zoom, meeting participants can also record meetings that are zoomed in so that they can be saved on their respective devices or on a cloud account.

e. Scheduling Features

This zoom application can also schedule video conferencing to be carried out according to the agenda or activities so that users can start a video conference or meeting through their Outlook, Gmail, or iCal account.

So that in some of these explanations, the features contained in this zoom application make it easier for everyone to use them, starting from arranging meeting agendas or video conferences as well as in managing the learning process that makes it easier for lecturers and students to continue to be able to teach and learn in the current pandemic situation.

CONCLUSION

Based on the results of the research above, the researcher concludes that in the application of the zoom meeting application, steps are needed in the use of the zoom meeting application in the online learning process. This can make it easier for lecturers and students to transform and communicate in the learning process through the zoom meeting application. And based on the discussion of this zoom meeting application, it is quite appropriate, because even though long distance lecturers and students can carry out synchronous learning activities in online learning during this pandemic. Whereas in terms of constraints, there are several types of obstacles that are most dominant in the application or use of the zoom meeting application in online lectures, including many of the students are constrained by signals, large internet quota expenditures, and difficulties in the monitoring or processing process. development of student understanding related to the material that has been delivered. In addition, in using the zoom application, it turns out that this application also has advantages, namely it has several features including HD video and audio, share screen features, breaking rooms, security features, recording and transcription features, scheduling features between teams that can make it easier for users. in carrying out the learning process activities.

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Teachers' and Students' Perception of Students' Rating as a Tool for Evaluating Language Instruction in College of Education, Warri, Nigeria

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Abstract

This study was designed to investigate teachers' and students' perception of students' rating as a tool for evaluating language instruction in College of Education. It examined the percentage of teachers and students who perceived students' rating as a tool for evaluating language instruction; it also tested to ascertain the significant differences in the perception of students' rating as a tool for evaluating teachers' language instruction. The population of the study comprised all the fourteen (14) lecturers and all the two hundred and twenty one (221) Nigeria Certificate in Education (NCE) students of the English Department, College of Education, Warri in the 2015/2016 academic session. The manageable size of the population informed the researchers' choice of purposively using the entire population as the sample for the study. Two research questions were answered and three research hypotheses were tested at 0.05 level of significance. Two instruments titled Teachers' Perception of Students' Rating (TPSR) with a reliability coefficient of 0.68 and Students' Perception of Students' Rating (SPSR) with a reliability coefficient of 0.87 were used to gather data for the study. The data collected were analyzed using descriptive statistics, t-test and Analysis of Variance (ANOVA). The result of the study showed that there is no significant difference in the perception of NCE students on students' rating as a tool for evaluating teachers' instruction but data analysis revealed a significant difference in the perception of NCE students of different academic levels on students' rating as a tool for evaluating teachers' instruction. Furthermore, there is no significant difference in the perception of teachers of different academic qualifications and years of teaching experience on students' rating as a tool for evaluating teachers' instruction. It was concluded that students' rating of teachers' instruction should be adopted for quality education and academic excellence instead of the use of publications, paper presentation at conferences and workshops attendance for annual performance evaluation for teachers in College Education, Warri and similar institutions.

Keywords: Teachers, Students, Perception, Rating Tool, Evaluation, Language Teaching

Introduction

Academic staff in tertiary institutions may have neglected the teaching aspect of their primary assignment due, in part, to the proverbial "publish or perish" syndrome, Consequently, pedagogical activities suffer and grades are awarded arbitrarily whether or not students are taught or guided to learn (Idaka, Joshua & Kritsonis, 2006). This

seeming lack of interest in what transpires in the classroom may be a serious factor in the quality of graduates produced. Monitoring and evaluation of their teachers, student classroom behaviour is therefore necessary if higher education is to achieve its objectives. Currently the institutions annual performance evaluation by heads of department and faculties are prevalent. Not much attention is paid to other forms of evaluation including student's evaluation of their teachers, yet student evaluation may be an important indicator of teaching effectiveness.

Evaluation is a key element in assessing the output of education programmes and consists of objective assessment of projects, programmes or policies at all of its stages, i.e. planning, implementation and measurement of outcomes. It should provide reliable anduseful information allowing curriculum planners at all levels to apply the knowledge thus obtained in the decision making process (Beran & Rokosh, 2009; Griffin & Cook, 2009). Evaluation is normally divided into two broad categories formative and summative. Formative evaluation sometimes referred to as internal evaluation, is a method for judging the worth of a programme while its activities are in progress. This kind of evaluation focuses on the process, with main purpose to spot deficiencies so that the proper learning interventions that allow the learners to master the required skills and knowledge can take place (Joshua & Joshua, 2006; Napkodia, 2011). Evaluation is also useful in analyzing learning materials, student learning and achievements, and also teachers' effectiveness. On the other hand summative evaluation sometimes referred to as external evaluation is a method of judging the worth of a programme at the end of the programme activities. The focus is on the outcome which could be in students' performance and as judged by teachers' effectiveness.

Students' rating of teachers' instruction in tertiary institutions as an effective tool for teachers' evaluation has attracted papers from scholars within and outside Nigeria such as Hill, Lomas &MacGregor, (2003) and Nakpodia, (2011). These spectrums of study empirically highlight the validity and relevance of students' rating of teachers' instruction which has continued to be a controversial process of - evaluating teachers' effectiveness. These controversies need to be addressed to avoid committing errors in evaluating teachers' instruction in tertiary institutions like showing that a teacher has adequate teaching skills when he does not and, failure to observe the presence — of teaching skills in a teacher when the teacher actually possesses such skills.

The principal goal of education should be creation of men and women, who are capable of doing new things, not simply repeating what other generations have done and the object of education is to teach us to love beauty (Plato, 380 B.C.E). It is the mark of an educated mind to be able to entertain a thought without accepting it. Aristotle, (330 B.C.E). Education is freedom not just preparation for life, but life itself says Dewey(1938). Consequently, education is what survives when what was learnt has been forgotten. Education must therefore be directed towards self-reliance, change and innovation. The importance of sound education to the wellbeing of mankind cannot be over emphasized. Ajzen & Nja, (2011) posit that sound education involves effective teaching. This is an activity that promotes student learning, which includes instructors' behaviors that foster students' learning of the instructor's and/or of the institution's educational objectives These include curriculum development, teaching, advising, and supervision of students' research as well as c1assroomperformance. How effectively are these being carried out? There are different ways of carrying out evaluation of teachers' effectiveness in the classroom. These include, students' rating, a situation where a group of students from a course are interviewed by other faculty members about their experiences in different courses. A structured format is followed and naturally, a consensus view of the nature of the course, its strengths, weaknesses, and problems emerged.

According to Hill et al (2003) and Beran, Violato, Kline & Frideres (2005), results of students' rating of their lecturers are a matter of perception. How do the students perceive their lecturers? How do they perceive the importance and utility value of their rating their lecturers? Also, how do the lecturers perceive students' rating of them as lecturers? Students' perception of classroom instruction is their sensory experience of the world of teaching and learning around them. Education is the bedrock of any developing society like Nigeria. An educational institution formal or informal represents agents of positive change. Change, according to different concepts has been constant and consistent over time. Nakpodia, (2011) and Idaka et al., (2006) reiterate that the one continuing purpose of education, since ancient times, has been to bring people to realize what it is to develop

the intellect, to serve social needs, to contribute to the economy of a country, to create an effective work force, to prepare students for jobs or careers and to promote social or political systems. However, the purpose of education has changed from that of producing a literate society to that of producing a learning society, to provide for the fullest possible development of each learner for living morally, creatively, and productively in a democratic society and to teach learners how to think intensively and critically. In its best practices education is targeted towards creating a relatively permanent change in an individual, the learner. The expected changes in the learner must be evaluated and determined by employing well defined and transparent methods (Joshua & Joshua, 2006).

In Nigeria today, serious concern has been expressed by parents, lecturers, employers of labour and the entire society about the quality of graduates from universities and other tertiary educational institutions. Several reasons have been suggested for the poor quality but no consensus has been reached as to the effect of classroom interaction on the quality of our graduates.

The Concept of Students' Rating

The work of Griffin and Cook (2009) reveals that the most celebrated and most regularly used method in developed and developing countries is the student rating of teachers' instruction. The studies of Beran & Rokosh (2009), Nesser and Fresko (2002) and Arthur (2009) have shown that strict student evaluation practices have been part of higher education in these countries for decades. From the above it is obvious that evaluation of instruction means that students as consumers of instruction are made to express their opinion and feeling concerning the effectiveness of the lecturer's instructional process and activities during the semester and the extent to which they benefited from that process. In addition quality assurance in teaching should be the main objective of universities and colleges and methods ofeva1uating teachers' classroom instruction should critically consider students' rating a valid and reliable method According to Nakpodia (2011) and in agreement with Banda (2012), the evaluation of lecturers' instruction should include the evaluation of efficiency in the relevant subject matter, communication skills, commitment to facilitating students learning and the degree of concern for individual students. Therefore, the best approach to the evaluation of lecturers should be the students' rating system where the students would assess and determine the skills and effectiveness of their teachers among other methods. The rating of the lecturers by the students on variables that have to do with their professional qualifications and ethics will help to check such moral vices prevalent in our tertiary institutions as sexual harassment, and commercialization of scores and grades (Banda, 2012), concluded. Students are the consumers of teaching consequently, are in a better position to evaluate teaching effectiveness. Teaching effectiveness up till now (notably in Colleges of Education) is carried out by means of the Annual Performance Evaluation Report (APER) which is not an effective source of information about academic staff emotional stability and moral standing with students (Nakpodia 2011).

Usefulness of Students' Rating of Teachers

As at today the most important benefit of student evaluation is the feedback that it provides directly to instructors, to enable them refine their courses and teaching practices as to provide students with better learning experiences. Students' evaluation of instruction according to Banda (2012) can play a positive role in improving the climate of teaching and learning. Students' evaluation can also show instructors what they are doing right and what they are not doing right and suggest areas for improvement. With the increasing emphasis on students' rating of teachers' instruction, colleges and universities are currently putting on good teaching as a result of its use for designating, honoring and rewarding good teachers (Joshua & Joshua, 2006; Nakpodia, 2011). It is therefore hoped that the use of students' ratings will increase in other climes, Nigeria inclusive. For some members of the academic staff, students' evaluation of teachers classroom instruction whether sponsored by the university or college administration, faculty board or students' union government are not reliable, not valid, or useful, and may even be harmful. Arthur (2009) sums up his finding and observations on student's rating of teaching that Student's ratings of teachers' instruction is clearly multidimensional, quite reliable, reasonably valid, and relatively uncontaminated by many variables, often seen as sources of potential bias and are seen to be useful by students, faculty, and administrators.

Research Questions

To investigate teachers' and students' perception of students' rating as a tool for evaluating Language Instruction in the College of Education, the following questions were raised.
1. What percentage of teachers perceives students' rating as a tool for evaluating language instruction in College of Education, Warri?
2. What percentage of students perceives students' rating as a tool for evaluating language in College of Education, Warri?

Hypotheses

The research questions were hypothesized as follows.
Ho_1 There is no significant difference in the perception of teachers of different academic qualification on students' rating as a tool for evaluating language instruction
Ho_2 There is no significant difference in the perception of students of different levels on students' rating as a tool for evaluating language instruction.

Methodology

This research used the descriptive survey design. Subjects in the study comprised 221 NCE students and 14 teachers in the department of English in the College of Education, Warri. Two instruments made by the researchers were used to elicit information from the respondents. They were the 221 and 14 copies of questionnaires tagged Students' Perception of Students' Rating (SPSR) and Teachers' Perception of Students' Rating(TPSR)respectively. In order to validate the instruments and determine their suitability for this study, they were subjected to expert appraisal and criticism by a Language Education specialist and a specialist in Measurement and Evaluation to ascertain face and content validity. Reliability check of the instruments was done via a pilot study using 45 NCE students and 20 teachers from English department of the College of Education, Agbor, Delta State. Cronbach's Apha reliability test was used in calculating the reliability coefficient of both SPSR and TPSR. Reliability coefficient of 0.87 and 0.68 respectively was obtained which showed that both instruments were reliable for use for the study.

Data Analysis

The Four-Point Likert Scale was used and the weightings were Strongly Agree (SA) = 4, Agree (A) = (D) =2 and Strongly Disagree (SD) = I. Descriptive statistics, t- test statistics and Analysis of Variance (ANOVA) statistics were employed in the analysis of data collected.

Table 1: Number of NCE students in the different academic levels

Academic level	Number	Percentage
100	65	29.4
200	85	38.5
300	71	32.1
Total	**221**	**100**

Table 1 presents the academic levels of the NCE students. From the total sample of 221students, 65 (29.4%) were in 100 level, 85 (38.5%) were in 200 level and 71(32.1%) were in 300 level.

Table 2: Teachers by their academic qualifications

Academic qualification	Number	Percentage
Ph.D	2	14.3
M.Ed/M.A	12	85.7
B.Ed/B.A	-	-
Total	**14**	**100**

Table 2 above showed the different academic qualifications of the teachers who taught the NCE students. Two (2) which represented the 14.3% held Doctorate Degree while twelve (12) which represented 85.7% were Masters Degree holders.

Research Question 1: What percentage of teachers perceived students' rating as a tool for evaluating language instruction in College of Education Warri?

Table 3: Descriptive statistics showing the percentage of teachers who perceived student's rating as a tool for evaluating language instruction in College of education Warri

Response	Number	Percentage
Do not perceive students' Rating as a tool	5	35.7
Perceive students' Rating	9	64.3
Total	**14**	**100**

Table3above presented the percentages of teachers who perceived students' rating as a tool for evaluating language instruction. Five (5) teachers representing 35. 7% of the population of the teachers showed lack of awareness of the rating tool, while nine (9) teachers representing 64. 3% of the population of the teachers claimed to be reasonably aware of the rating tool.

Research Question 2: What percentage of students perceived students' rating as a tool for evaluating in College of Education Warri?

Table 4: Descriptive Statistics Showing the Percentage of Students who Perceived Students' Rating as a Tool for Evaluating Language Instruction in College of Education Warri

Response	Number of Students	Percentage of students
Do not perceive students' Rating as a tool	**5**	**2.3**
Perceive students' Rating	216	97.7
Total	**221**	**100**

Table 4above presents the percentages of students who perceived Students' Rating tool for evaluating language instruction. Five (5) students representing 2.3% of the sample displayed little or no knowledge of the rating tool, while two hundred and sixteen (216) students representing 97.7% of the sample display having adequate knowledge of the rating tool.

Hypothesis 1: There is no significant difference in the perception of teachers of different academic qualifications, on students' rating as a tool for evaluating language instruction.

Table 5: T-test for independent samples showing differences in the perception of teachers of different academic qualification on students' rating as a tool for evaluating language instruction

t	df	Sig. (2-tailed)
.085	12	.934

N=14

The table above reveals that the computed **t** value of .085, significant at .934 and it is greater than the 0.05 level of significance. Therefore, the null hypothesis which states that "there is no significant difference in the perception of teachers of different academic qualifications, on students' rating as a tool for evaluating language instruction" is accepted

Hypothesis 2: There is no significant difference in the perception of students of different levels of study on Students' Rating as a tool for evaluating language instruction

Table 6: ANOVA Showing the Differences in the Perception of Students of Different levels of Study on Students' Rating as a Tool for Evaluating Language instruction

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	426.065	2	213.033	5.667	.004
Within Groups	8195.184	218	37.593		
Total	8621.249	220			

N= 221

The table above shows an F-value of 5.67 which is significant at 0.04. The probability value of .004 is lower than the 0.05 level of significance. Therefore, the null hypothesis which states that "there is no significant different in the perception of students of different levels of study on students' rating as a tool for evaluating language instruction' is rejected.

Table 7: Post Hoc Tests Showing Multiple Comparisons of Students' Different Level of Studies and their Perception of Students' rating as a tool for evaluating language instruction

(I) Level		Mean Difference (I-j)	Std. Error	Sig.
100 Level	200 Level	-.919	1.010	.661
	300 Level	-3.384*	1.053	006
200 Level	100 Level	919	1.010	.661
	300 Level	-2.464*	.986	.046
300 Level	100 Level	3.384*	1.053	.006
	200 Level	2.464*	.986	.046

*The mean difference is significant at the 0.05 level.

Table 7 presents Multiple Comparisons, in the column labeled Mean difference (I-J) the mean difference values accompanied by asterisks indicate that students' level of study differs significantly from each other at the 0.05 level of significance. The results indicate that the 300 level NCE student's perception on student's rating is significantly different from both 100 and 200 levels NCE students.

Discussion of Findings

This study which examined teachers' and students' perception of students rating as a tool for evaluating language instruction in College of Education Warri, revealed teachers' positive awareness of students' rating as a tool for evaluating language instruction as shown in research question one, table 3. A good number of lecturers in College of Education Warri, confirmed awareness of the rating tool. This corroborated the assertions of Idaka et al (2006) that Nigerian lecturers are not different from their counterparts in developed countries. However, those lecturers who displayed negative awareness of the rating tool may have done so deliberately for personal reasons as the rating tool to some lecturers is an aberration. Perhaps also it is as a result of the level of maturity of students vis-a-vis their teachers who may see the students as immature to the extent that they may not perceive teaching effectiveness accurately. This is also in agreement with the finding by Joshua and Joshua (2006) that some members of academic staff have negative attitude towards students' evaluation of language instruction. According to this group, it is an invasion of their academic freedom for anyone to interfere into how they are teaching their courses and what results their teaching is producing in the learners and whether there could be room for improvement.

The findings from research question 2 as presented in table 4 also reveal students' awareness of students' rating as a tool for evaluating language instruction. This may be as a result of peer discussion, interaction with the learning environment and self- development. This finding supports Hill et al. (2003) and Nakpodia (2011) that students in a number of disciplines perceive students' rating of teachers' instruction as quality education. They

also opine that students will humbly appreciate teachers who have a good grasp of their course content, well organized, and are interesting to talk to. They will also be grateful to teachers who give feedback to them during the session and in assignments and also will show respect to teachers who are easy to be with and help them to learn. However students who displayed negative awareness of students' rating as a tool for evaluation may have done so as a result indecision. The scenario at hand is a typical example of students' divergent perception on the subject-matter according to their levels of study but in total support of it. The higher the students' level of study, the more knowledge and support they displayed for students' rating as a tool for evaluating teachers' instruction (Beran & Rokosh, 2009; Griffin & Cook, 2009). The 300 level students displayed good awareness of students' rating as a tool for evaluating teachers' instruction, followed by 200 level students and 100 students respectively. The reason could be attributed to years of interaction with the school environment, the more interaction the students had with the environment' the deeper the students' knowledge on their rights and privileges. Nakpodia (2011) and in agreement with Banda (2012).

The t – test for independent samples showing differences in the perception of teachers by academic qualification on students' rating as a tool for evaluating language instruction, was run to determine if there is a significant difference. The analysis on table 5shows that hypothesis one which states that "there is no significant difference in the perception of teachers of different academic qualifications on students' rating as a tool for evaluating language instruction" is accepted. This is based on the fact that the computed t value of .085, significant at .934 is greater than the 0.05 level of significance. This is in agreement with the studies of Nakpodia (2011) and Banda (2012) that many lecturers notwithstanding their academic qualification are disposed to students' rating as a tool for evaluating language instruction. This may be as a result of job satisfaction exposure the current and emergent issues in education and commitment to work.

Hypothesis two as table 6 shows is rejected. This is based on the fact that the Analysis of Variance (ANOVA) shows an F-value of 5.67 which is significant at .004 lower than the alpha level of 0.05. It therefore concludes that there is a significant difference in the perception of students of different levels of study on students' rating as a tool for evaluating language instruction. This finding corroborates Arthur (2009) who sums up his finding and observations on student's rating of teaching that Student's ratings of teachers' instruction is clearly multidimensional, quite reliable, reasonably valid, and relatively uncontaminated by many variables, often seen as sources of potential bias and are seen to be useful by students, faculty, and administrators.

Summary

The study is primarily designed to find out the perception of teachers and students on students' rating as a tool for evaluating language instruction in collage of education Warri. To achieve the purpose of the study two(2) research questions were answered and two (2) hypotheses were tested.
The results of the study revealed that:
- Nine (9) teachers representing 64.3% showed positive awareness of students' rating as a tool for evaluating language instruction while five (5) representing 35.7% showed lack of awareness.
- Five (5) students representing 2.3% of the students displayed negative awareness of the rating tool while two hundred and sixteen (216) students representing 97.7% of the students display positive awareness of the rating tool.
- There is no significant difference in the perception of teachers of different academic qualifications, on students' rating as a tool for evaluating language instruction.
- There is a significant difference in the perception of students of different level of study on students' rating as a tool for evaluating language instruction.

Conclusion

Based on the findings of the study the following conclusions were drawn: that many teachers as well as students had knowledge of student's rating as an evaluation tool, although they had not experienced it. Academic qualification of teachers did not negate their perception of students' rating of their work. Student's different levels of study affected their perception of students' rating as a tool for effective evaluation.

Recommendations

There is need to institutionalize students' rating of classroom instruction in the school system. Students as consumers of classroom instruction should be given opportunities to express their opinions and feelings concerning the teaching effectiveness of their teachers. To foster academic excellence in classroom instruction in the college of education, students' rating of teachers' effectiveness should be introduced as one of the instruments for academic staff annual evaluation. The report of such rating should be made known to members of staff and students so as to encourage self-appraisals and improvement in teaching and learning. If students' rating of teachers' instruction is put in place in the colleges of education and similar institutions of learning the entire educational system will become a citadel and a place for academic excellence.

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The Effect of Expository and Cooperative Learning Strategies on Student Learning Result in Class X Office Governance Automation of State Vocational High School I Palembang

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Abstract
The purpose of this study was to determine the effect of expository learning strategies and cooperative learning strategies that can affect student learning result in archiving subjects in class X Office Governance Automation of Vocational High School 1 Palembang. The total population of 96 students, the 96 students were sampled in this research. This research technique is by conducting observations, questionnaires and documentation. This study consisted of three variables X1, namely expository learning strategy, cooperative learning strategy variable X2. Then variable Y student learning results. Based on the results of the ANOVA test or F test, the results of the study show that H0 is rejected and Ha is accepted, meaning that there is a significant effect of X1 expository learning strategy and X2 cooperative learning strategy together on student Y learning result in Archives class X Office Governance Automation Middle School subjects. Vocational State I Palembang. It is recommended that educators make efforts to make improvements and improve the quality of the teaching and learning process in order to obtain better learning result. Therefore, appropriate learning strategies are needed to realize effective learning.

Keywords: Expository Strategy, Cooperative, Learning Results

1. Introduction

The rapid development of science and technology or often called science and technology has led people to the 4.0 industrial revolution which currently demands the creation of quality human resources (Religion & Gunungkidul, n.d.) including learning carried out by teachers where researchers carry out this research. Furthermore, another opinion explains that the demands of the industrial era 4.0 work world can only be fulfilled if graduates become human resources forged from an educational process that meets educational standards 4.0 (Putra et al., 2019). This means that teachers must be professional, who have the obligation to plan learning, carry out a quality learning process and assess and be able to evaluate learning outcomes (Square, 2019) Another

opinion also says that teachers can create a conducive learning atmosphere (Dewi & Riswanto, 2019), Gestiana et al. explained that teachers also provide guidance so that it can encourage students to be enthusiastic, active in the learning process (Ragin et al., 2020). From some of the opinions above, it is very clear that a teacher is required to be a highly professional individual in improving the quality of future generations.

In the learning and teaching process, the teacher pays attention to aspects related to the achievement of learning objectives including learning strategies (Fakhrurrazi, 2018). There are several previous studies on expository and cooperative learning strategies on learning outcomes including: Budianto, et al. Showed a significant influence in the use of expository strategies on student learning result in the material of the nervous system in class XI IPA (Budianto & Arbaini, 2018). Novi et al. analyzed the application of expository learning strategies on physics learning achievement, only 3.33% achieved student learning completeness (Dewi & Riswanto, 2019). This means that the expository learning strategy is not appropriate to use in learning physics. Contrary to Afnan's opinion, who revealed the results of his research, that expository learning strategies can improve student learning result in physics (Afnan, 2018). Sudarsana, conducted research on the effect of cooperative learning models on improving the quality of learning outcomes, and the results showed no significant effect, both on cognitive, effective and psychomotor learning outcomes (Sudarsana, 2018). The results of research conducted by Muhlis et al., differ slightly, that there is a significant influence between the cooperative learning model and learning outcomes and learning motivation (Inapi, 2018). Research by Rina et al., in examining the use of Expository and cooperative Learning Strategies that students who have low independence provide better English learning outcomes when compared to the STAD Cooperative Learning Strategy (Jou et al., 2019). It can be concluded from this study that the expository strategy is more appropriate to use than the cooperative strategy in the teaching process of English.

With a variety of learning strategies applied in the teaching process to students can motivate the independence of students in learning, this was emphasized by Nurhayati that there was a significant influence on the application of cooperative learning strategies on learning outcomes of the Qur'an and Hadith (Sataloff et al. al., nd). Rosdiati argues that the JIGSAW cooperative learning strategy can improve the quality of learning in Economics but has not been able to improve student learning achievement completely, so this research recommends when using cooperative learning strategies, the teacher must be really careful to choose the subject in order to obtain optimal results (Rosdiati, 2020). In line with the findings of research conducted by Masyudi et al, that there are differences in student learning outcomes in Arabic subjects. Where the expository learning strategy is higher when compared to the cooperative learning strategy on Arabic learning outcomes (Masyudi, 2019),

Based on the phenomenon of the research results from several researchers above, it was revealed not because the students' abilities were low so that students were not active, but because the teacher learning strategies applied were not in accordance with the situation and conditions of students and teachers were less skilled at the time of choosing the subject to be delivered with expository or cooperative learning strategies. Therefore it is necessary to have research to reveal and describe expository and cooperative learning strategies in archiving subjects. The results of the search have not been conducted research using a compilation of both expository and cooperative learning strategies. The virtue of this research is that the compilation of both expository and cooperative learning strategies can make the most appropriate choice to carry out an effective learning process, so that it can improve student learning outcomes, especially in the era of the COVID-19 pandemic. So that researchers raise this problem in a study with the formulation of the problem as The following, the Effect of the Application of Expository and Cooperative Learning Strategies on Student Learning Outcomes in Class X Office Governance Automation Archival Subjects at Vocational High School 1 Palembang.

2. Method

The research was carried out at Palembang I Vocational High School, South Sumatra, and the population in this study were all students of class X Automation of Office Administration for Vocational High School 1 Palembang in the academic year 2020/2021, which consisted of three classes, with a total of 96 students. So, using total sampling, the researcher took the sample, and the researcher determined that the number of samples was all class X Office Governance Automation, which amounted to 96 students. The data analysis technique

used in this study is quantitative and employs statistical methods. The data analysis technique used in this study is quantitative and employs statistical methods (Herawati et al., 2019). Taking into account that the research data from 96 class X Office Governance Automation students at Palembang 1 Public Vocational High School were processed using parametric statistics. To perform metric statistical analysis, the data must be normally distributed and have the same or homogeneous variance, so tests for normality, homogeneity, and linearity are required. After the data has been collected, it will be processed and tested using the F test (Hitung = 9,315, 2018).

In this study, test questions and questionnaires were used as instruments (Masyudi, 2019). The test was carried out to determine student learning outcomes in archiving subjects using material about implementing procedures for using archiving equipment. The researcher created 40 questions for the test based on the guidelines in the syllabus, Lesson plan. The 40 questions were developed based on bloom's taxonomic level, which includes cognitive, affective, and psychomotor aspects. So, before distributing the test questions and questionnaires to be tested on the respondents, the validity and reliability are first tested (Jou et al., 2019). As a result, students who learned using expository learning strategies received 33 valid questions, while students who learned using cooperative learning strategies received 35 valid questions. while 34 questionnaire statements were distributed to 96 students in order to determine the effect on student learning outcomes.

3. Results and Discuss

This study was carried out at Palembang 1 Public Vocational High School. All students in class X Palembang 1 Public Vocational High School participated in this study. The data used in this study were the learning outcomes of class X Palembang 1 Public Vocational High School. This study's sample size was 96 students. This study had three variables: the class that was learning using an expository learning strategy, which was given a test of 33 multiple choice questions, and the class that was not learning. Furthermore, the class that is learning through cooperative learning strategies is given a test consisting of 33 multiple choice questions. Then, on student learning outcomes (variable Y), respondents were given a questionnaire with 34 statements.

a. Variables Affecting Student Learning Outcomes

The results of the variable Y analysis show that the average value for the variable student learning outcomes is 147.03; the standard deviation is 7,084; the median is 147.00; and the mode is 147.00. These data show that the mean, median, and mode counts are not significantly different. Table 4.3 shows more information about the variable frequency distribution of student learning outcomes in class X Palembang 1 Public Vocational High School: While the frequency of the histogram is shown in the figure below:
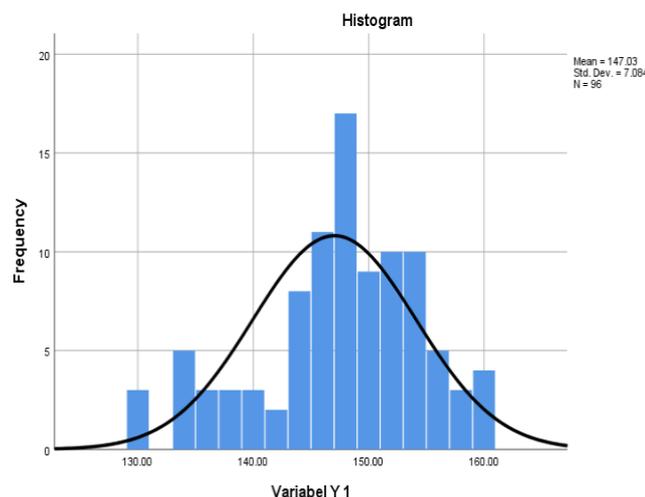
Figure 1: Histogram Graph of Student Learning Outcomes

Based on the graph above, the frequency distribution of student learning outcomes, the data distribution tends to be normally distributed, as seen by the curve in the middle. Despite the fact that there is a slope, it is easily classified.

b. Expository Learning Strategies That Vary

The lowest score was 55, and the highest score was 100, based on the results of the analysis of the expository learning strategy variables through the test instrument as many as 33 multiple choice questions given to 96 respondents, then from the data collected after being processed, the mean value for the expository learning strategy variable was 77, 38; standard deviation: 10.52; median: 76.00; and for mode 76. These data show that the mean, median, and mode arithmetic mean are not significantly different.
While the frequency of the histogram can be seen in the figure below :
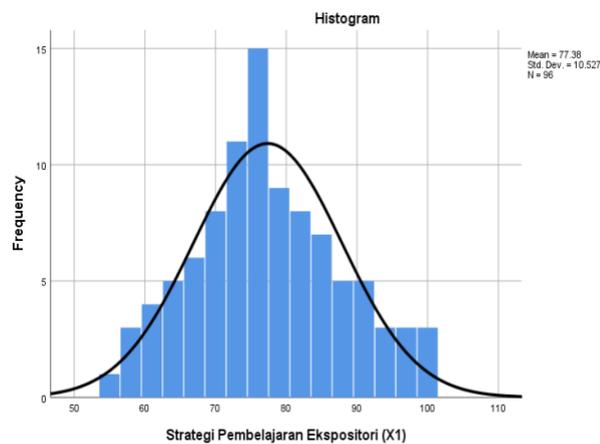
Figure 2: Expository Learning Strategies Histogram Graph

The graph above shows that the frequency distribution of the expository learning strategy variable is normally distributed; the curve is in the middle, forming a bell-like image that can be well classified.

c. Variables in the Cooperative Learning Strategy

According to the findings of the analysis, the mean value for the cooperative learning strategy variable is 81.49; the standard deviation is 9.34; the median is 83.00; and the mode is 80.00. These data show that the mean, median, and mode mean are not significantly different, as shown in the table below:
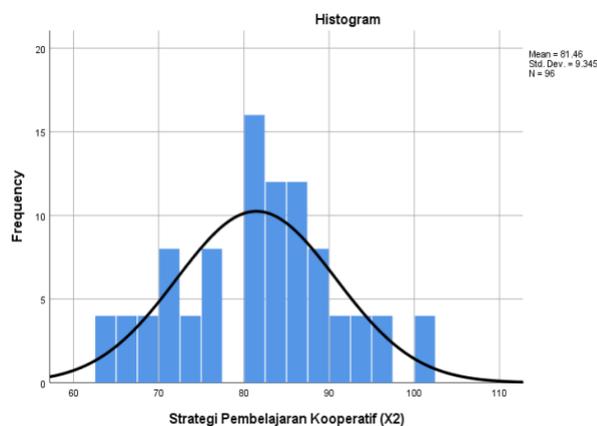
Figure 3: Cooperative Learning Strategies Histogram Graph

The graph above depicts the frequency distribution of the cooperative learning strategy variable, the data distribution tends to be normally distributed, and the curve is in the middle, forming a bell-like image; although there is a slope, it can be classified as good.

1. Test Requirements Analysis

a. Normality Test

The Kolmogorov-Smirnov statistic, also known as the K-S test, is available in the SPSS program for testing the normality of data distribution. The following table illustrates how to test the normality of data distribution.

Table 1: The Results of the Homogeneity Test

		Student learning outcomes (Y)	Expository Learning Strategies (X_1)	Cooperative Learning Strategies (X_2)
N		96	96	96
Normal Parameters(a,b)	Mean	147,03	77,38	81,49
	Std. Deviation	7,084	10,527	9,345
Most Extreme Differences	Absolute	,119	,104	,103
	Positive	,057	,104	,078
	Negative	-,119	-,058	-,103
Kolmogorov-Smirnov Z		1,168	1,019	1,013
Asymp. Sig. (2-tailed)		,131	,250	,257

It is obtained for the student learning outcomes variable (Y) by the sig value. (2-tailed) for kolmogorov-smirnov = 0.131, for the expository learning strategy variable (X1) by the sig value. (2-tailed) for kolmogorov-smirnov = 0.250, and for the cooperative learning strategy variable (X2) by the sig value. (2-tailed) for kolmogorov-smirnov = 0.257. As can be seen, the sig. > 0.05, it can be concluded that the variable data is normally distributed and its regression can be examined.

b. Homogeneity Test

Furthermore, the homogeneity test was performed to ensure that the data came from a homogeneous population by using the Chi-Square test and determining a significance of 5% (= 0.05). The interpretation of data homogeneity is calculated using the Asymtotic Significance value. If Asymp. Sig. > 0.05, the data is said to be homogeneous, as shown in the table below.

Table 2: The Results of the Homogeneity Test

	Student learning outcomes (Y)	Expository Learning Strategies (X_1)	Cooperative Learning Strategies (X_2)
Chi-Square(a,b,c)	39,417	32,000	29,125
Df	24	15	13
Asymp. Sig.	,205	,235	,350

It was obtained using Asymp for the student learning outcomes variable. Sig = 0.205, whereas Asymp = 0.205 for the expository learning strategy variable. If Sig = 0.235, then the Asymp. for the cooperative learning strategy variable is Sig is equal to 0.350. As can be seen, sig. > 0.05 indicates that the population has a homogeneous variance, allowing regression analysis to proceed.

c. Linearity Test

When the regression obtained is used to make conclusions between the variables being analyzed, the linearity test is used to determine whether it is "meaningful." The One-way Anova SPSS program was used to test the linearity of the independent variables and the dependent variable. The linearity test employed a 5% significance level (= 0.05). Data interpretation is performed if F-count is greater than 0.05 and the independent variable and dependent variable have a linear relationship, as shown in the table below.

Table 3: X1 and X2 Linearity Test Results with Y

			Sum of Squares	Df	Mean Square	F	Sig
Unstandardized Residual *Unstandardized Predicted Value	Between Groups	(Combined)	3864,462	78	49,544	1,857	,076
		Linearity	,000	1	,000	,000	1,000
		Deviation from Linearity	3864,462	77	50,188	1,881	0,072
	Within Groups		453,667	17	26,686		
	Total		4318,129	95			

Depending on the sign value. In the line Deviation from Linearity table ANOVA above, it is obtained sig. = 0.072 is greater than = 0.05, then H0 is accepted, indicating that the student learning outcome variable (Y) has a linear relationship with the expository learning strategy variable and the cooperative learning strategy, so regression analysis can be continued.

2. Statistical Analysis (Inferential)

In this study, inferential statistical analysis was used to determine the effect of the variables expository learning strategies and cooperative learning strategies on student learning outcomes. As a result, multiple linear regression analysis is employed. The results of data processing using SPSS 25.0 are shown in the table below.

Table 4: Correlation analysis and coefficient of determination for X1 and X2 with respect to Y

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,307(a)	,094	,075	6,814	,094	4,833	2	93	,010

In the table above, the R value is 0.307, indicating that the influence of the variable expository learning strategy and cooperative learning strategy on student learning outcomes is low and positive.

Table 5: Regression analysis for X1 and X2 with Y

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	172,046	8,117		21,196	,000
	Strategies Learning Ekspositori (X1)	-,151	,066	-,224	-2,268	,026
	Strategies Learning Cooperatif (X2)	-,164	,075	-,216	-2,190	,031

The regression equation is derived from the table above as follows:

$\hat{Y} = 172{,}046 + 0{,}224X_1 + 0{,}216X_2 + e$

a) A constant of 172.600 indicates that the student learning outcome score (Y) is 172.046 if the expository learning strategy (X1) and cooperative learning strategy (X2) are ignored.

b) The regression coefficient X1 of -0.224 states that each additional one unit score of the expository learning strategy (X1) increases the learning outcome score by -0.224, implying that the expository learning strategy has a linear effect on student learning outcomes by -0.022 percent.

c) The X2 regression coefficient of -0.216 indicates that each additional one unit score of cooperative learning strategy (X2) increases the learning outcome score by -0.216; in other words, the cooperative learning strategy affects student learning outcomes linearly by -0.021 percent.

The hypothesis test

The simultaneous F test is used in this study to determine whether all independent variables have the same effect on the dependent variable. If the significance probability is greater than 0.05, H0 is accepted; if the significance probability is less than 0.05, H0 is rejected. The results of the F test are shown in the table below.

Table 6: Results of Simultaneous Tests (Test F)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	448,777	2	224,389	4,833	,010(a)
	Residual	4318,129	93	46,431		
	Total	4766,906	95			

The following are the study's hypotheses:

$H_a : \rho_0 = \rho_1 = 0$: Expository learning strategies and cooperative learning strategies have an effect on student learning outcomes in archiving subjects at Palembang 1 Public Vocational High School: class X Office Governance Automation .

$H_o : \rho_0 \neq \rho_1 \neq 0$: Expository learning strategies and cooperative learning strategies have no effect on student learning outcomes in archival subjects in class X Office Governance Automation of Vocational High School Palembang 1 Public Vocational High School.

The Fcount is 4,833 with a significance level of 0.010 based on the ANOVA test or F test results. Ftable 3.094 is obtained by inspecting Ftable with degrees df = 2-1 and df = n-k (df = 96-2) at a significance level of 0.05. Because the probability (0.010) is much lower than the probability (0.05), and Fcount > Ftable. This demonstrates that H0 is rejected and Ha is accepted, indicating that there is a significant effect of expository and cooperative learning strategies combined on student learning outcomes in the Archive subject of State Vocational High School 1 Palembang's class X Office Governance Automation

a. **Student Archive Learning Outcomes Using Expository Learning Strategies in class X Automation of Vocational High School Office Management 1 Palembang.**

The test results of 96 students in class X Office Governance Automation of Palembang 1 Public Vocational High School, the lowest score was 55 and the highest score was 100 with the average value obtained 〖x〗_1 = 77.38 and the standard deviation value of S1 = 10.52, This demonstrates that the results of archiving learning using the expository learning strategy in the experimental class 1, which are class X Office Governance Automation students of Palembang 1 Public Vocational High School, are categorized as sufficient.

Previous research by Budianto (Budianto & Arbaini, 2018)found that there is a significant effect on learning outcomes in science subjects in the human nervous system, with an average value obtained x _1 = 74.80 and a

standard value deviation S1 = 7,7. This means that using expository learning strategies can help students learn better. Being actively involved in expository learning strategies qualifies as sufficient because expository learning strategies necessitate students thinking independently (Budianto & Arbaini, 2018) .As a result, the study's findings indicate that there is consistency between previous research and student learning outcomes that occur in the field using expository learning strategies, which are categorized as sufficient.

b. Student Archive Learning Outcomes Using Cooperative Learning Strategies (Variable X2) in Automation of Senior High School Office Governance for Pembina 1 Palembang class X.

The test results were given to 96 students in class X Automation of Senior High School Office Governance for Pembina 1 Palembang, with the lowest score being 63 and the highest score being 100, with an average value of x _1 = 81.49 and a standard deviation of S1 = 9.34. This demonstrates that the results of archiving learning using cooperative learning strategies in experimental class 2, which consists of class X Office Governance Automation students from Palembang 1 Public Vocational High School, are rated as good.

Previous research (Budianto & Arbaini, 2018) found a significant effect on learning outcomes in science subjects with an average value of x _1 = 80.1 and a standard deviation of S1 = 11.64. This means that cooperative learning strategies are categorized as good because cooperative learning strategies are a type of learning that is used to train teamwork and be creative with mind mapping, and students become more active and directly involved in the teaching and learning process. As a result, the study's findings indicate that there is consistency between previous research and student learning outcomes that occur in the field using cooperative learning strategies that are categorized as good.

c. Student Learning Outcomes

In this study, particularly in the student learning outcomes variable, 96 respondents were given 34 statements via a questionnaire. The researcher used the Google Form application to administer the questionnaire. Researchers can use this application to distribute questionnaires in the form of a link, which will then be distributed via the application *Google Class Room.* The researcher's implementation goal was to determine how much influence the expository learning strategy and cooperative learning strategy had on the learning outcomes of Palembang 1 Public Vocational High School class X Office Governance Automation students.

Based on the results of calculations tested with SPSS, the learning outcomes variable is created, in which respondents are given as many as 34 statements via a questionnaire, with the lowest score being 130 and the highest score being 160. The average score for the variable student learning outcomes is then 147, 03. In addition, the standard deviation is 7,084.

d. The Effect of Expository Learning Strategies and Cooperative Learning Strategies on Student Learning Outcomes

After calculating the three variables, the next hypothesis testing shows that "there is a significant influence between expository learning strategies and cooperative learning strategies together on student learning outcomes in archiving subjects in class X Automation of Office Administration for Vocational High School I Palembang ". This is evidenced by the results of the ANOVA test or F test, it is obtained that the F_{count} is 4,833 with a significance level of 0.010. While F_{table} 3.094 is obtained by looking at F_{table} with degrees df = 2-1 and df = n-k (df = 96-2) at a significance level of 0.05. Because the probability (0.010) is much smaller than 0.05 and F_{count}> F_{table}. So thus it can be stated that H_0 is rejected and H_a is accepted, meaning that there is a significant effect of expository learning strategies and cooperative learning strategies together on student learning outcomes in archival subjects in class X Office Governance Automation of State Vocational High School 1 Palembang.

This study is supported by several previous research results, such as research conducted by Budianto et al. Afnan et al. The research results revealed that there was a significant influence between expository strategies on student learning outcomes with the same subjects. Then Muhlis et al, Nurhayati et al, and Rosiati revealed the findings

of their research that there was a significant effect of cooperative learning strategies or models on learning outcomes even with different subjects.

This study rejects the results of research conducted by previous researchers such as Novi et al. Novi et al described the results of their research that the expository learning strategy was not appropriate to use in learning physics. Sudarsana did not have a significant relationship between cooperative learning strategies and learning outcomes seen in the cognitive affective and psychomotor domains. Then Marsyudi, Rina et al, in their research by comparing expository and cooperative learning strategies to student learning outcomes simultaneously, but found different results. Where the expository learning strategy is better or significant for learning outcomes, when compared to cooperative learning strategies for learning outcomes.

4. Conclusion

According to the findings of the experiment, "there is a significant influence between expository learning strategies and cooperative learning strategies combined on student learning outcomes in archival subjects in class X Office Governance Automation State Vocational High School 1 Palembang." This means that expository learning strategies and strategies for cooperative learning outcomes can improve student learning outcomes in archiving subjects in Vocational High School 1 Palembang's class X Office Governance Automation. This is supported by the ANOVA test or F test results, which show that the Fcount is 4,833 with a significance level of 0.010. Ftable 3.094 is obtained by examining Ftable at a significance level of 0.05 with degrees df = 2-1 and df = n-k (df = 96-2). Because the probability (0.010) is much smaller than the probability (0.05), and Fcount > Ftable. As a result, it can be stated that H0 is rejected and Ha is accepted.

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Developing Critical Thinking Skills in Elementary School Students Through Foreign Language Education: An Action Research

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Abstract

People constantly practice the act of thinking. They may not think about everything, yet they certainly think of something and make decisions. Critical thinking is a sort of reflective thinking. It is controlled and aimed at perfect thinking. It enables the self-realization of individuals in social life. Therefore, it is important to develop critical thinking at school stages and early ages. The purpose of this research was to investigate "the effect of foreign language learning activities on critical thinking skills of 4th-grade students". To achieve this purpose, researchers tried to answer these questions: (1) What is the effect of critical thinking activities on students' critical thinking? (2) What is the effect of critical thinking activities on students' personal definitions of critical thinking and critical thinker? (3) What is the effect of critical thinking activities on students' social skills? The method of this research is action research which is considered highly important for educational sciences. In the course of this research, activities for developing critical thinking skills were implemented to 4th grade students. 25 4th grade private elementary school students participated in the research. Researchers used 13-question "Critical Thinking Skill Open-ended Questionnaire" to collect data. The answers given to the open-ended questionnaire before and after the activities were analyzed using content analysis, and themes and codes were determined accordingly, thereby answers of the students are compared. It is noted that before implementation, most of the students did not have any idea about critical thinking or they thought critical thinking has a negative connotation; however, after implementation, they gained more positive and open-minded opinions about this term.

Keywords: Critical Thinking, Thinking Skills, Foreign Language Lessons

Introduction

Recent technological advances lead to many advantages. The most important one is "fast" and "multi-channeled" information flow. Constant information production, easy access to information and being able to spread the information quickly to large masses changed the social structure and the needs of society. Producing information is now an indicator of social power. Nevertheless, information production is related to the skill of

accurately filtering the information. In a world of constant information flow, people must filter the information before being certain about it. The most important competences expected from today's people are adapting to the rapidly changing order and making rational decisions. At this point, "higher-order thinking skills" are considered to be vital. People may not think about everything, but they always think of something. Reflective thinking is what we call as useful thinking (Fisher, 1995). Thinking is a constant activity that sometimes occurs wittingly but mostly unwittingly. People think on the bus, while walking, working, listening to music, daydreaming and especially while deciding, and every single act of people is an outcome of thinking. Humankind differs from other species with its ability to think, and tries to understand its own existence, and can shape its own future through the information obtained. (Akar & Kara, 2016, p. 1340). Within the context of this research, thinking was emphasized as systematic thinking. There are several different definitions of this type of thinking. For instance, while Çubukçu (2004) defines thinking process as transferring the surrounding phenomena and facts into symbols, Akar and Karaca (2016) defines thinking as intellectual activities that people perform while they seek a solution to the problem they encounter, and they underlined its importance during the process of managing, arranging, implementing of these activities. Essentially, the more our thinking skills develop, the better our ability to interpret, explain and judge by comparing our experiences gets. The process of thinking begins with asking. Because from a different perspective, thinking is feeling dissatisfaction as a result of experiences, benefiting from cognitive ways to overcome this dissatisfaction and proceeding from here (Gömleksiz and Kan, 2009). In the course of thinking, people use numerous abilities. These can be identified as reaching existing information, analyzing this information, evaluating analyzed information and producing new information as a result of this process (Güneş, 2012).

As it is understood from these definitions, main emphasis of thinking is on the fact that it is an "intellectual" process. As for the concept of skill, it can be defined as having information about a particular subject and performing on the basis of this information. Therefore, thinking can be accepted as a skill whereas thinking skills can be considered as having information about above mentioned cognitive processes and ability to practice this information in daily life. When Lipman (2003) defines thinking skills, he underlines that it is a long process which includes special and general abilities, making deductions and skills of comprehending irrelevant differences, inductive reasoning, finding systematic thinking whilst discussing different possibilities, problem-solving ability and removing the obstacles generated from these problems, evaluating and determining the criteria to evaluate (as cited in Tok & Sevinç, 2012, p. 68). Given these definitions, it can be concluded that thinking skills are multidirectional. Everyone can think; however, not everyone can have these skills and use them effectively. On the other hand, by its features, thinking skills can be later acquired and developed. Güneş (2012), states that thinking is associated with improving our standards of life and what we do in life, and she emphasizes that disorganized thoughts stand in one's way to success. Therefore, understanding and internalizing the thinking skills are important for not only one's education but also for one's self-realization in society, since people with undeveloped thinking skills may cause negative situations for the society. People need thinking skills to generate ideas about life and make decisions; what is more, these skills are the foundation of lifelong learning and achieving success (Mercer, Hockly, Stobart & Gales, 2019).

Adapting to the 21st century conditions is directly related to the development of thinking skills. Being one of these skills, critical thinking should not be considered as "disliking" and "negative commenting," which most people tend to interpret as. Critical thinking is not a negative and destructive way of thinking or an effort to find fault and condemn. Being in complete denial and refusing everything should not be understood while talking about critical thinking. Critical thinking is a systematic process including cognitive and rational assessment. It encourages people to develop their thinking structures by asking the right questions. Learning to think critically means (Fisher, 1995, p.65):
- Learning how to question, when to question and what questions to ask,
- Learning how to reason, when to use reasoning and what reasoning methods to use.

Cottrell (2017) defines critical thinking as a set of activities requiring reasoning. Helperm (2014) identifies critical thinking as "targeted thinking including making decisions, considering the possibilities, organizing the results and problem-solving" (as cited in Seah & Beencke, 2019, p. 3). Critical thinking is a disciplined and controlled way of thinking to achieve the perfect thought (Gök & Erdoğan, 2011), and through this complex

process, high-level cognitive thinking methods are required (Güven & Kürüm, 2006). According to the pioneers of the field - Paul, Elder and Bartell (1997), critical thinking is thinking with the help of evaluation skills and in line with making correct deductions to reveal the real value of something.

One of the founding fathers of the critical thinking movement in North America, Robert Ennis, has identified 12 aspects. There are given below, each with a related question that can help in the critical analysis of an idea (Fisher, 1995, pp. 68-69):

1. Grasping the meaning of a statement – is it meaningful?
2. Judging whether there is ambiguity in reasoning- is it clear?
3. Judging whether a statement contradict each other- is it consistent?
4. Judging whether a conclusion follows necessarily-is it logical?
5. Judging whether a statement is specific enough- is it precise?
6. Judging whether a statement applies a principle- is it following a rule?
7. Judging whether an observation statement is reliable – is it accurate?
8. Judging whether an inductive conclusion is warranted – is it justified?
9. Judging whether the problem has been identified – is it relevant?
10. Judging whether something is an assumption – is it taken for granted?
11. Judging whether a definition is adequate – is it well defined?
12. Judging whether a statement taken on authority is acceptable- is it true?

As it can be understood from the above-listed features, critical thinking is based on obtaining information through effective ways, analyzing and the ability to adapt to life (Özdemir, 2017).

People who grew up with critical thinking skills can look at things from different perspectives and question the accuracy of their opinions. If a person does not question the accuracy of the obtained information, research its resource and validity, and filter this information, s/he can get lost in information chaos (Söylemez, 2016, p. 672).

Critical thinking can be developed in people; for this reason, schools - one of the most important sources of our education, and teachers - the practitioners of education, play a vital role to enhance this skill in children. Critical thinking skill education should start at early ages and this skill should be activated constantly with different techniques. In today's world of the information society, teachers became the executives who also act as a guide to direct group studies, and consequently develop critical thinking skills (Balay, 2004). A teacher with these qualifications can apply questioning, reasoning and collaborative teaching activities apart from traditional teaching methods. Adults who grew up with these activities can reflect these skills to the society as well.

Conducted research on critical thinking presents the importance of development of these skills in early ages. Akar and Kara (2016) studied critical thinking skills of 4th grade students and examined this skill with different variables. Outcome of the research conducted with 261 4th grade students showed that students have a medium level of critical thinking skills. Korkmaz and Yeşil (2009) aimed with their research to determine students' level of critical thinking in accordance with their school levels. The participants were final year students of elementary, middle and high schools (4th, 8th and 12th grade). Data were collected with the California Critical Thinking Disposition Inventory. At the end of the research, it was seen that students in each group have a medium-level critical thinking and critical thinking disposition. Another finding of the research was middle school education has a negative impact on students' critical thinking level and disposition.

Gürdoğan (2010) investigated the prospective contribution of using current issues in 5th grade students' Social Sciences lessons to their critical thinking skills. The study was conducted by using mixed model, and quantitative data were collected by experiment with pretest-posttest control group. And for qualitative data, semi-structured interview questions were used. It is concluded from the research that while using current issues increases critical thinking skills such as analysis, evaluation, deduction and interpretation, it leads no change in explanation and self-regulation.

Akran and Babaoğlu (2019) studied the impact of the Allosteric Learning Model in English lessons on students' reflective thinking skills of critical thinking and problem-solving. The study was conducted with the participation of 5th grade students. Data were collected both quantitatively (pretest-posttest paired sample pattern) and qualitatively (case study pattern). According to the findings, posttest scores of experimental group students who practiced the Allosteric Learning Model had a significant positive difference compared to the pretest scores.

Ay and Akgöl (2008) aimed with their research to record the correlation between gender, age and grade variables on critical thinking skills. The study, conducted with 1379 student participants, concluded that female students have a higher level of critical thinking compared to male students, and critical thinking increases with age.

Kahraman (2008) investigated the relationship between critical thinking skills of 4th and 5th grade students and students' perception of teachers' in-class democratic attitude. The researcher worked with 344 4th and 5th grade students to determine the relationship between students' critical thinking levels and teachers' in-class democratic attitude. Data were collected with Cornell Critical Thinking Skill Test Form X and Democratic Classroom Management Scale. According to the result of this research, there was no significant relationship between students' critical thinking skill levels and students' perception of teacher's democratic attitude.

As it can be seen from the above-stated studies, existing studies in this field with elementary students are mostly survey research conducted to determine disposition and attitude. Whereas, there are also experimental research studies conducted with the aim of increasing students' critical thinking levels by using a particular method. There isn't enough study that are conducted in accordance with the units and activities in textbooks and integrated with the lesson specifically. It is concluded from the literature review that studies with the aim of determining teacher candidates and teachers' critical thinking disposition are more in the field. Therefore, in this research, critical thinking skills enhancing activities were designed in foreign language lessons to develop 4th grade students' critical thinking skills, and consequent changes in their critical thinking skills were observed.

The aim of this research was "determining the effects of foreign language teaching activities on 4th grade students' critical thinking skills". With this aim in mind, these questions were selected to be answered; (1) What is the effect of critical thinking activities on students' critical thinking? (2) What is the effect of critical thinking activities on students' personal definitions of critical thinking and critical thinker? (3) What is the effect of critical thinking activities on students' social skills?

Method

Model

Action research, a qualitative research method, was used in this research. Action research is very important in educational sciences as it acts as a bridge between theory and practice (Johnson, 2002). Action research is conducted by professional researchers. Participants are selected from the parties of the determined problem. Action research aims to establish precautions to fix the situation through critical evaluation of practices. (Karasar, 2003). Within the context of educational research, Johnson (2014) stated that action research process is consisted of these stages: determining a problem or a study subject, planning for data collection, collecting data, analyzing and organizing data, reporting the data, presenting judgement and suggestion, making action plan, implementing and evaluating this action plan. McNiff and Whitehead (2006) list these stages as follows: realizing the problem, defining the problem, thinking of possible solutions, testing these solutions, monitoring the action while collecting data to observe the changes, evaluating the development by generating procedures to make judgements about the change. As it is noted by Kemmis and McTaggart and Nixon (2013) and Berg (2001) in the body of literature that even though there are various ways of planning or classification in action research, basic steps of action research are similar. Pelton gathered these similarities of action research in five basic steps (Pelton, 2010):

Step 1: Issue identification, Step 2: Data collection, Step 3: Action Planning, Step 4: Plan activation, Step 5: Outcome assessment. In conclusion, action research starts with identifying an issue or a format to be examined during the process of practice. Any bothering situation for the practitioner in practice environment (a classroom or organization), process to be developed, a new approach to be tried are potential resources for action research. Pelton's five basic steps were followed in this research.

Study Group

The study group consisted of 25 4th grade students who attended a private school in 2019-2020 school year. There were 12 girls and 13 boys. One of them is 8, 18 of them are 9 and the rest are 10 years old. In determining this group, the convenience sampling method was applied. In this method, because of the limitations due to some factors (time, work force, etc.), the sampling is chosen from the participants who are reachable and available for applications (Fraenkel, Wallen, & Hyun, 2011). In the convenience sampling method, the researcher starts from the participants who can be reached easily and tries to reach the sampling number in the goal (Büyüköztürk et al., 2008).

Data Collection Tools

Researchers prepared an open-ended questionnaire to use before and after implementation. Literature review was conducted and critical thinking measurements accepted by the body of literature were scanned before preparing the open-ended questionnaire (Kökdemir, 2003; Valenzuela, Nieto and Saiz, 2011; Akın, Hamedoğlu, Sarıçam, et al., 2013; Sarıgöz, 2014; Semerci, 2016). In line with the items of reviewed measurements and critical thinking skill competences, 15 open-ended questions were written. Questions were edited in accordance with the comments of 4 professionals in Educational Sciences and English Language Teaching, and 13-question "Critical Thinking Skill Open-ended Questionnaire" took its final shape.

Action Process and Applications

1. Issue Identification

Pelton (2010) considers the first step as the discovery of limitless possibilities a researcher can identify and examine. The first researcher of this study works as a teacher of English at a private school in 2019-2020 school year. The researcher instructs 4th grade students and provides English lessons. The researcher also has a 3-year experience in teaching foreign language to children. Throughout the lessons she provided in a school year, she monitored students' behaviors and inspected their thinking skills. As a result of her investigation, she concluded that 4th grade students need to improve their thinking skills, especially critical thinking. She intended to search students' knowledge of critical thinking, examine their emotions towards this topic and see the eventual change if students gain awareness on this subject. She also wanted to see the prospective contribution of activities carried out in English lessons - researcher's own branch - to students' 21st-century skills. Therefore, she decided to search this subject with her instructor and conduct a research with her students.

2. Data Collection

Collecting data about the research topic is a vital part of action research. It begins in the initial stages of the research and it needs to be elaborated through the entire process (Pelton, 2010). Following issue identification, researchers consulted subject area experts. After the consultation, researchers firstly scanned the previous studies and conducted a thorough literature review. Previous studies were read in detail to find out the activities used for specific age group and outcome of the research. Thus, researchers obtained wide range of data on their subject area.

3. Action Planning

Pelton defines this stage as planning according to the issue identified at the first step (2010). In this stage, researchers planned the action they would carry through the research. First, they decided how much time they had for the research and what kind of activities they could do in this time. They went through students' books and reviewed the specific topics to be covered for the duration of research. Activities to develop critical thinking

level were created in compliance with the course topic and these activities were revised after discussions. A detailed table was prepared to frame the planned events for the activities and prospective outcome. Moreover, open-ended questions were prepared to measure students' critical thinking levels, and "Critical Thinking Skill Open-ended Questionnaire" was formed after overviewing prepared questions.

4. Plan Activation

Fourth stage is described as plan activation in line with the data reviewed at previous steps (Pelton, 2010). In this stage of the study, action plan designated for 4 weeks was activated. Firstly, researchers handed the prepared questionnaire sheets to the students on 28 November 2019 and collected their answers. Following the questionnaire, they carried out critical thinking level increasing activities, prepared in compliance with the textbook used for English lessons, with children. Two units were picked from the syllabus and two weeks were set per unit. During the first week, students did "Thinking Balloons" vocabulary activity in groups. For this activity, students wrote vocabularies of the unit on sticky notes and put them in a box. Students were divided into 4 groups and walked to the board one by one and stood in front of everyone. Teacher picked a sticky note from the box and attached it to the student's forehead. Then teacher asked each group to come up with clues to help the standing student to find the vocabulary on his/her forehead. They had 3 minutes to work collaboratively and write down the answers. Activity of the next week was about water pollution. After reading the text titled "Dolphin Dreams" with students, the teacher asked students what they know about water pollution and to draw what it means to them. As a result of students' answers and drawings, they gave definitions of water pollution and prepared a mind map. Then, the teacher handed a blank page to each student and asked them to write a cause for water pollution and passing the page to the student sitting behind them. Later on, they discussed the written answers, and they watched videos about water pollution in English. For the next activity, students worked in groups of four to imagine themselves as different animals (such as a dolphin, a sea turtle etc.). They prepared a leaflet and presented it to their classmates. Activity for the third week was "Thinking Cubes." In this activity, after reading "The Lion and The Mouse" story, students were divided into groups of three. Each group rolled the dice and completed the exercise that comes up on the "Reading Think Dots" sheet, and made a group presentation. The final activity was about zoos. Students arranged the classroom in U shape, and set one end as "strongly agree" and the other as "strongly disagree". The middle part was for the ones who cannot decide. The teacher read 4 sentences and asked the students to move in accordance with their answers. The sentences were as follows:

1. Wild animal should be kept in zoos.
2. Wild animals should live in their natural habitats, in the nature.
3. Only place for a little kid to see wild animals is zoo.
4. Zoo animals are sad because they aren't in their natural habitats.

After moving in accordance with their ideas, students shared their opinions. As students shared their opinions, other students had the right to change where they sit in U-shaped arranged seats. At the end of all of these activities the pre-implementation questions were handed again on 19 December 2019 and students' answers were collected.

5. Outcome Assessment

At this stage, Pelton (2010) suggests assessing the outcome and develop different point of views. Acquired data from the students were analyzed in the last step of the research. Students' pre-implementation and post-implementation answers were scrutinized and compared. Researchers examined the changes and developments caused by implemented activities in students' perception of critical thinking, and in which ways it remained ineffective. Results were reported by making deductions according to the outcome of research, and the achievements and lacks of the research were discussed. It is concluded that 4 weeks is a limited time for the research; however, it enabled some positive changes in students' critical thinking in a such a limited time.

Data Analysis and Interpretation

Data were collected twice (one pre-implementation and one post-implementation) via "Critical Thinking Skill Open-ended Questionnaire" prepared by the researchers. Codes, such as S1, S2 were used for students' answers.

First, students' pre-implementation answers were analyzed using content analysis, and then themes and codes were determined accordingly. Same procedure was implemented for the post-implementation answers as well. Obtained themes and codes were reported through the instrument of tables. Some pre-implementation codes remained the same in post-implementation data as well, whereas some pre-implementation codes changed or new codes emerged after the implementation. Direct quotations from students' answers were used while analyzing the data.

Findings

Findings from the participants' pre-implementation and post-implementation answers to open-ended questions are presented in this chapter.

Findings from the question "What is the effect of critical thinking activities on students' critical thinking?"

Table 1: 4th Grade Students' State of Observing Their Environment

Theme	Codes	I. Implementation	II. Implementation
Whether students like observing their environment or not	Yes	24	23
	No	1	2
Total		**25**	**25**

While all of the students except one answered yes to the question "Do you like observing your environment?" before implementation, results after the implementation show that one student changed his/her idea and answered "I don't like." Students' reasons to observe their environment are given in Table 2.

Table 2: 4th Grade Students' Pre-implementation State of Observing Their Environment

Theme	Codes	I. Implementation
Students' pre-implementation reasons to like observing the environment	Feeling relaxed – calm	8
	Intrigued by	7
	Interested – attracted by	5
	Out of boredom	2
	Other	2
Total		**24**

It is concluded from the pre-implementation answers of students who like observing the nature that they mostly observe the environment to feel relaxed and calm. For this reason, most of the observer students' answers were centered around enjoying. On the other hand, student with code number S12 answered *"I ease myself by doing it. If I have some worries, I look around and relax.",* and implied that observing the environment helps him/her to let go of his/her worries. Students' answers showed that another major reason to like observing the environment is sense of wonder, followed by being interested by the surrounding objects, events and people, and killing boredom. Answers of three students didn't fit into any categories (e.g., student S25'answer *"I am scared that someone will approach from my back and kidnap me."*). Student S22's, who dislike observing the environment, answer "they get angry at me" was considered as really interesting.

Table 3: 4th Grade Students' Post-implementation State of Observing the Environment

Theme	Codes	II. Implementation
Students' post-implementation reasons to like observing the environment	Like – love	8
	Interested – attracted by	7
	Intrigued by	3
	Learning	3

	Out of boredom	2	
Total		**23**	

When we look at the post-implementation answers of 23 students, it was noticed that students observe their environment mostly because they like or love. For example, student S12 answered *"I like trees and people talking."* Second reason was centered around the fact that students find this action as intriguing, interesting and attractive. For instance, student S4's answer *"Sometimes I see new things like pink-and-yellow ladybug."* shows that it raises awareness and improves imagination. It was noticed that a new code "learning" emerged after implementation.

When pre-implementation and post-implementation answers are compared, first thing to be noticed is the fact that students became able to express themselves more clearly and met on a more common ground. It is also noted that the second common answer "being intrigued by" left its place to "being interested and attracted by." Thus, it can be stated that students went beyond the sense of wonder and observe their environment more and they were intrigued by the phenomena around them which raise awareness eventually. For example, student S1 changed his/her answer *"Even though I see them every day, I gaze upon them."* to *"Sometimes there can be new things."* after the implementation. It can be said that this student used to gaze upon and get relaxed while observing before implementation, yet student gained awareness after implementation and realized it is not always the same and there are different things as well. Another example is the answer of student S16. Before implementation, this student stated the reason of observing the nature as *"It makes me calm down.".* After implementation, same student answered the same question as *"Some people always stare at their phones and I watch them to find out how many people don't stare at their phones."* In this case, it can be pointed out that student is now more aware of people's behaviors, and s/he raised curiosity towards a common behavior among people and observe people who don't demonstrate this common behavior.

On the other hand, emergence of new post-implementation code "learning" is very significant. For example, student S21 changed his/her answer *"I am curious about the environment and I find it strange."* to *"I learn new things by observing everyone."* So, it can be seen that implementation enabled students to realize they can learn while observing the environment.

Table 4: Attitudes of People Around 4th Grade Students

Theme	Codes	I. Implementation	II. Implementation
Attitudes of people around students	Respectful	13	12
	Persistent	12	11
	Angry	11	5
	Listener	6	9
	Compromiser	2	4
Total		**44**	**41**

It is noticed that among the pre-implementation answers to the question "How do people around you react to the opinions they disagree?" the answers of "respectfully" and "persistently" stand out. In other words, most of the students observe both types of people around them. Additionally, a significant part of students encounters with people who get angry at the opinions they disagree. For example, student S5 implied that the surrounding people are not open to new or opposing ideas by giving the answer *"Usually they are angry because they think their ideas are better so they love their ideas.".* Student S23's answer *"They say 'I don't like it at all, my idea is the best, I think more wisely' but actually their ideas turn out be the worst."* can be given as another example for this case. Considering the given answers, it is seen that students are dissatisfied with this attitude and they don't approve it, in fact, they are offended by it, e.g., student S22's answer *"Some people respond angrily to me. Sometimes I feel hurt and sad.".*

When we look at post-implementation answers to the same question, the codes remained the same as in pre-implementation answers. However, there are some changes in the ranking. For example, there is a decrease in

the number of people with attitudes of "persistence" and "anger," which can be classified as negative attitudes. Therefore, it can be interpreted as students primarily became more mild-mannered towards surrounding people's attitudes, and secondarily they possessed a more moderate way of understanding the attitudes of these people. For example, student S8 changed his/her answer *"They don't accept easily."* to *"They show respect."* after implementation.

Table 5: 4th Grade Students' Attitudes Towards the Ideas They Disagree

Theme	Codes	I. Implementation	II. Implementation
Students' attitudes towards the opinions they disagree	Listening to the other person	17	13
	Getting angry	4	1
	Insisting on the truth of one's own opinion	3	1
	Showing respect	3	6
	Deciding mutually	3	1
	Don't insist on the truth of one's own opinion	2	4
	Telling one's opinion	2	1
	Having difficulties in accepting the opinion	1	4
	Expressing the dislike in opinion	1	1
	Not listening to the other person	1	0
	Wonder	1	0
	Persistence	1	0
	Presenting a new opinion	1	0
Total		**40**	**32**

Pre-implementation answers center mainly around listening to the other person. Considering the answers to this question, in parallel with the previous question, students who observe respectful and tolerant people around them answered correspondingly to the question about themselves. Some students also mentioned that they express their own opinions while listening to the others. For example, student S19 answered *"I listen to them. If the idea is very bad, I say no. I listen to their ideas too and we pick whichever idea is better."* One of the most given answers is getting angry at the person with an opposing opinion. This phenomenon can be related to the fact that students observe angry people around them, since the code of being angry is present in both pre-implementation and post-implementation tables.

Considering the answers to the question "How do you respond when you hear a different or unpleasant opinion? Do you listen to the other person or is your opinion always right?", answer of "I listen to the other person" stands out from post-implementation answers as well. The number of students giving this answer decreased after the implementation; however, it is noticed that these students expressed their attitude as "I behave respectfully" and "my ideas are not always right." Three of the students answered "I don't accept easily" and increased the rate of this answer.

It can be said that implementation caused a positive change in students' attitudes towards different and unpleasant ideas. For example, Table 5 shows that while the number of students who think their opinions are not always right was two before implementation, it increased to four after implementation. Likewise, while the number of students who show respect to other people's opinions was three before implementation, it increased to six after implementation. For example, student S4 answered *"When I hear a different opinion, I don't accept it easily. My opinion is always right."* before implementation, whereas the same student answered the same question after implementation as *"I don't accept so easily. My opinions sometimes change.".* It is noticed that student used to use certain statements like "always"; however, after implementation the student stated that opinions can change. Under these circumstances, it can be said that the implementation caused a positive change in students to accept new opinions. Similarly, before implementation, student S9 answered *"I am usually*

persistent. My opinion is always right.", and yet after implementation, same student re-expressed himself/herself as *"I listen to the other person and respond as a listener."*. It is considered that group activities and sharing opinions had an effect on student's change of mind. It is observed that after implementation, students expressed themselves more clearly and became able to explain the reasons behind their opinions. For example, student S11's pre-implementation answer was left half finished *"I listen to the other person because"* and s/he could not express himself/herself well. The same student expressed himself/herself and the reason behind his/her opinion better after implementation as*" It is not right because other's opinions may be good too."* Thus, the research is considered to be helpful in developing students' cause-and-effect relationship and improving their self-expression better. Nevertheless, the number of students who persist against an opinion increased from one to four after implementation. It is considered that the reason behind this situation is the fact that they like working individually better and they had disagreements during the group work activities.

Table 6: 4th Grade Students' Attitude Towards Changing Their Minds

Theme	Codes	I. Implementation	II. Implementation
Students' opinions on changing their minds	It is difficult to change my mind	10	8
	It is easy to change my mind	10	12
	It is sometimes easy sometimes not	5	5
Total		**25**	**25**

When student's pre-implementation answers to the question "Is changing your mind easy or difficult for you? Why?" are reviewed, it can be seen that there is a tie between the number of students answered "it is easy" and students answered "it is difficult." Students who say it is difficult to change their minds stated in general that they are used to an opinion and they cannot easily change it. For example, student S17 answered *"It is difficult because you cannot just give up on something.".* Similarly, student S21 answered *"Changing my mind is difficult for me as it is challenging and usually my opinions sound logical and correct."* Students think changing their minds is frightening, e.g., student S25's answer *"It is difficult, you get afraid to change your mind when you have an opinion."* Students who said it is easy to change their minds expressed that they like changes therefore, they can easily change their minds.

Post-implementation answers show that two students changed their answers and said now it is easy for them to change their minds. For example, before implementation student S16 answered *"It is difficult because I cannot be sure when it is my turn to tell my opinion so I stay quiet and I miss my turn."* Same student's post-implementation answer is *"Changing my mind is easy for me as I listen to other people's works."* Therefore, it can be interpreted as student possessed a clearer understanding on changing mind and group activities enabled him/her to listen to other's opinions, and improve his/her decision-making ability based on the opinions s/he listened.

In conclusion, it can be noted that although most of the students was able to change their minds easily and was not persistent about it before implementation, even at least few students changed answers and now they possess a positive attitude towards different opinions.

Table 7: 4th Grade Students' Pre-implementation Definition of Criticism

Theme	Codes	I. Implementation
Meaning of criticism to students before implementation	Insulting/talking down	8
	I don't know	7
	Speaking/commenting	6
	Researching	1
	Questioning	1

	Other	2
Total		**25**

When we look at pre-implementation answers to "What does criticism mean to you?" the most given answer is "insulting/talking down." Therefore, it can be interpreted as criticism has a negative meaning to students. For example, student S10 explains criticism as *"interrupting,"* and student S25 as *"gossiping."* Similarly, student S4 answered *"Telling someone 'hmm how ugly it is'."* On the other hand, seven students said that they don't know the meaning of criticism or they have never heard of it. Giving these, it is possible to say that more than half of the students either didn't have any idea of it or they defined it as a bad behavior. On the other hand, six students defined criticism as commenting, speaking about something.

Table 8: 4th Grade Students' Post-implementation Definitions of Criticism

Theme	Codes	II. Implementation
Meaning of criticism to students after implementation	Discussing	8
	Commenting	7
	Deciding	2
	Speaking	2
	Criticizing	2
	Questioning	1
	Suggesting an idea	1
	Listening	1
	Insulting	1
Total		**25**

When we look at post-implementation answers, we see a different table. First of all, there are new codes such as; "discussing, deciding, suggesting an idea and listening." This proves that implementation enabled students to define criticism and use different approaches while defining. In a nutshell, with the help of the activities, students now have an idea about the definition of criticism as there is no student answering "I don't know" to the question asked after the implementation. On the other hand, majority of the students coded criticism as discussing. For example, student S22 answered *"It means discussion not fight."*.

Considering the difference between before and after implementation, it can be seen that majority of the students used to attach a negative meaning to the concept; however, they get to know the concept through activities and they showed positive change towards criticism. For example, before implementation, student S9 defined it as *"Telling someone's secret to another person."*; whereas, after implementation this changed to *"Commenting."* Similarly, student S13 first defined it as *"Insulting"* and then changed it to *"People who always talk and have logic."*. Finally, student S19's answer is very intriguing as the answer *"Talking behind someone's back, mocking, insulting, laughing at them. Talking bad on somebody's outfit."* represents really negative statements towards criticism. Same student demonstrated a positive attitude after the implementation and answered *"Thinking about something, sorting out right and wrong."*.

Table 9: 4th Grade Students' Pre-implementation Opinions on the Accuracy of Information

Theme	Codes	I. Implementation
Students' pre-implementation attitude towards determining the accuracy of information	By doing research	5
	By thinking	4
	By seeing	3
	By questioning	3
	By experimenting	2
	By checking	1
	By making someone swear	1
	By analyzing	1
	By asking for proof	1
	By consulting other people	1

	I cannot determine	1
	Other	3
Total		**26**

When we review students' pre-implementation answers to the question "How do you determine the accuracy of information?" we see that there are many different codes and the most common one is by doing research. For example, student S15 *answered "I do research a lot. You think whether it is important or correct."* Thinking is the second most popular answer. It is seen that students prefer believing by seeing and asking for proof. Student S4's answer *"I ask them to show the information on a newspaper or TV. If they can show, I believe."* set a good example for this. One of the students had a different way to be certain of information. Student S20 gave the answer *"I make them swear to God. If they swear, I believe."*, and considered swearing as a method.

Table 10: 4th Grade Students' Post-implementation Opinions on the Accuracy of Information

Theme	Codes	II. Implementation
Students' post-implementation attitude towards determining the accuracy of information	By doing research	8
	By thinking	4
	By seeing	3
	By thinking	4
	By consulting other people	3
	By checking	2
	By making someone swear	1
	By observing	1
	By asking for proof	1
	By seeing	1
	By asking	1
	Other	2
Total		**24**

Students answered the same question after implementation; however, one of them didn't answer the question. The most popular answer remained as by doing research after implementation, and the number of students giving this answer increased by three. Thus, it can be said that activities implemented for four week helped students to find ways to reach information. For example, before implementation, student S7 said s/he cannot determine the accuracy of information, whereas, after implementation s/he said *"I search on the internet."* Similarly, student S6's pre-implementation answer is *"I can determine the accuracy of information better.",* which is not a clear answer and shows s/he doesn't have any idea about any method. However, the same student answered *"I think a little about it."* after implementation. Thus, we can say that this student now considers thinking as a way to obtain information. Moreover, student S2's answer *"By thinking and critical thinking."* is an example that s/he gained awareness about critical thinking and s/he believes that the accuracy of information can be questioned by critical thinking.

When we compare pre-implementation and post-implementation answers, there is a slight increase in number of students who answered consulting other people and checking. Students named people they generally trust in and their family members as examples for someone to consult. Finally, a new code "asking" emerged after implementation.

Findings from the question "What is the effect of critical thinking activities on students' personal definitions of critical thinking and critical thinker?"

Table 11: 4th Grade Students' Pre-implementation Opinions on Criticizing Someone

Theme	Codes	I. Implementation
Students' pre-implementation opinions on criticizing someone – Is it good or bad?	Bad	16
	Good	7
	I don't know	2
Total		**25**

When we look at students' pre-implementation answers to "Do you think criticizing is good? Why?", we can see that more than half of them think that criticizing is bad. Majority of the students explained the reason of it as criticizing makes people feel sad or hurt. For example, student S7 answered *"It isn't good because the person might get sad."* likewise student S20 answered *"I think it is bad as the person I'm criticizing may get sad."*. The reason why students think criticizing someone is good is because they associate it with honesty. For example, student S24's *answer "Yes, (it is good) as you learn the truth."*.

Table 12: 4ᵗʰ Grade Students' Post-implementation Opinions on Criticizing Someone

Theme	Codes	II. Implementation
Students' post-implementation opinions on criticizing someone – Is it good or bad?	Good	14
	Bad	8
	Sometimes good sometimes bad	1
	Other	2
Total		**25**

There is a big change between pre-implementation and post-implementation answers. After implementation, more than half of the students perceived criticizing with a positive emphasis. For example, student S3 changed his/her answer *"No, criticizing is not good because I don't talk behind people's backs."* to *"Sometimes it is good because you can say nice things."*. Similarly, student S21 used to think that criticizing is wrong and answered *"I think it is bad and shameful."*. Later on, same student answered the same question as *"I think criticizing is good as it means telling our opinion honestly."*. Therefore, codes in the table and examples of students' answers show that activities had an effect on reducing students' judgements and negative thoughts on criticizing. There were a few students who thought criticizing is good but had no reason before implementation. These students commented on the reasons of criticizing being a good thing and express their opinion better after implementation. Moreover, one student pointed out that criticizing has a positive side and it can be constructive. While this student used to think that criticizing might make someone sad, s/he then changed his/her answer to *"I think it is good because they can learn from their mistakes."*.

On the other hand, there are some students whose ideas changed to the exact opposite. For example, student S16 first answered *"It is good because we can talk right away if they find before me according to what I find."*, then changed his/her answer to *"I think criticizing is bad as it can make the other person sad."*.

Table 13: 4ᵗʰ Grade Students' Pre-implementation Opinions on Critical Thinking

Theme	Codes	I. Implementation
Students' pre-implementation opinions on the definition of critical thinking	I don't know	7
	Thinking different	5
	Misbehaving	4
	Deciding	3
	Thinking bad about someone/something	2
	Criticizing	2
	Investigating	1
	Speaking	1
Total		**25**

When we look at the answers to the question "What do you think critical thinking means?" firstly, we see that most of them never heard of it before; therefore, they didn't know its meaning. Second popular answer is "thinking different." Students emphasized "thinking different than everyone else" in their answers. On the other hand, before implementation, there were some students who had negative opinions about critical thinking. Four of them accepted critical thinking as misbehaving whereas, two of them defined it as thinking bad. For example, student S8's answer *"Thinking bad about people."* and student S19's answer *"Critical thinking is talking cynically to someone."*.

Table 14: 4th Grade Students' Post-implementation Opinions on Critical Thinking

Theme	Codes	II. Implementation
Students' post-implementation opinion on the definition of critical thinking	Thinking positively	11
	Discussing	4
	Commenting	2
	Criticizing	2
	Searching – questioning	2
	Understanding	1
	Listening	1
	Sharing	1
	Thinking bad	1
	I don't know	1
	Other	1
Total		**27**

When we look at post-implementation answers, it is seen that there is a positive change and students used more varied verbs for defining the concept. Firstly, the number of students negatively defining critical thinking dropped down to one. Almost half of the students defined critical thinking as "positive thinking." For example, student S9 first answered *"It is a very bad way of thinking."*, then changed it to *"interpretational thinking."* Moreover, students built a connection between cognitive process requiring activities and critical thinking. For example, student S1's first answer was *"I don't know but I think it is the step right before criticizing."*. It is seen that student's knowledge of concept was not enough. However, the same student gave a more definite answer after implementation by saying *"I think it is thinking before criticizing."* On the other hand, even though the number of students without any knowledge about critical thinking was significantly high before implementation, this number dropped to one after implementation. Thus, it can be concluded that activities helped students to define the concept of critical thinking and change their negative perception. For example, student S21's first answer was *"I don't know"* later on s/he answered the same question as *" I think critical thinking is listening to each other."*.

Table 15: 4th Grade Students' Pre-implementation Opinions on Critical Thinkers and Their Characteristics

Theme	Codes	I. Implementation
Students' pre-implementation opinions on critical thinkers' character traits	Negative Character Traits (disrespectful, cynical, prejudiced, etc.)	9
	Positive Character Traits (smart, respectful, etc.)	6
	I don't know	3
	Talkative	1
	Cannot decide	1
	Other	2
Total		**22**

For the next question, students were asked to define critical thinkers and their characteristics. When we look at the pre-implementation table, we see that students assigned mostly negative and bad traits to critical thinkers. For example, student S4 answered *"I think critical thinker is someone who is bad, who steals and lies all the time but this is what 'I' think."*. On the other hand, the number of students who used positive traits in their definitions is rather high. For example, student S25 implies with his/her answer *"Critical behavior means being smart."* that critical thinkers are smart people. Three of the students stated that they don't know how critical thinkers are.

Table 16: 4th Grade Students' Post-implementation Opinions on Critical Thinkers and Their Characteristics

Theme	Codes	II. Implementation
Students' post-implementation opinions on critical thinkers' character traits	Positive Character Traits	8
	Negative Character Traits	5
	Thinker	2
	Talkative	2
	Critic	2
	Discussing	2
	I don't know	2
	Sharing	1
	Points out the mistakes	1
Total		**25**

When we look at students' post-implementation definitions of critical thinkers and their characteristics, it is seen that on the contrary to pre-implementation definitions, positive character traits are more than negative character traits. Therefore, we can say that with the help of activities, a good portion of students' negative attitude has been changed. For example, student S17's first answer was *"Prejudiced,"* then it changed completely to *"They don't offend people, they tolerate them.". S*imilarly, student S10 answered *"Interrupts everyone, talks so much.",* and then same student changed his/her answer to *"Available to discuss."* However, there are some students who changed their answers in the opposite way. Student S7 changed his/her answer *"I think critical thinkers make really good comments."* to *"They can be either good or bad, for example, bad."*, and added negative trait into his/her definition. Nevertheless, in the general sense, activities enabled students to know critical thinkers better. Finally, students without any opinion changed their answers too. For example, before implementation student S1 said *"I don't know,"* and then s/he answered *"Critical thinkers are people who think before criticizing, and their traits are respectfulness and bluntness."* It is significant that student used "respectful" in his/her definition.

Findings from the question "What is the effect of critical thinking activities on students' social skills?"

Table 17: 4th Grade Students' Opinions on Group Work

Theme	Codes	I. Implementation	II. Implementation
Students' opinions on participation in group work	I like	20	21
	I don't like	4	2
	Sometimes	1	1
	Other	0	1
Total		**25**	**25**

Both pre-implementation and post-implementation answers can be seen in Table 17. Most of the students liked participating in group work. The number of students who like group work increased by one after implementation. Students' pre-implementation reasons to like group work were generally enjoying and having fun. For example, student S4 answered *"I like it because the result of it is big and beautiful.".* Student S5 gave a similar answer *"I like it so much because we get to be altogether and happy in group works."* On the other hand, there were students who liked individual work. For example, Student S13 *"I like working alone because everyone in the group has a different idea.".*

Pre-implementation and post-implementation reasons to like participating in group work have similarities. Moreover, the number of students who dislike participating in group work dropped down to two. For example, before implementation student S7 answered *"I like individual work better because there is only my idea.".* This shows that student was not open to different ideas other than himself/herself. Same student answered the same question after implementation as *"I like it because I am with people I love.".* Similarly, student S25's first answer was *"I don't like it because they don't listen to my idea.",* and then it changed to *"I like it because it is so fun.".* Thus, it can be said that some students used to have some prejudgments about group work but they changed it after implementation. Moreover, students expressed the reasons why they like group work. For example, student S14's first answer was only *"I like it.",* then she added *"I like it because I talk.".* Finally, there

were some students who changed their mind in an opposite direction. For example, student S4 answered *"I like it because the result of it is big and beautiful."*; however, after implementation same student answered *"I like it but this school makes me don't like it."*. This can be interpreted as there is a relationship between liking group work and imposing one's idea to someone. Students may have the tendency to like group work better when their ideas are accepted by others. It can be said that the student had negative experiences with his/her classmates during the activities, which lead the change in his/her answer.

Table 18: 4th Grade Students' Opinions on Fellow Group Members' Ideas

Theme	Codes	I. Implementation	II. Implementation
Students' opinion on fellow group members' ideas	Important	24	23
	Unimportant	1	1
	Sometimes	0	1
Total		**25**	**25**

When we look at students' answers to question "When you work as a group, are fellow group members' ideas important to you?", we see that almost every student answered "important" before implementation. Students' reasons for this answer are generally is because they care about their friends' opinions and they can create something when they work together. For example, student S3 answered *"Yes, it is important because it is a group work and I want to hear my friends' ideas."*, similarly, student S24 answered *"Yes, because I don't feel alone."*. It concludes that students generally care about other members' opinions at a group work. Only one student thought the opposite. This student answered *"No, I don't know it is important or not but I trust my own idea."* before implementation. After implementation, same student didn't change his/her mind and answered *"No because I can't defend my own opinion."*.

When we look at students' post-implementation answers, we see a decrease in the number of students who care about group members' opinions. Under these circumstances, it is not possible to say activities raised awareness for caring about group members' opinions. However, when we look at students' answers, we can say that activities helped students to realize the existence of other individuals too. For example, student S2's first answer was *"It is important because they are my friends and that's why it is important."*. After implementation, same student changed his/her answer to *"Yes, because they are opinions as well."* There are many examples for this case. There it is seen that before implementation, students used to care about others' opinions because they are friends and they love them, whereas after implementation, students began caring about because other members are individuals too and they can have different opinions.

Conclusion and Discussion

When we review the findings of the research, using critical thinking skill activities integrated to English lessons provided an increase in the level of students' critical thinking. It is noted that most of the students used to have no idea about critical thinking before implementation; however, they developed perception of critical thinking and they became able to make better comments on it after implementation. These results show similarities to Akar and Kara's (2016) research results. That research conducted with 4th grade students also concluded that students' critical thinking skills are at a medium level. It is possible to say that participant students of that research likewise used to have a low or medium level of critical thinking before implementation. Korkmaz and Yeşil's (2009) research conducted with every last grades of each school level similarly concluded that 4th grade students' critical thinking dispositions are at a medium level. This and previous research show that elementary school students have problems in gaining critical thinking skills; however, these problems can be overcome with implemented methods, and students' level of critical thinking can be increased. Akran and Babaoğlu's (2019) research concluded that when we include a method, which enables students to be independent (Allosteric Learning Model), students' critical thinking skills increase. These findings support the above-mentioned results.

It is also concluded that students made more positive and clear definitions of critical thinking and critical thinker after implementation. Most of the students stated that they didn't have any idea about the word "critical" before implementation. Additionally, students defined criticism, critical thinking and critical thinker generally with

negative words, and made statements to imply that these words are bad. However, after implementation, most of the students changed the negativity in their definitions and used more positive words and statements.

Another conclusion of this research is students are aware of the fact that surrounding people have respectful attitude towards opinions they disagree as well as have attitudes of anger and refusal. Considering the importance of social learning, students' attitudes towards different opinions are due to their surrounding role models.

According to results of the research, elementary school students do not have high level of critical thinking skills and ability to define concepts in regard with this subject; however, these ability and skill can be developed by activities. For this reason, it is considered that increasing the number of activities for elementary school students is necessary.

One of the most effective courses to develop critical thinking skills in students is English. Therefore, critical thinking activities should be added to syllabus of this course, and unit activities should be interlaced with critical thinking skills. Critical thinking skill activities can be combined especially with activities for acquiring speaking skills. Also, parents can do awareness raising activities to overcome students' negative attitude towards criticism, thus students can see the reflection of critical thinking in society.

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Teacher Deliberative Policy on Learning Management in Realizing Teacher's Performance

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Abstract

The purpose of writing this article is to discuss the effect of implementing the subject teacher deliberation policy on the management of English learning in realizing the performance of English teachers in the subject teacher deliberation forum which is under the auspices of the South Sumatra Provincial Education Office. The method of analysis in the discussion of this main topic uses an effectual causal analysis model by reviewing the rational relationship that analyzes the causal relationship between the implementation of subject teacher deliberation policy, English language learning management and the performance of English teachers. The location of the research was carried out in the subject teacher deliberation forum under the auspices of the Education Office of South Sumatra Province with a total of 88 respondents. This discussion shows that the implementation of the subject teacher deliberation policy has no significant effect on the management of English learning and the performance of English teachers. This article concludes that realizing the performance of English teachers can be done by optimizing the implementation of the subject teacher deliberation policy and management of English learning.

Keywords: Implementation, Teacher Performance, Management

1. Introduction

In line with the enactment of Law Number 20 of 2003 concerning the National Education System on July 8, 2003 by the Government, this has resulted in policy changes within the authority of Indonesian National Education. Law Number 20 of 2003 automatically generates new provisions in the functions, goals and obligations of the government to realize quality education for the Indonesian nation. Based on this, the Government has scheduled three main policies in the field of education, namely: Expanding and equitable access to education; Improvement of quality, relevance and competitiveness; and Strengthening governance, accountability, and public image

At the level of expanding and equitable access to education, as stated by Law Number 20 of 2003, Chapter IV, Article 5 paragraphs (1) and (5) states that: every citizen has the same right to obtain quality education (paragraph 1); every citizen has the right to the opportunity to improve lifelong education (paragraph 5). Meanwhile, at the level of quality improvement and strengthening of governance, the government then issued Government Regulation Number 74 of 2008 concerning Teachers as the elaboration of Law Number 14 of 2005 concerning Teachers and Lecturers. Based on Government Regulation Number 74 of 2008, the government mandates that teachers must have a minimum academic qualification of S1 (strata 1) or D-IV, which is then supported by adequate competence and supported by an educator certificate. In order to support this, teachers are required to be able to always improve their abilities according to the development of science in a sustainable manner. In this connection, in order for the process of improving academic qualifications and teacher competence to be programmed and carried out properly, a forum for independent and professional teacher development is needed.

In general, the problem phenomena in this study are: The implementation of the Subject Teacher Deliberation policy has not been implemented properly. This can be seen from the implementation of the collaborative activities that have not been running optimally. These activities include, namely first, create and practice using learning tools / materials. second, bring in experts. third, practice using a new learning approach. And fourth and discuss the latest educational issues. The management of English learning has not been optimally implemented in the forum. One of the indications is that the English teachers have not shown their potential effectively and efficiently. This can be seen from the fact that there are still English teachers who have not made a mature and measured learning plan that is contained in the lesson plan. In addition, planning carried out in the teaching and learning process is not evaluated carefully and continuously, so that the shortcomings of the planning contained in the lesson plan cannot be followed up for improvement.

The performance of English teachers is not optimal, where the teachers do not master the four language skills in English which include: listening, speaking, reading, and writing skills. However, in the meantime the teachers have only mastered the linguistic aspects which include: aspects of grammar, vocabulary, and pronunciation. Based on the explanation above, the constraints that affect the ineffectiveness of the program, among others, arise from the aspects of policy implementation, management, and performance. These three aspects have a causal relationship that requires further study. Based on this statement, the researcher determined a research topic with a title, "The Effect of Subject Teacher Deliberative Policy Implementation on English Learning Management in Realizing English Teacher Performance.

2. Methods

Research is the process of collecting, analyzing, and translating information and data systematically to increase understanding of a certain phenomenon (Nurlaeli & Saryono, 2018). The research uses the scientific method by collecting data and testing the analysis of the hypothesis (Nurlaeli & Saryono, 2018). The method used in this research is descriptive method of quantitative analysis with survey techniques. What is meant by descriptive research method is that it has something to do with the exposure of a phenomenon or a relationship between two or more phenomena (Thohir et al., 2019). The survey technique used in this research is a research method by taking a population by census using a questionnaire as a means of collecting basic data to study the observed phenomena or symptoms. The research approaches and techniques used in this study are expected to provide answers to the phenomena studied, namely regarding the variables of subject teacher deliberation policy implementation , English learning management and English teacher performance.

This research is an evaluation study of the implementation of public policy, where the implementation of public policy is defined as the implementation or application of a public policy through a program, activity, action, or action in a mechanism that is tied to a certain system (Ramdhani & Ramdhani, 2017). To strengthen the research results, verification of the research results was carried out with the results of observations, interviews, and literature studies as recommended by Ramdhani & Ramdhani (2104), and Ramdhani et al. (2014).

Respondents of this study were English teachers who joined the forum in Lahat Regency, with a population of 88 people. The discussion was carried out on the implementation of the subject teacher deliberation policy as an effort to improve the management of English learning in realizing the performance of English teachers.

3. Results and Discussion

The place for teacher coaching in question is the Subject Teacher Conference which is intended for teachers at school levels. Furthermore, the Subject Teacher Deliberation is understood as a forum for gathering similar subject teachers collaboratively in a certain area regency in order to identify and solve problems, test and develop new ideas in order to improve the quality of learning. So that the forum is believed to be one of the effective media to foster teacher professionalism within the framework of by-, from-, and- for teachers activities. In addition, is believed to be a means to improve teacher skills which include pedagogical, professional, social, and personal abilities (Jalal, 2005).

Because is a mandate of a Government Regulation, formally is included in the domain of public policy which must be implemented as well as possible in order to provide maximum benefits for the life of the nation and state (Winarno, 2016). However, in reality on the ground, the still collided with obstacles so that the had not been able to produce optimal teacher performance. The ineffectiveness of the performance of subject teachers, especially English teachers who are members of the , is caused by the lack of quality of work of the teachers involved in it. In addition, there are other aspects, such as: work speed / accuracy, work initiative, work ability, and communication (Uno & Lamatenggo, 2014).

Of the five aspects above, aspects of work quality and job ability are the main factors faced by English teachers. In practice, English teachers still tend not to be able to maximize their language skills which include language skills and language aspects. Language skills, including listening skills, speaking skills, reading skills, and writing skills. Meanwhile, the language aspect includes the ability to master grammar, the ability to master vocabulary, and the ability to master pronunciation.

Apart from the performance factor, the management aspect is also suspected to be a factor in the ineffectiveness of the performance of English teachers who are members of the forum. In an organization, the organizers and members involved can carry out optimal organizational management functions. In the context of English language learning management, English teachers are not only able to provide optimal performance, they are also required to carry out management functions related to English learning which ultimately lead to the achievement of predetermined goals through the use of human resources and resources. others (Winardi, 1998 in Iskandar, 2016). In management, the implementation of these management functions should include efforts to plan, organize, actuating, and control (Terry, in Iskandar, 2016).

Apart from management factors that can influence the success of performance aspects, factors in the implementation of government policies are also suspected to be a factor in the ineffectiveness of this performance. Basically, the implementation of the policy returns to the policy maker, namely the government, then carried out by the policy implementing agency, then the tools used in socializing the policy, and the public as the target of a policy.

In the context of public policies that specifically regulate education in Indonesia, which later gave birth to , the government initially issued Law Number 20 of 2003 concerning the National Education System on July 8, 2003 which resulted in a change in policy within the authority of Indonesian National Education. Then Law Number 20 of 2003 was strengthened by Law Number 14 of 2005 concerning Teachers and Lecturers as executors of education policies that directly interact with the public at the school and college levels. Then to strengthen the professionalism of teachers, the Government issued Government Regulation Number 74 of 2008 concerning Teachers, so that the PP gave birth to 4 regulations which became the legal basis for the formation of the . The four regulations are outlined in: Signs for the development of activities, Standard operational procedures for the implementation of the ; Standard operational procedures for curriculum development at the educational unit level at the ; and development standards.

With this special regulation that regulates , the government hopes that can run well, so that it can optimally improve the performance of teachers, especially English teachers. So that education will be more dynamic, teaching will be more productive so that it has a satisfied effect on students, parents / guardians and the community as the targets of this public policy.

Based on the results of research and discussion of the effect of implementing the subject teacher deliberation policy on the management of English learning in realizing the performance of English teachers, the following conclusions and suggestions can be drawn:

First, in relation to the Subject Teacher Deliberative Policy Implementation variable, the following problems were found: Not all of the English teachers in the of Lahat Regency did not understand the meaning of the policies that had to be implemented. Based on the background of the problem in the Implementation of Subject Teacher Deliberative Policy, the authors suggest to the South Sumatra Provincial Education Office to increase the socialization of the Government's policy on the Subject Teacher Deliberation Program, especially for English Subjects which are carried out in school units Senior High School. This is important given the teachers' lack of awareness in their active involvement in the professional forum for these subject teachers. The steps that can be taken are by: Providing clearer and more detailed knowledge and understanding to teachers regarding the Subject Teacher Consultation policy, Increasing budget allocations for socialization so that activities are carried out according to set goals and Involving all levels of teachers, heads schools, and leadership elements in the Education and Culture Office in order to formulate programs / activities so that the involvement and ideas of all stakeholder elements can be accommodated.

Second, related to the English Learning Management variable, namely the following problems were found: the mapped objectives could not be implemented optimally, the monitoring of activities had not been carried out continuously, and supervision had not been able to provide improvement in teacher administration. Based on the background of the problems in English Learning Management, the authors suggest that the South Sumatra Provincial Education Office can increase the work motivation of teachers, school principals, and supervisors. The steps that can be taken are: Providing opportunities for teachers, school principals, and supervisors to get education, training and technical guidance related to their work, Encouraging teachers, especially English teachers to make work innovations in order to improve program outcomes in the future and increase cooperation, both inside and outside the work environment to strengthen relationships between teachers of other subjects.

Third, related to the English Teacher Performance variable, the following problems were found: not all English teachers have made plans for meeting teaching and learning activities that are in accordance with the academic calendar, not all English teachers who are members of the can provide an evaluation of the results of student work so that students can find out their weaknesses. and the lack of application of current teaching methods. Based on the background of the problems in the performance of English teachers, the authors suggest that the South Sumatra Provincial Education Office can improve the quality of their knowledge and skills to be able to provide excellent service to their students. The steps that can be taken include: Building a sense of empathy for English teachers through various self-development training, motivation and so on, Establishing teaching and learning standards as a service that must be implemented by all teachers, especially English teachers in serving their students and Application of reward and punishment for teachers in implementing teaching and learning standards in serving their students

Based on the test results, it can be explained that the implementation of the Subject Teacher Conference policy has no significant effect on the management of English learning in realizing the performance of English teachers. So from these calculations it is known that the implementation of the Subject Teacher Deliberative Policy policy does not significantly impact the management of English learning, which in itself will realize the performance of English teachers. With the existence of regulations governing the existence of teacher deliberations, the Government hopes that teachers who are involved in teacher deliberation programs, especially English teachers can always improve the management of English learning, in order to be able to manage education that is more dynamic, more productive teaching which in turn can have a satisfied effect on students, parents and society in

general as the targets of this public policy. In the opinion of the author, in the implementation of English learning management, continuous supervision is needed so that its implementation can be in accordance with existing standards. Because with the implementation of standardized English learning management, the English teacher's performance will get better. This is in line with and supported by research conducted by Anwar, R (2011) which reveals that the effectiveness of the implementation of teacher deliberation activities can increase the ability of teachers to teach so that the skills of a teacher can be improved. In line with that research conducted by Hermawati, W. (2017) reveals that the influence of motivation and group work in discussing subjects can improve a teacher's ability to master science and teach it. and is also supported by research conducted by Mulyawan, B. (2013) that there is an effect of experience in training on increasing teacher professional competence so that teachers can teach with increased knowledge.

Thus, this condition indicates that the management of English learning has no significant effect on the performance of English teachers. The better the management of English learning shown by the teacher, the better the performance of the given English teacher.

4. Conclusion

This research concluded that to realize the performance of English teachers can be done by optimizing the implementation of the subject teacher deliberation policy and management of English learning. coupled with improving the quality and creativity of the teacher so that learning English is expected to be fun and enjoyable

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Examining the Roles and Competencies of Principals of Project Schools in Terms of Accountability

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Abstract
The aim of this research is to examine the roles and competencies of school principals working in project schools in terms of accountability, based on the views of school principals. This is a qualitative research which is based on the phenomenology design. The working group is chosen among the most well-known project schools in Istanbul using the maximum variation sampling method. Interviews were held with 12 school principals working at the Science High School, Anatolian High School, Social Sciences High School and Anatolian Religious High Schools in the 2019-2020 academic year. The data obtained from the interviews are coded using content analysis method and different 3 themes such as supervision, the functioning of education and integrity are obtained. In this context, it is indicated that project school principals felt themselves accountable most since they have a right to determine the managers and teachers they want to work with. It came to the conclusion that school principals cooperate with their internal and external stakeholders in all matters for the development of their schools.

Keywords: Accountability, Project Schools, Roles of School Principals

1. Introduction

Educational approaches are perceived differently all over the world and they affect societies both globally and culturally. Education, which is thought to play a role in shaping societies, is similarly affected by the developments in society. It is seen that conceptualization of education has changed; different types of schools are needed and different education policies have started to gain importance in the world where transformations and changes are so fast.

One of the changes in the conceptualization of education is decentralization movements. Decentralization has brought many needs for change. Perhaps the most important of these is the change in the perception of accountability. Accountability means the school staff is responsible for the actions that are taken in the context of education and can express it when necessary. Fuhrman (1999) listed the seven characteristics of the constituents of the modern accountability system: focusing on performance, schools as a development unit,

continuous improvement strategies, and supervisions, more accountability categories, general reporting and performance-based results. In these contexts, it is understood how accountability is applied in countries where neoliberal policies are followed in education. In Turkey which is also one of the developing countries, the development and change of this concept moved a different stage in project schools, too. Therefore, how school principals in project schools perceive and implement the concept of accountability is quite crucial.

For Turkish education system, 2023 Education Vision became a route map considering human being as the main subject of education to improve the education system; determining the paradigms that Turkey needs; aiming to define the direction within the framework of universal pedagogy. Accordingly, "fair, anthropocentric, teacher-based, universal in concept, local in practice; flexible, skill and manners oriented; it will be accountable and will embody a sustainable principled stance" (MoNE, 2018). It is understood from these words that 2023 Education Vision published by the National Education is based on accountability. In addition, it is believed that the project schools will continue to operate under this name even though the name of the project schools is not mentioned in the vision document (Cirit & Gunday, 2019). When the document is examined, it can be said that a project-based education is aimed even if the project schools are not mentioned in the education vision document. Project schools, which began to be implemented in Turkey in the 2014-2015 academic year, are seen as a step in the transition to school-based management. Project schools differ from other schools in many respects. Project schools, which aim to educate individuals in accordance with the requirements of the era, select their students by examination. In other words, students who come to these schools are those who get above a certain score on the exam. The administration and teacher staffs are also selected by the principal from among the individuals who are academically equipped, have developed communication skills and can adapt to the school culture. In that regard, the schools that have enabled school autonomy since 2016 are the project schools. In this study, the changing roles and competencies of the principals working in project schools are discussed and these roles are examined in terms of accountability. This system, which moves a little away from centralization and provides some opportunities to principals, also places a great burden and responsibility on the principal. The concept of accountability, which is one of the most important elements of school-based management, is also examined in detail and changing roles and competencies are determined based on the opinions of the administrators.

1.1 Purpose of the Research

The aim of this research is to examine the roles and competencies of school principals working in project schools in terms of accountability. In this context, the roles and competencies of the principals working in the project schools in Istanbul, in the 2019-2020 academic year, have been examined and their opinions on the concept of accountability have been received. The information about how the roles and competencies of the school principals are affected by accountability and in what ways they changed has been obtained by making reference to principal's own experiences. Thus, roles and competencies of school principals in project schools were examined in terms of accountability. Within the framework of this general objective, the following objectives have been identified to analyze:

- How the principals of project schools experience the concept of accountability,
- How the roles of the school principals in project schools are influenced by accountability,
- How the responsibilities of school principals in project schools are influenced by accountability,
- How the competencies of school principals in project schools are influenced by accountability.

2. Method

2.1 Research Design

In this study, how the concept of accountability is interpreted, experienced and implemented by school principals are researched. Thus, phenomenology was chosen as the research design. The concept of accountability was discussed in detail and the similarities in perception of the study group was revealed. How school principals in project schools interpret the concept of accountability, what they understand from this concept and how they experience it, has been tried to be understood through open-ended questions asked to them.

2.2 Participants

In this study, study group was determined by using the maximum variation sampling which is one of the purposive sampling methods and interviews were carried out with 12 school principals in project schools. In particular, the reason behind the desire to interview with project school principals is the fact that these are schools that impose school based management partly. It is aimed to obtain different experiences by conducting interviews with school principals working in different types of project schools. In the analysis section, the demographic information of the participants was encoded. Accordingly, "P" is an abbreviation used for all managers. "P_1" is the participant's number. In parentheses, the educational background of the school principal (MD: Master's Degree, BD: Bachelor's Degree) and career phases in the headship are written, respectively. The encoding of the first participant is given as an example:
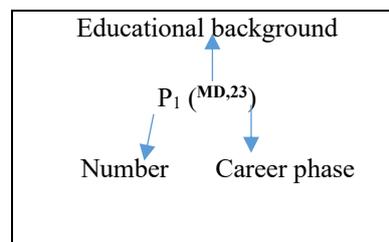
Figure 1: Sample Diagram of Coding the Participants

2.3 Data Collection Tool

In this study, a semi-structured interview form was developed as a data collection tool to conduct the interview. The researcher reviewed the literature on educational administration, accountability, school-based management, and project schools in detail. The general and sub-objectives of the study have been determined and interview questions have been prepared taking these into account. Interview questions were reviewed by the experts of educational administration, assessment and evaluation, Turkish Language literature and necessary changes were made. The validity and reliability studies of the semi-structured interview form, one of the qualitative data collection tools, were completed with the changes made.

2.4 Data Analysis

Content analysis, one of the qualitative data analysis methods, was used in this study based on phenomenology, which is one of the qualitative research designs. The data collected as audio recordings were first transcribed. Then the written data were coded. Certain categories were created by analyzing similarities of the codes. Themes were created by associated categories. Saldana (2009) defined the theme as a result of coding, categorization and analytical thinking, not something coded in itself. In this study, in that sense, pre-existing themes were not examined, on the contrary, the data were first coded, categories were created combining the codes, and finally themes were created combining the categories.

3. Results

The data collected at the end of the qualitative research were analyzed by content analysis method and a total of thirty codes, ten categories and three themes were created. The main themes are as follows: 1. Supervision in Education 2. Holism 3. The Functioning of Education.

3.1. Theme 1: Supervision in Education

First theme was determined as "Supervision in Education." Supervision in education involves the principles and assumptions of supervisory approaches (Aydin, 2016). In this study, the data collected from the participants are

explained in detail under the category of *perception of supervision* observing in what stages they are evaluating supervision in education, *principles of supervision* examining the aims of the supervision and how it should be applied, and *supervisory mechanism* interpreting the system in which supervision sources they are using in their schools. It is shown in table 1.

Table 1: Associated codes and categories of theme 1.

Theme	Category	Code	f	School Principals
Supervision in Education	Perception of Supervision	Clinical Supervision	3	P_6, P_8, P_1
		Self-Directed Supervision	3	P_9, P_1, P_{11}
		External Supervision	2	P_{10}, P_4
	Principles of Supervision	Guidance	1	P_{10}
		Transparency	5	P_1, P_3, P_7, P_9, P_{11}
		Public-Individual Benefit	3	P_{10}, P_{11}, P_5
	Supervisory Mechanism	Internal Mechanism	2	P_2, P_{10}
		Belief in Teacher	3	P_3, P_4, P_6

The category of perception of supervision is related to the way project school principals interpret and experience supervision. The first code is "clinical supervision," which focuses on the behavior of the teacher in the classroom and expresses the relationship between the teacher and the supervisor (Aydin, 2016). As Basar (1988) also mentioned, one of the methods used in teacher evaluation is clinical supervision.

A school principal stated that he supervised the teacher by observing his/her lesson and provided feedback to the teacher as follows:

P_8 ([MD,5]): "Teacher supervision, I have attended many of our teachers' lessons since the second term last year. I attended their classes as a guest in order to observe their lectures and how they were with the students in the classroom. I took notes and shared them with the teachers. I congratulate and appreciate their positive sides, and we talked about them together if I have any suggestions to make them better".

Another code under the category of perception of supervision is "self-directed supervision." Aydin (2016) defined self-assessment as an assessment process of teachers evaluating themselves in order to foster student learning.

Another issue that school principals mentioned under the category of perception of supervision is "external supervision." The code of external supervision refers to the supervision of school functioning by supervisors, that is, the supervision of the organization. The reason why this code is called is because the supervisors come from out of the school. School principals also expressed that there should be supervision and that they are pleased with it literally.

The category of "principles of supervision" has been determined as the second category of the supervision in education. In this category, how the school principals perceive supervision, which points they attach importance to are and the purposes of supervision were mentioned. The first code of this category is "guidance." For example, one of the school principals mentioned that the purposes of both teacher and administrative supervision are guidance:

P_{10} ([MD,18]): "I observe the work done by our teachers. Observing one particular lesson of a teacher does not change much. That is why the main point is not supervision but guidance which is right.

Another important concept expressed by school principals is "transparency." As stated by Gunduz and Goker (2017), transparency is a complement factor of accountability.

Another issue examined under the category of principles of supervision is "public-individual benefit." It implies all kinds of work done for the benefit of society and the development of the individual. Regarding that education is also a social activity, it can be mentioned that public sources are used effectively. In this context, school principals stated that they take care of the public interest, especially in financial terms, and that supervision keeps people vigorous.

"Supervisory mechanisms" is another category of the supervision in education theme. In supervisory mechanisms, it expresses how the supervision of teachers is conducted by the school principals and whose opinions are consulted in this process. The first code is determined as "internal mechanism." The internal mechanism can also be perceived as the most important element of the school, the student. In that sense, some school principals stated that they let students conduct teacher supervision.

Apart from the internal mechanism, another issue that principals talk about is "belief in teacher." School principals stated that they generally trust their teachers because they chose their teachers. This sense of trust represents their supervisory mechanisms.

3.2. Theme 2: Holism

Another theme is "holism." School principals stated that the work should be carried out as whole. According to Koffka (1935), the statement that the whole is more than the sum of its parts is not quite correct, it means something other than the sum of all its parts. According to him, while addition is a meaningless procedure, part-whole relation is significant. The fact that the relationship between them forms a meaningful whole has enabled these categories to be examined under the theme of holism.

The *improvement process*, which includes the improvement of the school principals in profession, the *administrative understanding* that includes their point of view to administration, and the *work ethics* that determines the addressees in accountability are specified and shown in Table 2.

Table 2: Associated codes and categories of theme 2.

Theme	Category	Code	f	Principals
	Improvement Process	In-service Training	4	P_3, P_4, P_8, P_{10}
		An Active Control Mechanism	2	P_6, P_9
		Professionalization	2	P_{10}, P_5
Holism	Administrative Understanding	Competence and Merit (Nepotism)	6	P_6, P_9, P_5, P_7, P_8, P_9
		Empowerment of Principals	4	P_3, P_2, P_1, P_7
		Perception of Duty (sense)	2	P_3, P_5
	Work Ethics	Inner Peace	4	P_2, P_7, P_9, P_{11}
		Social Responsibility	6	P_5, P_2, P_1, P_{11}, P_7, P_6
		Employer Influence	3	P_1, P_6, P_2

The "improvement process" includes the understandings of self-improvement of school principals in all aspects and some obstacles to this improvement. In this context, the participants mentioned "in-service training," which they do not believe to improve themselves and that they need a more functional system.

Some of the school principals mentioned that there are some problems in accountability system.

Interpreting the control mechanism from the viewpoint of teachers, a school principal explained the negative consequences of the system not being carried out correctly as follows:

P9 (MD,5): "Maybe we will have criticisms. It can be discussed what the concept of a good educator means or if we have really good educators. I found the criteria according to which the educators are selected, accountability criteria and application criteria problematic in our education system. Teachers are not accountable and they do not see themselves in an accountable position. In other words, as a civil servant, you can get away with positive or negative tasks you have done so far.

Another important issue mentioned by the participants was identified as "professionalization." Since the principle of "The essential point in profession is teaching" has been adopted in Turkey, administration is not considered as a profession, it is considered as a continuation (follow up) of teaching. Project school principals also addressed this issue and made some suggestions, they mentioned that steps should be taken towards the professionalization of administration.

"Administrative Understanding" has been determined as another category examined under the theme of holism. This category represents a whole that includes how principals are selected, how they improve themselves, their perspectives on their profession, and communication skills.

Taking the codes of administrative understanding into account as a whole helps us to understand the principles that school principals pay attention to regarding administration.

The first code of the category of administrative understanding has been determined as "competence-merit." Project school principals stated that they have right to select their teachers and they care about the merit while choosing the teachers.

The other sub-theme of the administrative understanding category is determined as empowerment of principals. Col (2004) stated that delegation of authority is a part of empowerment and that the main purpose of empowerment is a broader concept that includes holding the person who works for it responsible. Thus, the autonomy of selecting the administrative and teacher staff given to the project school principals should be considered not only as a delegation of authority, but as a broader empowerment.

Another code of the administrative understanding category is "perception of duty." Project school principals stated that they felt more responsible and worked harder than the other principals. They also said that they sacrificed their own lives in order to fulfill their duties and responsibilities. One participant explained his perception of duty as follows:

P5 (MD, 10): "When I leave at 5 or 6 pm, I worry if I betrayed. I work here until eight or nine pm, I brought it here to the lodgings so I can see my wife and children.

"Work Ethics" is another category of the holism theme. Ilhan (2005) emphasized that the business lives of individuals should be based on certain moral criteria. Kocabas and Karakose (2009) argued that the ethical behavior of a school principal is an important factor in creating a safe school environment for the education process of school staff and students. In this sense, school principals also feel responsible for certain audiences. The first code, "inner peace," is the best phrase that expresses the source of school principals' responsibilities. While putting their priorities in order, school principals emphasized that they should first be accountable for their conscience.

Another issue mentioned by school principals under the category of work ethics is "social responsibility." Social responsibility describes the liability that individuals feel towards society. The last code of work ethics is "employer influence." School principals working as government officials mentioned their legal responsibilities, and the Ministry of Education, provincial and district directorates for national education.

3.3. Theme 3: The Functioning of Education

The last theme was defined as "the functioning of education." This theme, which discusses how educational activities are carried out at schools and what kind of variables affect this, has been examined under four categories. These categories are 'school finance,' 'mission of education,' 'improving the quality of education' and 'instructional leadership.' Associated categories and codes are shown in table 3:

Table 3: Associated codes and categories of theme 3.

Theme	Category	Code	f	Principals
The Functioning of Education	School Finance	Local Facilities	4	P_2, P_6, P_9, P_{10}
		Personal Efforts	3	P_{11}, P_{10}, P_5
		Financial Dilemma	3	P_2, P_3, P_4
		Government Support	3	P_7, P_8, P_{12}
	Mission of Education	Academic Success	3	P_4, P_7, P_8
		Socio-Cultural Development	4	P_2, P_7, P_5, P_6
		Moral Development	4	P_1, P_8, P_9, P_6
	Improving the Quality of Education	The Role of Common Ground	3	P_{12}, P_8, P_1
		Unique Practices	3	P_2, P_4, P_6
	Instructional Leadership	Teachers' Needs	5	P_8, P_2, P_3, P_1, P_{10}
		Students' Demand	3	P_2, P_8, P_3
		Communication Skills	3	P_2, P_3, P_5
		Self-Update	3	P_{12}, P_5, P_6

In the "School Finance" category, the project school principals mentioned the sources that provide financial support to the school. School principals are responsible for education and training as well as for the income and expenses of the school. In this sense, the first code determined is "local facilities."

Another code under the school finance category is determined as "personal efforts." One of the participants emphasized that maintaining the balance of income and expenses is the same in each school, that the school principal is responsible for that and that the importance of individual success in financial matters as follows:

P_{10} ($^{MD, 18}$): "If I make excuses, then there is no difference between me and the principal at another school. We do not have an economic autonomy. So, success or failure is up to the school principal himself."

Another code under the school finance category is determined as "financial dilemma." Project school principals also stated that they felt difficult in this sense. According to them, the income provided by the government to schools is not sufficient and school principals feel themselves financially stuck.

The last code of the school finance category is "government support." Accordingly, as explained by the project school principals, the government provides the same support to all schools. In other words, the funding provided by the Ministry of National Education to all schools is the same.

The category of "Mission of Education" is concerned with the achievement of the educational objectives expected from schools. Participants emphasized that they attach particular importance to these three points in order to improve their schools in general. The first code is determined as "academic success

One of the aims of education is to develop the individual socioculturally. In this sense, especially the project schools aim to train their students as individuals who are well-equipped in every aspect. These views of the project school principals have also been examined under the code of "socio-cultural development."

The last code of the mission of education is determined as "moral development." In addition to the academic success, growing students up as individuals who are compatible with the society and have internalized universal moral laws is another issue emphasized by the project school principals.

"Improving the Quality of Education" has been determined as the third category of the theme of the functioning of education, which explains how education is pursuing in project schools. The activities carried out in the project schools in order to increase both academic and sociocultural activities and therefore to support education in all aspects are divided into two codes under this category. The first one, the role of common ground, involves project schools cooperating with similar educational institutions to improve their educational activities.

The second issue, which includes the activities carried out by principals in their own schools in order to improve the quality of education in project schools, is examined under the code of "unique practices."

"Instructional Leadership" has been determined as the category that explains the leadership understanding of school principals. The first code examined under instructional leadership is "teachers' needs," which is about providing the environment that teachers, one of the most important stakeholders of the school, need while performing their educational activities.

The views of a participant who stated that school principals are primarily responsible for the psychological readiness of the teacher are as follows:

P_2 [BD, 4]: "Initially, the teacher should be happy, if the teacher is happy, the happiness of the teacher will make students happy,too. If he is happy, we believe that success will be obtained faster."

Project school students' enrolling these schools with a certain exam score causes their requests and demands to differ from other schools. In that sense, another important issue that school principals attach importance to as instructional leaders is examined under the code of "students' demand."

Another feature of the instuctional leader is that he has effective communication skills. This feature has been examined under the code of "communication skill."

The last code studied under instructional leadership is "self-updating." Project school principals stated that the characteristics of their students force them to improve themselves compulsorily.

4. Discussion

In this part, the roles and competencies of project school principals have been analyzed based on the project school principals' opinions within the framework of accountability. Findings were discussed in the context of the purpose and sub-objectives of the research. Similar and different studies in the literature were compared with this research.

First of all, it was determined that principals explained the concept of accountability in relation to the concept of supervision in education. The school principals interviewed interpreted the supervisions in three different aspects in terms of accountability. They mentioned firstly classroom supervisions by school principals, secondly, institutional supervisions (external supervisions) carried out by inspectors, and lastly about self-directed supervision of themselves and teachers. Project school principals supervise the educational activities by observing the teachers' lessons. The results of the studies conducted by Kayikci, Canturk and Yilmaz (2014) and Karakose and Kocabas (2006) reveal that school principals adopted the clinical supervision. In these studies, it can be concluded that clinical supervision has turned into a routine for school principals, but the project school principals also stated that they do not need this supervision much, especially in their own schools.

In terms of external supervision, school principals stated that they did not experience any problems with the inspectors by mentioning school supervisions. Ladd (2012) stated that the only way to inspect schools is to visit

schools and that this inspection is necessary regardless of the cost. It can be said that the project school principals also support this point of view. In addition, it was observed that school principals talked about self-directed supervision of both themselves and their teachers'. It was emphasized that individuals with self-directed supervision do not need any external control.

Project school principals have the right to build their administrative and teacher team that they will work with. In addition, the students enroll to these schools by getting exam scores. It can be said that the effect of all these variables creates an accountability pressure on school principals. As a matter of fact, during the interviews, school principals also stated that they regarded it as natural to be held accountable while having such rights.

As a result of their research, Summak and Karadag (2009) emphasized that school principals should be financiers who can optimize resources. This research also supports the results and mentions that school principals should be good at creating resources. Some of the project school principals stated that they regard the ability to use local resources and to receive support from their personal contacts as part of the budget management. This makes it necessary for school principals to be chosen among individuals who are sociable with high persuasiveness and advanced communication skills. According to the research results of Yolcu (2007), school principals face difficulties in finding off-budget resources and these difficulties differ depending on the socio-economic level of the school environment.

In this context, it can be said that school principals do not have a common view on the financing of the school and that they either expect the support of the government or using their own means to eliminate socio-economic inequalities. Emphasizing the importance of the moral development of the students, their integration into society, and their education as individuals who know what is right and what is wrong, the project school principals drew attention to the importance of this issue. They concluded that academic development alone would not be sufficient, emphasizing that education, whose results are not seen at once, may have unfavorable consequences in the future. Francom (2016), and Karakose, Kocabas and Yesilyurt (2014) argued in their researches that one of the roles of school principals is being cultural engineer and this is possible by integrating character education in every field of the school. In this sense, it can be said that the project school principals adopted the role of being "cultural engineers" and aimed at raising individuals in every aspect.

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Influence of Demonstration Methods and Student's Activity on Learning Outcomes

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Abstract

This research is motivated by the fact in the field that the fourth-grade students' mathematics learning outcomes are still low in Public Elementery School 16 Bengkulu City. This is presumably, the lack of application of demonstration methods and student activeness towards student learning outcomes. On this basis, this study is focused on discussing mathematics learning using demonstration methods. The problem of this research is the low student learning outcomes and the students' lack of understanding of the broad and perimeter material. The purpose of this study was to determine the effect of demonstration methods and student activeness on mathematics learning outcomes of fourth-grade students of SD Negeri 16 Bengkulu City. This type of research is a quantitative study with an experimental method approach. Data collection techniques using observation, tests and documentation. The data analysis technique used the t test. The result of this research is the demonstration method and student activeness have a significant effect. So it can be concluded that the higher the student's activity, the higher the learning outcomes and the demonstration method as well as the learning outcomes, which means that the working hypothesis (Ha) in this study is accepted, that is, there are differences in student activeness in the control and experimental classes.

Keywords: Demonstration Method, Student Activity and Learning Outcomes

1. Introduction

Education is a process in order to influence students to be able to adapt as best as possible to their environment, thereby causing changes to themselves that allow them to function properly in community life (Andiyana et al., 2018). With the existence of quality human resources, it is hoped that they can contribute to development regardless of the burden of the education budget because education is one of the important factors in the development of the nation and state. One of the efforts to improve the quality of education in schools is by

making innovations in the teaching and learning process. The meaning of education itself is stated in Law no. 20 of 2003 Chapter 1 Article 1 (paragraph 1) concerning the National Education System. "Education is a conscious and planned effort to create an atmosphere of learning and the learning process so that students actively develop their potential to have religious-spiritual strength, self-control, personality, intelligence, noble morals, and skills needed by themselves, society, the nation and the state" (Risdianto, 2019). Mathematics learning is a process of building students' understanding of facts, concepts, principles and skills according to their abilities, teachers or lecturers in delivering teaching material, students with their respective potentials confront their understanding of facts, concepts, principles and skills as well as problem solving. As a mathematics teacher requires appropriate teaching methods so that teaching as a process of giving treatment to students is more focused, regular and not arbitrary or just teaching (Hamzah, 2016). Students will be happy if the learning that takes place is not monotonous and creates a pleasant learning atmosphere. Moreover, mathematics subjects must be appropriate methods and supported by learning media.

The use of learning methods that are not in accordance with the objectives of teaching will become an obstacle in achieving the goals that have been formulated. Quite a lot of learning materials are wasted just because of the use of methods according to the wishes of the teacher and ignoring the needs of students (Matulnaimah, 2018). The continuity of learning methods with others is an important thing that cannot be taken lightly.

Based on preliminary observations carried out at Public Elementary School 16 Bengkulu City, the low learning outcomes of elementary school students in mathematics were due to several things, for example: 1) Learning is only fixated on the teacher, 2) Students are less interested in learning mathematics because it is boring, 3) Teachers are less creative in using it. method 4) Students have not been actively involved in learning because they only listen to the teacher explain. To improve student learning outcomes with fun learning in mathematics on the material of calculating the circumference and area of squares and rectangles the teacher can use the demonstration method (Ahmad & Nasution, 2018). This demonstration learning method can be used to describe the shape of the perimeter and area of squares and rectangles. This method is similar to the realistic mathematics learning method developed by Ardiyani (2018) but with some differences because this demonstration method makes representations of the outside into the classroom. Mathematics learning outcomes can be improved by learning digital learning as was done by Lin and Chen (2017), besides that also by using the mathematics learning module developed Dan *et al.* (2014; Djafar *et al.*(2019); dan Lestari *et al.*, (2020). This study seeks to reveal other variables that can improve mathematics learning outcomes. These variables are demonstration learning methods and learning activities.

2. Methods

The type of approach used in this research is a quantitative approach, a quantitative approach is an approach that uses numbers, statistical processing, culture and controlled experiments (Hermawan, 2019). This method is used when the experimental class and the control class are naturally the same intact class. In this intact class, there is an experimental class and a control class which have the same competence. Students are given different treatments, namely one experimental class and one control class. The experimental class used the demonstration method and the control class without using the demonstration method to determine the student's mathematics learning outcomes (Mertler, 2017; Privitera, 2016; Saregar et al., 2019).

The experimental research design used was pretest-posttest, non-equivalent control group design to find data on the effect of demonstration methods on student mathematics learning outcomes. Pretest-posttest, non-equivalent control group design, where a group of subjects is taken from a certain population and carried out a pretest then subjected to treatment in a row (Riyanto & Hatmawan, 2020). After treatment, the subject was given a posttest to measure learning outcomes in the group. The evaluations given carry the same weight. The difference between the pretest and posttest results shows the results of the treatment that has been given. Based on the explanation above, it can be described the Group Design Non-Equivalent Control Scheme in table 1.

Table 1: Research Design Scheme

O_1	x	O_2
O_3	-	O_4

(Source: Sugiyono,2006)

Information:

Experimental class: The class or group that is given treatment.

Control class: Class or group that is not treated.

01: Pretest Results of the experimental group before being given treatment

02: The posttest results of the experimental group after being given treatment

03: The results of the control group pretest before being given treatment

04: Results of the control group posttest

X: Treatment given to the experimental group

  -: There was no treatment in the control group.

In this study, researchers conducted two tests in each group. The pre-test was carried out on the experimental group and the control group to find out the results of the initial learning test before being given treatment. Then in the final test the experimental group was given treatment in the form of the use of demonstration methods and student activeness by observation using the Guttman scale. Meanwhile, the final test of learning in the control group was carried out without treatment. After the two groups did the final test, the results of the two groups were then compared or tested for differences. The significant difference between the two scores in the experimental group and the control group will show the effect of the treatment that has been given (Hermawan, 2019). In this study, the population was all fourth grade students at Public Elementary School 16 Bengkulu City in the 2019-2020 school year, which were divided into 4 classes namely 4th A, 4th B, 4th C and 4th D.

Observation technique was conducted with an check list instrument, namely observing and assessing how the method was applied during the learning process. By using data collection techniques in the form of measurement techniques. The reason the researcher uses the measurement technique is to measure the learning outcomes obtained by students after carrying out learning activities carried out in the experimental class and the control class. The data collected this study is quantitative data form average value of student learning outcomes obtained from the posttest results. Based on the data collection techniques used, the data collection tool was in the form of test questions. According to (Yusup, 2018), This study uses construct validity or expert validity which aims to see the suitability of the questions with indicators, basic competencies, and competency standards that exist in the 2013 curriculum that is currently used. Construct validity uses expert opinion to determine whether the questions are valid or not.

Perform data normality test using Chi Square. The group data normality test was carried out using the test X^2 (Sukestiyarno & Agoestanto, 2017). Here's the calculation formula Chi Square :

$$X^2 = \sum \frac{(fo-fh)^2}{fh} \qquad (1)$$

Information:

X^2 = Chi Square

Fo   = observed frequency

Fh   = expected frequency

Knowing the differences in student learning outcomes in class. To answer the hypothesis in this study will use the t-test. The t test will use a significant value $\alpha = 0,05\%$. The t test used in this study is a type of t-test-collected variance (Lia et al., 2020). The following is the t-test polled variance formula that will be used :

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{(n_1-n_2)S_1^2+(n_2-1)S_2^2}{n_1+n_2-2}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}} \qquad (2)$$

Information:

$S_1{}^2$ = variance of the experimental class

$S_2{}^2$ = control class variance

$\bar{X}_1$ = mean value of the control class

$\bar{X}_2$ = average value of the experimental class

n_1 = number of samples in the experimental class

n_2 = number of samples for the control class

The testing criteria with a significance level of 5%, namely: (a) The value of t count > t table, then the null hypothesis (Ha) is accepted. (b) The calculated t value <t table, then the alternative hypothesis (Ho) is accepted Knowing how much influence the application of the Inquiry learning model has on student learning outcomes can be measured by the Effect Size. The Effect Size formula is as follows:

$$ES = \frac{(\bar{Y}_e - \bar{Y}_C)}{\bar{S}_c} \qquad (3)$$

Information:

E*S*= *Effect Size*

$\bar{Y}_e$ = Mean Value Experimental Group

$\bar{Y}_C$ = Mean Value Comparison Group

$\bar{S}_c$ = Standard Deviation Comparison Group

(Amalia et al., 2020)

3. Results

Based on research conducted on the formulation of the problem, namely whether there effect student activeness mathematics learning outcomes fourth grade students Public Elementery School 16 Bengkulu City, it can be seen that the results of the calculations are as follows:

1. Finding the mean variables X and Y
    a) Finding the mean variable X
       Mean $X_1 = \frac{Fx}{N} = \frac{1965}{32} = 61{,}40$
    b) Finding the mean variable Y
       Mean $X_2 = \frac{Fy}{N} = \frac{1650}{32} = 51{,}56$
2. Looking standard deviation of the value of the variables X and Y
    a) Looking standard deviation of the value of the variable X

    $SD = \sqrt{\frac{\sum X^2}{n}} = \sqrt{\frac{3511{,}72}{32}} = \sqrt{109{,}74} = 10{,}47$
    b) Finds the standard deviation of the Y variable

    $SD = \sqrt{\frac{\sum y^2}{n}} = \sqrt{\frac{2932{,}09}{32}} = \sqrt{91{,}62} = 9{,}5$
3. Find the variants of the X and Y variables
    a) Looking for variants of the observation results of class IV D

    $S^2 = \frac{N\sum x^2 - (\sum x)^2}{n(n-1)} = \frac{32.124175 - (1965)}{32(32-1)}$

    $= \frac{3973600 - 3861225}{32(31)} = \frac{112375}{992}$

    $S1^1 = \sqrt{113{,}28} = 10{,}64$
    b) Looking for variants of the observation results of class IV C

    $S^2 = \frac{N\sum y^2 - (\sum y)^2}{n(n-1)} = \frac{32.88150 - (1650)}{32(32-1)}$

$$= \frac{2820800 - 2722500}{32(31)} = \frac{98300}{992}$$

$$S1^2 = \sqrt{99,09} = 9,95$$

4. Looking for an interpretation of it

$$T = \frac{X_1 - X_2}{\sqrt{\frac{S_1{}^2}{n1} + \frac{S_2{}^2}{n2}}} = \frac{61,40 - 51,56}{\sqrt{\frac{113,28}{32} + \frac{99,09}{32}}}$$

$$= \frac{9,84}{\sqrt{\frac{212,37}{32}}} = \frac{9,84}{\sqrt{6,636}} = \frac{9,84}{2,57} = 3,828$$

Before consulting with the t table, it was determined that df or db = (N1 + N2) - 2 = (32 + 32) - 2 = 62. Based on the above calculations, when consulted with t table with df (to 64) at the 5% significant level, namely 1.998. Therefore t count > t table (3,828 > 1,998) which means the working hypothesis (Ha) In this study it was accepted, namely that there was an effect of student activeness on mathematics learning outcomes fourth grade in public elementary school students of Bengkulu City.

The learning method using the demonstration method is a learning concept that can help teachers in delivering easy material, and will make students happy to do learning (Dewi, 2018). The material previously understood by students with difficulty, after this method became easier. From the learning results, if it is observed that the interest in learning mathematics using this demonstration method, students look more enthusiastic about learning, and it is easier to understand the material. Classes that are taught using the demonstration method show a feeling of pleasure in mathematics.

Based on the research data that has been analyzed, it can be seen that the researcher plays a direct role as a mathematics teacher in 4th grade on the area and circumference of a square and a rectangle. 4th grade D students as objects totaling 32 students who are given treatment in the form of demonstration methods and 4th grade C as objects totaling 32 students who are given treatment without using demonstration methods.

Before being given the treatment, a pretest was held to determine the students' initial ability to the material being tested. In working on this pretest, students generally only worked on questions according to their makeshift abilities. This is because the material being tested (pretest) has not been taught. The students' achievement in the form of the average pretest score for 4th grade D was 47.71 and 4th grade C was 46.25 then the upper, middle and lower categories were determined. When viewed from the pretest average of the two classes there is no significant difference (same). To prove whether the achievement of the two groups is homogeneous or not, a variance (homogeneity) test is performed). From the homogeneity test (test "F") obtained results Fhitung < F tabel (1,17 < 1,82) then the pretest data variance is homogeneous (same), so it can be said that the abilities of the two classes are the same and can be used as research samples based on the normality test. Next is to do learning with the demonstration method in 4th grade D. So that the posttest ability in 4th grade D is obtained using the demonstration method with an average of 75.81.

When viewed from the frequency of the results, there were 8 students in the upper group (25%), 20 students in the middle group (62.5%), and 4 students in the lower group (12.5%).

Learning Outcomes of 4th Grade C

9,375%   21,875%
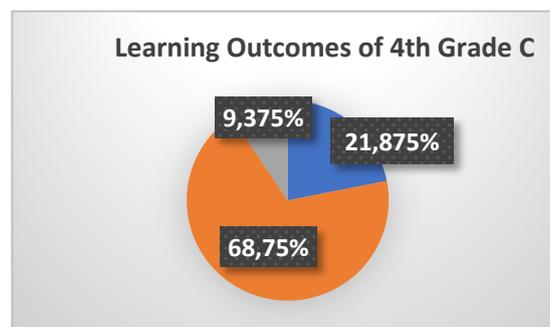
68,75%

Whereas in 4th grade C the average student learning outcomes were 68.93 when viewed from the frequency of student learning outcomes, there were 7 students in the upper group (21.875%), 22 students in the middle group (68.75%), and 3 students. in the lower group (9.375%).

To prove the comparison, the "t" test is carried out based on the results of the "t" test that have been done, which is obtained tcount = 2,677 while ttable with df 64 at a significant level of 5%, namely 1.998 tcount > ttable (2,677 > 1,998) which means that the working hypothesis (Ha) in this study is accepted, that is, there is a difference between the use of the demonstration method without the demonstration method on learning outcomes class students 4th grade Public Elementery School 16 Bengkulu City (Satria & Kusumah, 2019). Furthermore, namely, the observation assessment in the control class and experimental class with the number of each object, namely 4th Grade D (experimental class) as many as 32 students and 4th grade C (Control Class) as many 32 students.

EXPERIMENTAL 4TH GRADE D)

15,625%

25%

59,375%

The average result obtained is in the experimental class of 61.40. When viewed from the frequency of the results, there are 5 students in the upper high group (15.625%), 19 students in the middle group (59.375%), and 8 students in the lower group (25%).

CONTROL 4TH GRADE C)

15,625 %   12,5%
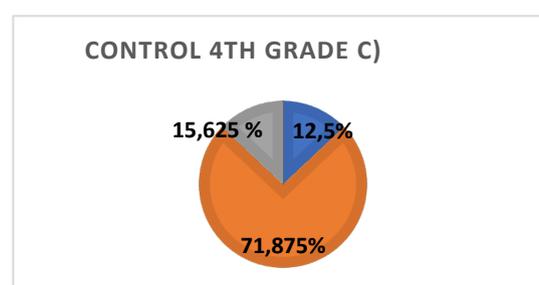
71,875%

Whereas in 4th Grade C the average student questionnaire results were 51.56. When viewed from the frequency of student learning outcomes, there were 4 students in the upper group (12.5%), 23 students in the middle group (71.875%), and 4 students. in the lower group (15,625%).

To prove whether the achievement of the two groups is homogeneous or not, a variance (homogeneity) test is carried out. From the homogeneity test ("F" test), the results obtained Fcount <Ftable (1.06 <1.82), then the

variance of student activity data is homogeneous (the same), so it can be said that the abilities of the two classes are the same and can be used as research samples based on the normality test. (Usmadi, 2020).

To prove this comparison, the "t" test was carried out based on the results of the "t" test that had been done, obtained tcount = 3.828 while t table with df at a significant level of 5%, namely 1.998, thus tcount> ttable (3.828> 1.998) which means the hypothesis work (Ha) in this study is accepted, that is, there is a difference between the results of observations in the control class and in the experimental class. That means there is effect student activeness on mathematics learning outcomes fourth grade students public elementary school 16 City Bengkulu.

4. Discussion

The average result obtained is in the experimental class of 61.40. When viewed from the frequency of the results, there are 5 students in the upper high group (15.625%), 19 students in the middle group (59.375%), and 8 students in the lower group (25%).

The learning method in this study uses the demonstration method. This learning method can help teachers convey material more easily, and make students enjoy learning. The material that was previously difficult for students to understand becomes easy after this demonstration method is applied. This is evident from the score of mathematics learning outcomes after this method is applied. In addition, students' interest in learning increased based on random interviews with several students.

The learning material in this study was "Area and Circumference of Square and Rectangle" in 4th grade. The research subjects were 32 students in 4th grade D who were given treatment in the form of demonstration methods and 4th grade C as objects totaling 32 students who were not given learning treatment. demonstration method.

Before being given treatment, a pretest was given to determine the students' initial ability to the material being tested. In working on this pretest, students generally only worked on questions according to their makeshift abilities. This is because the material being tested (pretest) has not been taught. The achievements obtained by students in the form of the average pretest score for 4th grade D were 47.71 and 4th grade C was 46.25 then the upper, middle and lower categories were determined. When viewed from the pretest average of the two classes there is no significant difference (same). To prove whether the achievement of the two groups is homogeneous or not, a variance (homogeneity) test is carried out. From the homogeneity test ("F" test), the results obtained $F_{count} <F_{table}$ (1.17 <1.82), then the pretest data variance is homogeneous (same), so it can be said that the abilities of the two classes are the same and can be used as research samples based on the normality test.

Next is learning by using the demonstration method in 4th grade D. So that the posttest ability in 4th grade D is obtained using the demonstration method with an average of 75.81. When viewed from the frequency of the results, there were 8 students in the upper group (25%), 20 students in the middle group (62.5%), and 4 students in the lower group (12.5%). Whereas in class 4 C the average student learning outcomes were 68.93 when viewed from the frequency of student learning outcomes there were 7 students in the upper group (21.875%), 22 students in the middle group (68.75%), and 3 students in the group. below (9.375%).

To prove this comparison, the "t" test was carried out based on the results of the "t" test that had been done, obtained tcount = 2.677 while t table with df 64 at a significant level of 5%, namely 1.998, thus tcount> ttable (2.677> 1.998) which means The working hypothesis (Ha) in this study is accepted, that is, there is a difference between the use of the demonstration method and the non-demonstration method on the learning outcomes of 4th grade students of Publik Elementery School 16 Kota Bengkulu.

Next, namely, the observation assessment in the control class and the experimental class with the number of each object, namely 4th grade D (experimental class) as many as 32 students and 4th grade C (control class) as many as 32 students. The average result obtained is in the experimental class of 61.40. When viewed from the frequency

of the results, there are 5 students in the upper group (15.625%), 19 students in the middle group (59.375%), and 8 students in the lower group (25%).

Whereas in 4th grade C the average student questionnaire results were 51.56 when viewed from the frequency of student learning outcomes, there were 4 students in the high group (12.5%), 23 students in the middle group (71.875%), and 4 students. in the lower group (15.625%).

To prove whether the achievement of the two groups is homogeneous or not, a variance (homogeneity) test is carried out. From the homogeneity test ("F" test), the results obtained Fcount <F table (1.06 <1.82), so the variance of student activity data is homogeneous (same), so it can be said that the abilities of the two classes are the same and can be used as research samples based on the normality test.

To prove this comparison, the "t" test was carried out based on the results of the "t" test that had been carried out, obtained tcount = 3.828 while t table with df at the significant level of 5%, namely 1.998, thus tcount> ttable (3.828> 1.998) which means hypothesis work (Ha) in this study is accepted, that is, there is a difference between the results of observations in the control class and in the experimental class. That means there is an effect of student activeness on mathematics learning outcomes of 4th grade Public Elementery School 16 Bengkulu City.

All teachers would want optimal mathematics learning outcomes and overall scores have high scores. These high mathematics learning outcomes have been obtained in research conducted by De Witte, Haelermans and Rogge (2015); Chen, Yang and Hsiao (2016); Sari and Yunianta, (2017). In addition, the research variables used have an influence on learning outcomes. But even so there are studies that significantly influence demonstration learning methods but significantly linkages have weaknesses. This happened in a study conducted Thompson and Soyibo, (2002). This is very common in educational research, because there are often confounding variables that are not seen by research observers (Peters, 2015).

Acknowledgments

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Constraints of Online Learning Using Google Classroom During Covid-19

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Abstract
The purpose of this study was to connect the learning school of computer education students at Dehasen University Bengkulu in using google class. This type of research is descriptive qualitative. Respondents' answers using the google form application. Data were analyzed by stages of reduction, display and conclusion drawing or verification. The google form questionnaire was used as an instrument used to collect data in this study. The results of the analysis show that students face some difficulties in using google classroom on the attendance menu, quiz assignment menu, essay assignment menu, word or pdf download menu and video download menu. To overcome these obstacles, teachers need to learn Google Classroom in accordance with the obstacles they are facing. Application of this study: This research can be useful at Dehasen University Bengkulu which is currently implementing online learning, Place in Bengkulu city, Bengkulu Province, Field of study Computer education. The novelty in this research is that the researcher conducts research to see from the constraints of the menus that are on google scholar, which can be useful for educators, both lecturers or teachers in using the google classroom application and can provide knowledge about obstacles in the online learning process using google classroom, so that when a teacher or lecturer wants to use google classroom, they have prepared a solution to face these obstacles. To advance this study, further research is needed. This research is new knowledge in the Image Capturing Engineering course.

Keywords: Google Classroom, Online, Computer Education

1. Introduction

During the Covid 19 pandemic according to a circular from the Ministry of Education and Culture, Directorate of Higher Education No.1 of 2020 regarding the prevention of the spread of covid-19 in the world of education, students still have to carry out the learning process at home (Handarini & Wulandari, 2020). This Covid has a direct impact on the world of education, therefore it is necessary to close educational institutions so that the corona virus does not spread (Aji, 2020)

The process of lecturing activities must continue to be carried out so it is necessary to do face-to-face learning substitutes with online learning. Online learning is learning that is carried out using the internet as a means of transferring knowledge to students (Handarini & Wulandari, 2020), Online learning is a learning process that utilizes technology virtually by using the internet which is not done face-to-face but electronic media as a means of assistance (Syarifudin, 2020). Online learning can be a solution for lecturers to deliver material to students in the Covid-19 pandemic. Where in the press conference of the Ministry of Education and Culture of the Republic of Indonesia, through a video guide for organizing learning for the 2020/2021 academic year, universities must conduct lectures online (https: kompas.com).

The advantage of online learning is that it can be anywhere and anytime it can make online learning more effective and flexible (Syarifudin, 2020), can learn independently using the help of the internet (Megawanti, 2020), can be more proficient in information technology because they have been trained to master applications (Pangondian et al., 2019).

There is also a lack of online learning : limitations to doing practical learning so that learning is more to theory than practice (Sanjaya, 2020), the difficulty of buying quotas for the internet (Anggianita et al., 2020), features on mobile phones that have limitations (Anugrahana, 2020), parents come from the middle to lower economy, so there is no money to buy a cellphone (Asmuni, 2020), and because they do not have a quota, the assignment collection is late (Ramanta & Widayanti, 2020).

Based on the results of the initial semester meeting which was held on Friday 11th of the month of 2020 between the head of the Dehasen Bengkulu University Computer Education study program and the Lecturers, which was attended by the study program chairman, the study program secretary and 6 lecturers teaching computer education courses at Dehasen University Bengkulu, it was decided to online learning using the google classroom application. Google Classroom is one of the free accesses that makes it easier for lecturers and students in the e-learning process, which offers many benefits for its users (Hapsari & Pamungkas, 2019). He reasons for using google classroom are based on good response analysis shown by students in using Google Classroom, so that Google Classroom can be used to help smooth the learning process (Utami, 2019), but the requirements that need to be taken into account if you want to use google classroom are the need for good internet access (Rozak & Albantani, 2018).

The weaknesses of google classroom are that if the google drive is full, we cannot send files (Nurhusna, 2020). Another drawback is that google classroom can only be accessed via a google account, does not have a share link menu to recommend or add other people to join the google classroom class (Santosa et al., 2020), and there is no direct practice, only theory (Aditya, 2020).

Students of Bengkulu Dehasen University Computer Education come from several areas, namely North Bengkulu district, South Bengkulu district, Seluma district, Rejang Lebong district, Kepahyang district, Kaur district, Muara Aman district, Muko-Muko district and some are from Bengkulu city. The difference from the geographical location of residence has an impact on the online learning process, and will raise obstacles in the online learning process (Juliya & Herlambang, 2021). Differences in geographical locations can cause obstacles in online learning (Rigianti, 2020).

Based on information obtained from computer education students at the University of Dehasen Bengkulu, if there is a blackout in their area, especially those who live in the area, then their signal will be disturbed and even lost, power outages in the student area live sometimes die from morning to evening so that the internet network will disturbed. Online learning in the midst of the Covid-19 pandemic situation, there are many obstacles, bad network, blackout causes the signal to disappear (Fauziyah, 2020).

Previous research only looked at online learning barriers in general (Jamaluddin et al., 2020), the implementation of online learning (Syarifudin, 2020), the impact of covid on the implementation of online learning (Dewi, 2020), online learning based on Google Classroom (Suhada et al., 2020), utilizing google classroom (Hapsari & Pamungkas, 2019). Without examining the obstacles that occur when using google classroom. Because it is seen

the importance of this, it is necessary to carry out further research with the title "constraints of online learning using google classroom during covid 19 computer education students at Dehasen University Bengkulu?"

2. Research Methods

This study uses a qualitative approach with a descriptive design. A qualitative approach is an approach taken by a researcher to the research subject in a complete manner where there is an actual incident and the researcher is used as a key instrument in the study, then the results of the approach obtained are explained in the form of a description of words written in accordance with actual data and generalization is not too emphasized but more emphasized on its meaning (Raco, 2018).

Focus examines the constraints of using google classroom. This research was conducted for one semester. Some of the variables included in the focus of the study were student attendance, quiz assignments, essay assignments, downloading material in word or pdf form, and downloading material in the form of videos.

The data source of this research is the computer education students of Bengkulu University, semester 3, totaling 40 people, taken this class because they come from various regions.

The research instrument in this study consisted of: a questionnaire via Google Form, a google form data recap and a data recap folder. Answers to questionnaires from respondents that are automatically recorded in the system are converted into excel tabulations for further processing or analysis. Data analysis techniques are inductive, in the formation of abstracts based on data items that have been collected, then they are grouped based on the information that has been obtained then become the conclusions in the research. The stages of descriptive analysis are reduction, display and conclusion drawing / verification (Miles et al., 2018).

3. Research Results and Discussion

Research result

The number of respondents recorded via google form in this study were 30 respondents. The menus used for the student's google classroom are attendance, quiz assignments, essay assignments, and material in the form of word or pdf, material in the form of video. The percentage details of respondents are as follows :

a. Attendance
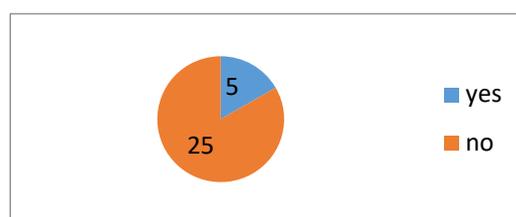
Figure 1: Attendance Filling

For absenteeism filling in google room, 5 people experienced interference during their absence, and 25 people never experienced interference. This is caused by signal interference, when doing absences so that it is considered absent.

Based on the results of interviews with the five respondents: this happens if attendance is limited to 30 minutes starting from the lecture schedule.

b.   Quiz assignments
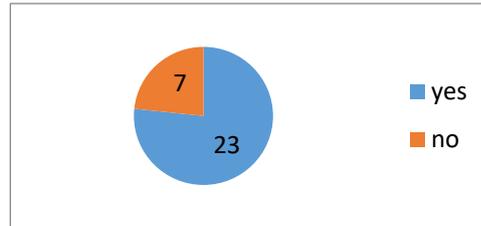
Figure 2: Completion of quiz assignments

For the task in the form of quizzes, 23 people have experienced problems, while 7 people have never experienced problems. This is caused by signal interference.

Based on the results of the interview to conclude, this happens if the time for the quiz is limited to 30 minutes and there are many questions that have to be done, so there is less time to think about the right answer where the signal constraint becomes an obstacle to switching to another question.

c.   Essay assignment
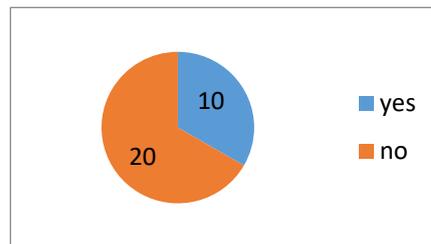
Figure 3: Essay Task

For work on assignments in the form of an essay, 10 people had experienced problems, while 23 people had never experienced problems. This is caused by signal interference.

Based on the results of interviews with respondents, it was observed : This happens when lectures are held at night or in the evening and sometimes there is a power outage, then given the assignment and given a fairly short time limit for the task.

d.   Download material in word or pdf format
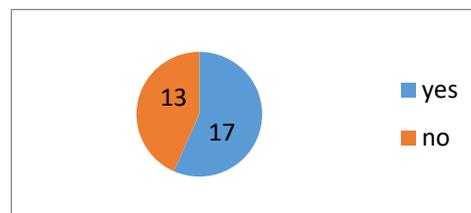
Figure 5: Downloading material in word or pdf format

To download an assignment in word or pdf form 15 people have experienced problems, while 15 people have never experienced problems.

Based on the results of interviews with respondents : this happens if the material is given in the afternoon or evening, sometimes in some areas there are blackouts.

e.   Download material in the form of videos
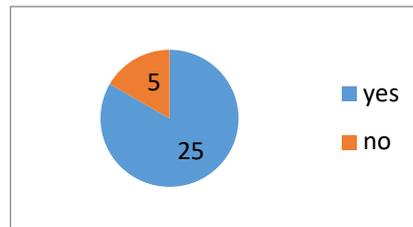
Figure 6: Downloading material in video form

Downloading material in the form of video 25 people have experienced problems, while 5 people have never experienced problems.

Based on the results of interviews with respondents : this happens because in their area the signal is not stable so it takes a long time to download material in the form of a video.

Discussion

The lecture schedule is given freedom by the university so that lecturers can conduct it in the morning, during the day, at night, but for the morning at 08.00 western Indonesian time and at night the maximum time is 22.00 western Indonesian time. One of the advantages of online learning is that the lecture schedule is more flexible to use when lecturing online (Jamil & Aprilisanda, 2020). However, what students feel is if the lecture is held in the afternoon or evening, sometimes there are frequent power cuts causing their signal to be lost and sometimes there is weather disturbance which causes the signal to be unstable.

As a lecture rule from Dehasen Bengkulu University, every lecturer must make a form for student absences in google classroom. Then the student attendance form is screenshot as evidence that the lecturer has carried out online learning activities submitted to the computer education study program, and the lecturer is asked to set a time limit on the absent form, with the aim of making students more disciplined and on time. This absent form will also later serve as a reference for grading students.

 The Dehasen Bengkulu University asked lecturers who taught courses to provide teaching materials to students in google classroom, with the aim that students can download the material and study the material that has been shared by lecturers on the google scholar material menu.

Regarding the material distributed on the google classroom material menu, lecturers are free to provide material in any form, it can be in the form of words, pdf, and power points. The form of evidence of providing material will also later become material for reports that have carried out lectures. The size of the word, pdf, and powerpoint files is also not limited to being completely left to the lecturers.

 Specifically for practical subjects, the head of the Dehasen University computer education study program, Bengkulu, asked lecturers to provide material in the form of video media. One of the reasons why choosing video media is that it can increase learning motivation after using video as a learning medium (Umairah & Zulfah, 2020). The video media made must be related to the teaching material, the file size for the video is not determined by how much it is submitted to the respective lecturers. Making video media can use power point, use android or use other equipment.

Lecturers give assignments in the form of quizzes and essays on google form to see the extent to which students understand the material that has been given. In this quiz, there is a time limit for both quiz questions and essay questions, and the questions made must be in accordance with the lecture material given by the lecturer in question. Questions can be given before learning begins, in the learning process and after the learning process. Assessment in the form of a quiz or essay can also be applied to the midterm exam at the eighth meeting and the final semester exam held at the sixteenth meeting.
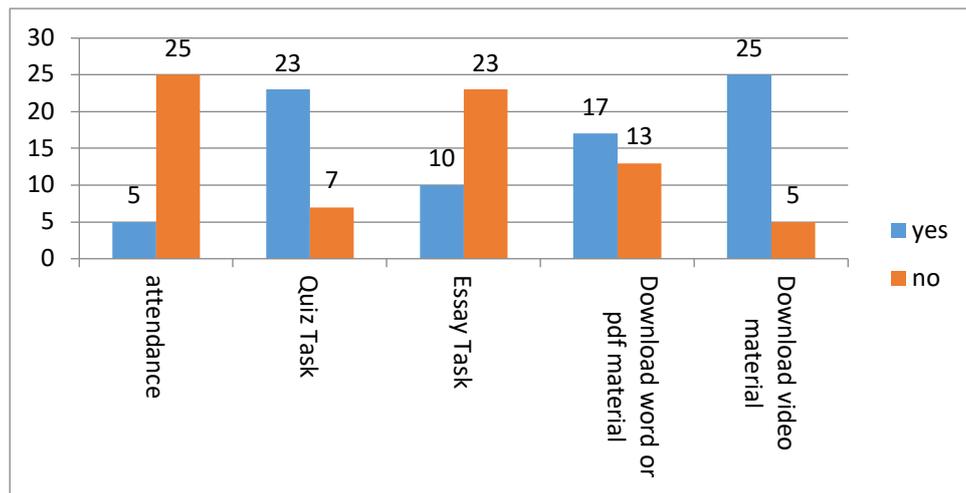
Figure 7: Recapitulation of results using google classroom

Based on Figure 7. It can be seen that the one experiencing the biggest problem is the quiz task, then it is followed in downloading the word or pdf material, and finally downloading the video material. This is due to internet disruption. Internet disruption is an obstacle in almost all online learning, both at the primary school and college levels, (Hutauruk & Sidabutar, 2020). This also happened in Aceh Besar Province, the problem was that the electricity often went out which caused the laptop to not be used and the decision was that it could not download learning media in the form of youtube, word or pdf (Sahelatua et al., 2018).

For attendance and essay assignments, it appears that there are obstacles, but they are not too high compared to the three items. Attendance constraints, because the time to do absences in google classroom is too short, causing students to be absent late so they are considered absent, this of course will affect the value of the student in the attendance assessment item. For essay assignments, the questions given are too many, causing students to sometimes need time to work on them and when they want to send coursework on Google Form there is a signal disturbance that finally the assignment cannot be submitted anymore because the time given has run out, so they are certainly not getting a grade on task appraisal item because it is deemed not to have collected the task.

Conclusion

The use of Google classroom has several obstacles: if there is a power outage, the use of google classroom will be disrupted, student attendance becomes a problem if the time given for absences is too short, downloading videos is hampered because the signal is sometimes unstable and the video size is too large causing it to take a long time to download it.

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Interpersonal Intelligence: A Strengthening in Efforts to Improve Student Learning Achievement

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Abstract
The purpose of this study was to determine the relationship between interpersonal intelligence and student learning outcomes so that there is an increase and strengthening of student achievement. The method used in this research is field research with a correlational quantitative approach which aims to analyze the relationship between interpersonal intelligence and student achievement. The results of this study found that there is a significant relationship between interpersonal intelligence and student achievement. This can be proven from statistical calculations, namely r count is greater than r table (0.995> 0.347) with a significant stage of 5%. Thus the alternative hypothesis (Ha) in this study is accepted and the hypothesis (H$_0$) in this study is rejected.

Keywords: Interpersonal Intelligence, Learning Achievement, Quantitative, Students

1. Introduction

Basically education in elementary school is an organized, planning, and continuous effort throughout life to foster students to become complete, adult, and cultured human beings. As a formal school education institution that is born and develops effectively and efficiently, it is a device that is obliged to provide services to the community in educating citizens. (Hasbullah et al., 2019). Education is also an activity to optimize the development of the potential, skills and personal characteristics of students. Educational activities are directed at achieving certain goals called educational goals (Aziizu, 2015). In Law no. 20 of 2003 concerning National education Article 1 Paragraph 1 states that education is a conscious and planned effort to create an atmosphere of learning and the learning process so that students actively develop their potential to have religious spiritual

strength, self-control, intelligence, noble character, and skills that are needed himself, society, nation and state (Visser-Wijnveen et al., 2014).
In the whole process of education in schools, learning activities are the most basic activities. This means that the success or failure of achieving educational goals depends a lot on how the learning process is experienced by students as learners (Kusumah et al., 2020).

Learning is one of the factors that influence and play an important role in shaping personal and individual behavior. Learning is an activity that can be done psychologically or physiologically (Rusman, 2011). Learning will produce changes in a person. To find out how far the changes have gone, it is necessary to assess them. Likewise with education, an assessment of the learning outcomes is always held. An assessment of the learning outcomes of a student to find out these learning objectives is known as learning achievement (Walid & Hadiwinarto, 2021) .

Some people argue that high achievement can only be achieved by students who have high intelligence. In fact, students who have high intelligence do not necessarily get good achievement, because intelligence is not the only factor that determines student success, but there are several factors that influence it (Selviani, 2019).

Likewise for students to achieve high achievement in a learning process, not only using their intelligence abilities, but also relationships with other students which include interpersonal intelligence. Interpersonal intelligence is an individual's ability to interact with other people. Individuals who have high interpersonal intelligence tend to have excellent communication skills and the ability to empathize with other people (Nuryasin et al., 2016).

Interpersonal intelligence is the ability to understand and make differences in moods, intentions, motivations, and feelings towards others (Sujiono & Sujiono, 2010). Interpersonal intelligence is the intelligence to relate to other people, express and capture the mood, goals, motivation, and feelings of others (Sudarsana, 2018). Interpersonal intelligence allows us to be able to understand and communicate with others, see differences in mood, temperament, motivation and abilities (Oviyanti, 2017). This includes the ability to form and maintain relationships, and to know the various roles that exist in a group, both as a member and as a leader.

Students who have interpersonal intelligence like to interact with other people, both those of their age and those who are older or younger. With their ability to influence peers, they sometimes stand out very well in group work. Some students are very sensitive to the feelings of others, some of them can provide a variety of different perspectives on social problems and also help others (Campbell et al., 2006).

However, the reality in the field is not in accordance with thexpected goals. There are still many students whose learning achievement does not meet the minimum completeness criteria. This is because most students do not use interpersonal intelligence in learning so that the learning process and the interaction process among their peers are not carried out well and effectively (Yani, 2017).

Based on the results of preliminary observations that students have interpersonal intelligence, but do not use interpersonal intelligence in carrying out learning activities, this can be seen when students who have difficulty in group work find it difficult to understand other people and it is difficult to build good relationships with other students at the time. the learning process so that there are some students whose learning achievement is not good, so the role of a teacher is very important to foster the intelligence of a student so that student achievement is what is expected. As we know, there are several factors that affect learning achievement, one of which is intelligence. The formulation of the problem in this study is to see whether there is a relationship between interpersonal intelligence and student achievement.

In previous research, it was stated that the better the interpersonal intelligence and learning motivation, the better the mathematics learning outcomes (Dewi et al., 2019), then the results of other studies state that. Kinesthetic intelligence has a relationship with learning outcomes, then interpersonal intelligence also has a relationship with student learning outcomes and intrapersonal intelligence also has a relationship with student learning outcomes

while kinesthetic, interpersonal and intrapersonal intelligence are jointly confirmed to have a relationship with learning outcomes of students at Public Madrasah Tsanawiyah 1 Kota Bengkulu. therefore only four hypotheses Ha: what the authors propose is acceptable (Pendidikan et al., 2015)..

2. Method

This research method is field research with a correlational quantitative approach which aims to analyze the relationship between interpersonal intelligence and student achievement. Correlation research is a study that uses statistics in order to determine the relationship and level of the relationship between two or more variables (Privitera, 2016; Walker, 1989) Meanwhile, according to Arikunto (2014) correlational research is research conducted by research to determine the level of the relationship between two or more variables, without making changes, additions or manipulations to existing data. The population of this study were all students in 4th grade and 5th grade, amounting to 292 students. The sample taken is 10% of the total population. So that the sample taken is as many as 30 students who have good representation. This sampling technique used simple random sampling. because the sampling of members of the population is done randomly without considering the existing status in the population (Sugiyono, 2015).

This data collection technique uses a questionnaire that is distributed to the sample students. The questionnaire distributed is interpersonal intelligence data. Meanwhile, the learning achievement data were taken from the students' report cards. To strengthen the argument, interviews were conducted with selected students. The basis for the selection is students who stand out in terms of academic achievement at school (Sugiyono, 2015).

3. Results

The data were collected by distributing questionnaires to determine interpersonal intelligence and taking the average value of student report cards to determine student learning achievement which were then compiled and tabulated. Interpersonal intelligence questionnaires have been tested first on other students. So that the questionnaire is valid and reliable. Findings in the field can be seen in the following discussion.

Interpersonal Intelligence

Table 1: Interpersonal Intelligence Questionnaire Score Frequency

No	X	F	FX	X^2	F (X^2)
1	47	1	47	2209	2209
2	46	1	46	2116	2116
3	45	2	90	2025	4050
4	44	1	44	1936	1936
5	42	5	210	1764	8820
6	41	3	123	1681	5043
7	40	4	160	1600	6400
8	39	3	117	1521	4563
9	38	3	114	1444	4332
10	37	2	74	1369	2738
11	36	2	72	1296	2592
12	35	1	35	1225	1225
13	34	2	68	1156	2312
Amount		N=30	1200		48336

After tabulating and scoring the interpersonal intelligence questionnaire, the following results were obtained.

Table 2: TSR Category in Percentage of Variable X (Interpersonal Intelligence)

No	Category	Frequency	Percentage
1	High	5	17%
2	Medium	20	66%
3	Low	5	17%
Amount		30	100%

From the table 2, it can be concluded that interpersonal intelligence is included in the medium category. This can be seen from the percentage table above, namely 20 samples (66%) are in the medium category.

Learning Achievement

To obtain data about student achievement, this is done by looking at the average grade of student report cards in odd semesters. Furthermore, the data were obtained and analyzed in a systematic way using statistical formulas.

Table 3: Odd Semester Report Card Score Frequency Score

No	Y	F	FY	Y^2	F (Y^2)
1	87	2	174	7569	15138
2	85	2	170	7225	14450
3	84	3	252	7056	21168
4	83	2	166	6889	13778
5	82	4	328	6724	26896
6	80	2	160	6400	12800
7	78	3	234	6084	18252
8	77	1	77	5929	5929
9	73	1	73	5329	5329
10	71	4	284	5041	20164
11	70	2	140	4900	9800
12	68	1	68	4624	4624
13	66	2	132	4356	8712
14	65	1	65	4225	4225
Amount		N=30	2323		181265

Based on the calculations in table 3, the student achievement scores are as follows:

Table 4: TSR Category In Percentage
Variable Y (Learning Achievement)

No	Category	Frequency	Percentage
1	High	7	23%
2	Medium	17	57%
3	Low	6	20%
Amount		30	100%

From the table 4, it can be concluded that learning achievement is in the medium category. This can be seen from the percentage table above, namely 17 samples (57%) are in the medium category.

The Relationship Between Interpersonal Intelligence And Student Achievement

To determine the relationship between interpersonal intelligence and student achievement, the product moment formula will be used, but first it is entered in the tabulation which is the score of the results of the interpersonal intelligence questionnaire and the value of student report cards.

Table 5: Data for Variable X and Variable Y obtained by Students

No	X	Y	X^2	Y^2	XY
1	46	71	2116	5041	3266
2	34	80	1156	6400	2720
3	47	78	2209	6084	3666
4	42	70	1764	4900	2940
5	45	84	2025	7056	3780
6	42	82	1764	6724	3444
7	34	71	1156	5041	2414
8	39	71	1521	5041	2769
9	40	82	1600	6724	3280
10	41	82	1681	6724	3362
11	42	77	1764	5929	3234
12	39	78	1521	6084	3042
13	41	78	1681	6084	3198
14	40	83	1600	6889	3320
15	42	65	1764	4225	2730
16	42	84	1764	7056	3528
17	40	73	1600	5329	3280
18	35	84	1225	7056	2920
19	36	71	1296	5041	2556
20	39	87	1521	7569	3393
21	37	85	1369	7225	3145
22	36	87	1296	7569	3132
23	38	80	1444	6400	3040
24	40	83	1600	6889	3320
25	37	66	1369	4356	2442
26	45	68	2025	4624	3060
27	38	85	1444	7225	3230
28	44	82	1936	6724	3608
29	41	66	1681	4356	2706
30	38	70	1444	4900	2660
N=30	$\sum x$ =1200	$\sum y$ =2323	$\sum x^2$ =48336	$\sum y^2$ =181265	$\sum xy$ =93185

After the data for variable X (Interpersonal Intelligence) and Variable Y (Learning Achievement) are tabulated, the next step is to manage the data according to the predetermined formula. The hypothesis to be tested in this study is whether there is a significant relationship between interpersonal intelligence and student achievement. Based on the data about Variable X (Interpersonal Intelligence) in the table above, it is processed using the prproduct-momentormula, then the rxy value is 0.995 then consulted with the criticism table on df. By looking at the "r" product moment table, it turns out that "df" is 28 at the 5% significant level of 0.374. The calculation result of rxy (0.995) is greater than r table 5%, thus at the 5%

significant level there is a significant relationship so that the hypothesis (Ha) is accepted. This means that interpersonal intelligence is very influential on student achievement

4. Discussion

This research begins with research preparation, namely determining the place and time of research, after the place and time have been determined then preparing the research instruments to be used. In this study, the researchers distributed questionnaire questions to 30 students in the sample.

Research on interpersonal intelligence data is obtained using a questionnaire method or a questionnaire consisting of 20 question items with four alternative answers 4, 3, 2, 1. From the results of the calculation, the mean (average value) is 40, and the standard deviation is 3.34 The TSR which got a high score was 17% with 5 students, the moderate category was 66% with 20 students, while in the low category it was 17% with 5 students. This study aims to determine the relationship between interpersonal intelligence and student achievement. Interpersonal intelligence or it can also be called social intelligence, a person's ability and skills in creating relationships, building relationships and maintaining social relationships. So that both parties are in a situation of winning or strengthening each other. Interpersonal intelligence is the ability students have to express and capture the mood, goals, feelings, motivation, and feelings of others. While learning achievement is the result achieved by a student in his learning efforts as stated in his report card, through the learning achievement of a student can find out the progress he has achieved in learning.

Thus it can be concluded that students' interpersonal intelligence is included in the medium category, namely as many as 20 respondents (66%). This shows that almost all students have interpersonal intelligence. Student achievement data using the documentation technique of the results of the report card scores obtained the highest score of 87 and the lowest score of 65. From the calculation results obtained a mean value (average value) of 77 and a standard deviation of 6,800 then the TSR which got a high score of 23% with the number of students 7, the medium category is 57% with 17 students, while in the low category it is 20% with 6 students. Thus it can be concluded that the learning achievement of students is in the medium category (57%).

Results of the Analysis Regarding the Relationship between Interpersonal Intelligence and Learning Achievement

The results of this study indicate that the relationship between students' interpersonal intelligence has a significant effect on student achievement. By looking at the table of the product moment "r" value, it turns out that the df is 28 at the 5% significant level of 0.374. The result of the calculation of rxy (0.995) is greater than the 5% r table, which means that there is a significant influence between the variable interpersonal intelligence (X) and learning achievement (Y). Thus the alternative hypothesis (Ha) in this study is accepted and the hypothesis (Ho) in this study is rejected.

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Bringing ICT into the Classroom: Perceptions from Tourism Students on Technology-Enhanced Learning

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Abstract

The advancement of Information and Communication Technology (ICT) can be seen as a blessing in disguise. On one hand, digital information is readily available nowadays, which in turn makes the hardwiring of knowledge less significant and shifts the focus towards competency development. In a digitalized world where information is easily accessible, it is argued that students in higher education need to develop more sensible soft skills that allow them to systematically and critically analyze information. Whilst knowledge can be acquired in a relatively short period, competency development requires more active repetition and patience. Thus, applying relevant and supportive teaching methods is seen as essential. Quantitative data was collected from the participants (n=107) and examined through descriptive analysis. The results of the research revealed that students in higher education generally had a positive perception of technology-enhanced learning (TEL) and considered themselves proficient with the usage of ICT in the classroom. Based on the empirical findings from this paper, a qualitative study was recommended to identify how ICT can be more effectively integrated into the traditional classroom.

Keywords: Technology-Enhanced Learning, Connectivism, Active Learning

1. Introduction

Learning theories and their applications have evolved with time, beginning with the transition from instructivism towards constructivism. With the advances of Information and Communication Technologies (ICT), the connectivism paradigm thus emerged and tied the two theories closer together. ICT became an integral part of everyday life. It has transformed the way we engage, interact, and communicate with each other. The educational sector is no exemption from this development; with the rise and increased usage of ICT, educational institutions have exponentially attempted to adapt to the new norm (Crosslin, 2016). There were a variety of aspects that shaped the learning culture. However, ICT was claimed as an essential factor that influenced and affected the evolution of learning cultures (Porcaro, 2011; Crosslin, 2016). While it was argued that ICT supported the transformation towards active learning (Porcaro, 2011), the research aimed to investigate students' perceptions of the integration of ICT in their classroom activities.

Moreover, it was claimed that traditional instructivism continues as the norm in lesser-developed countries (Elwood & MacLean, 2009). In essence, it can be stated that instructivism is teacher-focused; it is believed that repetition will lead to the hardwiring of experiences, whereas constructivism is student-centered and emphasizes that knowledge transfers are initiated through socialization techniques amongst peers. The primary difference concerning the usage of ICT in constructivism and connectivism is its integration. The former is supported by ICT, whereas the latter depends on the usage of ICT. While it was argued that technology-enhanced learning (TEL) supported the transformation towards active learning (Crosslin, 2016), the research aimed to investigate how students perceived the integration of ICT into their higher education studies. Upon closer examination of the associated mechanisms, the research aimed to examine the role of ICT and what impact it would have in the transformation of education. The goal of the research was to empirically explore how students view the integration of ICT into their classroom and how it was perceived during their studies. On this basis, the following two research questions guided the research:

RQ1. How do students recognize their proficiency concerning the usage of ICT during their studies?
RQ2. How do students perceive the usefulness of ICT during their studies?

The secondary objective of the research was to provide a contemporary review of the relevant literature and introduce industry practices related to the use of ICT in the Digital Age. However, the study primarily sought to collect empirical data to further understand the perspective of the students.

2. Literature Review

This section will introduce and discuss three topics: the role of information and communication technology (ICT) in higher education, active learning as pedagogy, and the collaborative virtual whiteboard as a facilitator of active learning.

2.1. Student-centered education to enhance competencies

Educational theories can largely be differentiated between instructivism and constructivism. The former theory places particular emphasis on the teacher as the center of the learning environment (Bain, 2003). Instructivism supports the ontological belief that repetition leads to the hardwiring of knowledge, wherein the learner is in the passive role (Bain, 2003; Crosslin, 2016). Contrary to that, the educational philosophy of constructivism claims that knowledge is created through experiences and that learners construct their own reality of knowledge (Liu & Matthews, 2005). In this respective learning theory, the emphasis is placed on the learner in an active role wherein the teacher acts as a facilitator or coach (Liu & Matthews, 2005; Porcaro, 2011). Active learning is an emerging approach that can be seen as an enabler of the constructivism learning theory (Waluyo, 2020), wherein the engagement of students is argued as the most important element (Arrosagaray, González-Peiteado, Pino-Juste and Rodríguez-López, 2019). Moreover, active learning emphasizes the core elements of constructivism in that the student is the center of the learning environment (Cassidy, Charles and Slotta, 2019). Furthermore, it highlights the need to develop competencies in higher education rather than knowledge (Johnson & Johnson, 2008; Cassidy, Charles and Slotta, 2019). The accessibility and mobility of Information and Communication Technologies is a blessing in disguise, wherein ICT initiated and accelerated the insignificance of knowledge-based learning. At the same time, it offers a possible solution for the enhancement of competency-based learning, which is seen as a more relevant educational approach (Johnson & Johnson, 2008; Arrosagaray et al., 2019). It can be further argued that a student can access knowledge with a mobile device from virtually any location around the clock. However, the capability to assess, measure, and judge the abundance of information that is available requires more comprehensive development of the students' competencies to critically judge the "knowledge" (Johnson & Johnson, 2008).

2.2. Connectivism as a facilitator for active learning

Connectivism is a theoretical framework for understanding learning in a digital age, as originally argued by Downes (2005) and Corbett and Spinello (2020). It is further argued that connectivism created new opportunities

through the advancement of information technologies, in particular Internet technologies. These emergent technologies have allowed people to readily access information anywhere, anytime (Downes, 2005). Corbett and Spinello (2020) further argued that the learner processes information through their decision-making and makes the connections between information; hence, it is structured like a network. Nevertheless, there were also critical comments which argued that connectivism is not a learning theory on its own (Crosslin, 2016), but should rather be interpreted as a sub-classification of existing and more established learning theories (Kop & Hill, 2008). Kop and Hill (2008) further argued that connectivism can be seen as a branch of instructivism, which sees the teacher as the center of knowledge with the belief that knowledge is gained from repetition. Contrary to instructivism, the constructivism learning theory sees a student-centered approach wherein knowledge is created through peer-interaction (Kop & Hill, 2008). It could thus facilitate connectivism as a sub-theory within the existing paradigm of constructivism.

In studies concerned with the progression of connectivism, it was further argued by Crosslin (2016) and Downes (2020) that using technology-enhanced learning (TEL) as a method to achieve active learning had a positive impact on the retention of knowledge and engagement levels of teachers and students. There is no consensus whether connectivism is a standalone learning theory or purely an extension of existing theories (Mattar, 2018). Speculations and ambiguity accordingly abound, yet multiple arguments claim the effectiveness of connectivism and technology-enhanced learning (Porcaro, 2011; Crosslin, 2016; Mattar, 2018; Downes, 2020). However, there is no recent research to offer insights from the primary beneficiary of this learning theory: the students. This research was built based on existing claims that connectivism supported and facilitated active learning. Furthermore, it was claimed that active learning had a positive impact on learning outcomes, knowledge retention (Crosslin, 2016), and competency development (Mattar, 2018). Thus, analyzing students' perceptions of their proficiency and the perceived usefulness of ICT in the classroom was a sensible and logical avenue to further explore.

3. Methods and Materials

3.1. Sample

A total of 107 undergraduate students responded to the survey, which corresponds to a 39.1% response rate. The participants were enrolled as first- or second-year full-time undergraduate students in a business degree program at the time of sampling. Undergraduate students were specifically targeted as the sample because of their exposure to full-time classroom teaching, whereas graduate studies were conducted as part-time studies at the time. Furthermore, the sample of graduate students would have not sufficed to guarantee reliable results. Out of the total participants (n=107), 74.8% (n=80) were female and 25.2% (n=27) were male. 94.4% (n=101) of the participants were Thai nationals and the remainder originated from East Asian countries (Table 1). There were no significant variances in the age range, whilst the majority of students were 20 years or younger (96.3%; n=103). The students' degree program or field of study did not suggest that the participants would have possessed any particular technical knowledge.

Table 1: Socio-demographic profile

Characteristics		Year 1	Year 2	Total
Students that responded		59	48	107
Students that abstained		81	86	167
Total response rate		42.1%	35.8%	39.1%
Gender	Male	15	12	27
	Female	44	36	80
Nationality	Thai	57	44	101
	Others	2	4	6
Age Range	18 years or below	37	8	45

	19 – 20 years old	21	37	58
	21 – 22 years old	1	1	2
	23 years or above	0	2	2
Average GPA	1.99 or below	12	7	19
	2.00 – 2.49	20	10	30
	2.50 – 2.99	11	13	24
	3.00 - -3.49	11	7	18
	3.50 or above	5	11	16

3.2. Procedure

The Likert-type scale is a psychometric scale commonly used in research projects that employ questionnaires (Likert, 1932; Vonglao, 2017). In contemporary research projects, it is argued that the Likert-type scale is best suited to allow individuals to express their agreement or disagreement with a particular statement (Jamieson, 2004). Using the five-point Likert-type scale allowed the students to report their level of agreement with a total of 16 statements concerning their perception of the usage of Information and Communication Technologies in the classroom. These statements were organized equally into two categories. These categories were: (1) Proficiency with the technology and (2) Usefulness of the technology. Each category contained eight individual statements; the participants were given the choice to express their agreement or disagreement on a five-point scale.

3.3. Analysis

The research project was conducted as part of a prerequisite for a larger project that stretches from 2020 to 2022. The broader aim of the project was to investigate the role and impact of ICT in different learning cultures, specifically technology-enhanced education in instructivism learning environments. The scope and aim of the research project were briefly presented to the students and the link to the anonymous survey was messaged to the students with the appeal to participate. The messaging mobile application LINE chat was used to distribute the link and a total of 274 undergraduate students were reached. Within a week, 39.1% completed the survey and the data collection was concluded. The data were examined using descriptive analysis, calculating the distribution of responses in percentages, the average (mean value), range (lowest and highest value), and the SD (standard deviation).

4. Results and Discussion

In the first section of the survey, the participants were asked to complete a series of questions that allowed for the creation of a socio-demographic profile of the participants. The results are presented (Table 1) by attribute, including gender, nationality, age range, average GPA, and year of study.

The first eight statements (No.1-No.8) were clustered in the first part of the questionnaire (Table 2) and were designed to measure the proclaimed level of proficiency as perceived by the participating students. On a Likert-type scale, the students were able to express their agreement or disagreement, wherein the value 1 would represent strong disagreement, 3 stood for neutral, and the value 5 indicated strong agreement. Even though the contextual importance of individual ICT was not indicated, the results highlighted that the participants perceived a high level of proficiency to navigate through the Internet for information (Mean=4.38). This was followed by communication through a text messaging application (Mean=4.29). The third highest ranked statement corresponded to sending and receiving messages via email (Mean=4.09). Contrary to the findings that received the highest rating of proclaimed proficiency, the lowest-ranked statements were to use spreadsheets (Mean=2.82), to use a word processor (Mean=3.17), and thirdly to access course material in their learning management systems (Mean=3.45). Furthermore, it can be outlined that only one statement received a cumulative result that ranked below neutral (Mean=3.00), i.e. the use of spreadsheets (Mean=2.82) as indicated and visualized in Table 2 below.

Table 2: How participants perceived their ICT proficiency

No.	Question Item	Mean[1]
First Cluster		
Q1	to send and receive messages via email	4.09
Q2	to browse the Internet for information	4.38
Q3	to access course material via LMS, i.e. Moodle	3.45
Q4	to install a new application/ software	3.98
Q5	to use a word processor, i.e. Word or Google Docs	3.17
Q6	to use spreadsheets, i.e. Excel or Google Sheets	2.82
Q7	to communicate via text message, i.e. Line Chat or WhatsApp	4.29
Q8	to communicate via video call, i.e. Skype or Facetime	3.85

[1]*Ratings obtained from a Likert-type five points scale ranging from lowest rating to highest rating, i.e. Fully Disagree (1), Slightly Disagree (2), Neutral (3), Slightly Agree (4), and Fully Agree (5)*

The next eight statements (No.9–No.16) were clustered in the second part of the questionnaire (Table 3) and aimed to gain a more comprehensive understanding of the students' perspectives concerning the usefulness of ICT in the classroom and during their studies. The highest-ranked result by the participants was the statement that students expressed their agreement about ICT helping them to search for information about their studies (Mean=4.12), which is supported by another case study that examined technology-enhanced methods in the virtual classroom (Fuchs, 2021a). This finding was followed by the statement that outlined the participants' comfort level in the use of ICT in the classroom (Mean=4.10). The third highest-ranked statement related to the students' interest in using ICT in the classroom (Mean=3.86). Opposing the highest-ranked statements, the statements that received the lowest approval rating were that "it is easier to keep notes with ICT than with a pencil and paper" (Mean=2.86). The second-lowest ranked statement, according to the participants' perceptions, was that learning is more interesting when supported by ICT (Mean=2.96).

Table 3: How participants perceived the usefulness of ICT

No.	Question Item	Mean[1]
Second Cluster		
Q9	I am interested to use ICT in the classroom	3.86
Q10	ICT helps me to search for information about my studies	4.12
Q11	ICT helps me to achieve my personal learning goals	3.08
Q12	Learning is more interesting when supported by ICT	2.96
Q13	ICT makes the course content more motivating	3.72
Q14	I feel confident to use ICT in the classroom	4.10
Q15	ICT helps me to structure my studies more effectively	3.48
Q16	It is easier to keep notes with ICT than with a pencil and paper	2.86

[1]*Ratings obtained from a Likert-type five points scale ranging from lowest rating to highest rating, i.e. Fully Disagree (1), Slightly Disagree (2), Neutral (3), Slightly Agree (4), and Fully Agree (5)*

Lastly, the third lowest-ranked statement was that ICT helps students to achieve their personal learning goals, which received a mean rating slightly above the neutral line (Mean=3.08). The participants stated that ICT helped them to search for information relevant to their studies and they indicated a high level of confidence to use ICT in the classroom. However, the results also indicated that ICT did not make learning more interesting. A possible explanation could be the usability of ICT in the classroom; the participants specified that using ICT

does not make it easier to keep notes compared to a traditional pencil and paper. A likely clue derived from the findings in the first cluster would suggest that the participants did not use the appropriate ICT to enable a more seamless experience in keeping notes and making the learning more interesting. Here, the participants indicated subpar proficiency for the use of word processors and spreadsheets, wherein the former application in particular had a proven track record of keeping notes more easily (Arboledas, 2019).

It was argued by Crosslin (2016) and Downes (2020) that using technology-enhanced learning (TEL) as a method to achieve active learning had a positive impact on the retention of knowledge and engagement levels of teachers and students. This statement is further supported by a recent case study conducted by Fuchs (2021b). The hypothesis concerning the engagement levels cannot be supported by the findings of this research. The research examined that participants felt neutral about ICT supporting their learning and they could not see the added benefit. Furthermore, the results indicated that the use of ICT enabled the constructivism learning theory, wherein the learning environment was student-centered and geared towards the facilitation of competency development. The participants stated that using ICT helped them to effectively find information on the Internet and confirmed a relatively high agreement (Mean=4.10) to using ICT in the classroom. However, the participants also collectively stated their neutral sentiment towards engagement through ICT (Mean=2.96), wherein learning was not described as more fun when supported by ICT. This finding could either mean that ICT had no impact on their engagement level, or ICT did not help to improve the general appeal of the course content. The former would inevitably beg the question of why students felt that way.

5. Conclusion and Future Works

One possible hypothesis that derived from the results of the research was that students were not fully aware of which ICT is best suited to which situation. Qualitative research to understand the context when students decide to use a certain ICT would help to provide more insight. Moreover, it is unclear if the course instructor introduced the technology to the students, or if the usage of ICT in the classroom was entirely optional for the student. To gain more comprehensive insight into the perceptions of students that use ICT in the classroom, it is recommended that a comparative case study be conducted to collect data from a focus group and clearly define how ICT was used in the classroom, as well as what obstacles or challenges the students were facing. The research questions were answered with the conclusion that students feel relatively confident in the use of various ICT-applications in the classroom, while some applications had a higher or lower impact on their perceived proficiency. Furthermore, it can be stated that the students felt neutral about the usefulness of ICT in the classroom; this research did not offer specific insights as to why the students perceived the usefulness as neutral while considering their level of competence as proficient. However, as stated earlier, the primary difference concerning the usage of ICT in constructivism and connectivism is its integration. Active learning as an emerging approach could be the potential differentiator of how students perceive ICT in an instructivism learning environment as opposed to a constructivism learning environment.

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Pre-Service History Teacher's Opinions About the Use of Virtual Museum Applications in History Courses

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Abstract
The opportunities offered by technology are used in educational processes to make education more qualified. One of the technology-based applications is virtual museums. Virtual museums make important contributions to bringing the works of art in museums to the classroom environment and making the lesson more concrete and understandable. Especially considering the exhibition of the past, virtual museums could be used for history courses but more research needs to be done on the subject. This study aimed at exploring pre-service history teachers' opinions and experiences about virtual museum applications. The research was conducted via qualitative research approach and phenomenology design in line with the nature of this approach. The study group of the research consists of 15, 3rd grade teacher candidates studying in Department of History Teaching at Marmara University Atatürk Education Faculty in 2020-2021 academic year. The data was collected via semi-structured interview form and analysed using the content analysis method. Considering the results obtained, it was reported that the participants responded considering the pandemic conditions, they regarded technology as a way to facilitate the learning-teaching processes of history courses and stated that virtual museum applications would contribute to history courses.

Keywords: Virtual Museum Applications, History Courses, Pandemic, Use of Technology

1. Introduction

Museums contribute to the exhibition and preservation of cultural heritage with works of art /artefacts that shed light on ancient ages and recent history. Apart from this, as education and training centres, they have an important role in the process of raising young generation and instilling human values and a sense of self-worth in them (Atamuratov, 2020: 89). Museums are unique places of interest to nurture curiosity and inspire students to develop their understanding of the world we live in (Foreman-Peck & Travers, 2013: 28). Museums are a memory that reflects experiences and are non-formal education institutions that play an active role in learning. Benefiting from museums as learning environments in teaching of every field will increase interest and excitement in learning and

have a positive role on the cognitive, affective, and social development of students (Buyurgan, 2019: 4). Considering the opportunities offered by museums, its use in learning processes has gained importance. Today, it is known that museums are located in virtual environments in line with the opportunities offered by technology in order to provide access to everyone from anywhere whenever they want especially to meet the needs in the field of education and culture.

Technology is more accessible than ever and plays an important role in keeping cultural institutions up-to-date and transferring them (Gaylord-Opalewski & O'Leary, 2019: 230). Virtual museums are the most important contribution to the field of museology /museum studies in line with the educational pedagogy of technologies. Virtual museum is a communication channel for transmitting cultural heritage based on information and communication technologies (Taranova, 2020: 2515). Virtual museums offer time and place-independent learning through indirect experience (Syarifuddin, Syahrial, & Suparman, 2017: 51). Virtual museums as an innovative technology in their systemic definition appears to be a complex educational phenomenon involving cultural-historical, social, and psychological-pedagogical aspects (Taranova, 2020: 2516).

Virtual museums have offered a new form of visit that eliminates many of the difficulties that can be experienced in classical museum and historical field trips with many facilities provided by technology (Turan, 2015: 190). Thanks to the worldwide access to virtual museums, they brought heritage of humanity and products of civilization to people's feet. In addition, because virtual museums are accurate and reliable sources of information, they have turned into an important material of in-class, online, or lifelong learning process both in formal or informal education (Kabapınar, 2014: 327).

Virtual museums offer many technology-assisted facilities. Virtual museums are participatory, educational, and collaborative. With purposeful professional guidance and support, it is possible for students to create and exhibit virtual museum content (Paliokas & Kekkeris, 2008). It is possible to add more descriptive and historical background information to the artefacts in the virtual museum (Cui & Yokoi, 2012: 18-19). The individual can interact with virtual environment artefacts, build their own understanding, develop their cognitive processes, and foster their creativity and the development of new innovation (Daniela, 2020: 1). One of the greatest facilities of virtual museums is that it offers the opportunity to update itself for every new visitor based on visitor experiences. At the same time, these data facilitate the preparation and evaluation of the actual experience of a museum visit (Kersten, Tschirschwitz, & Deggim, 2017: 362).

There are many studies in the literature regarding the use of virtual museums in educational activities. In addition, there are studies in literature which reveal that a lesson taught using a virtual museum supports active learning (Sylaiou et al. 2005; Gaylord-Opalewski & O'Leary, 2019; Okumuş, 2019), supports individual and independent learning (Atamuratov, 2020), improves students' academic success (Uslu, 2008; Ustaoğlu, 2012), positively promotes their contributions (Demirboğa, 2010; Ermiş, 2010; Okumuş, 2019), attitudes and motivations (Ulusoy, 2010; Yıldırım & Tahiroğlu, 2012; Kampouropoulou, Fokiali, Efstathiou, & Stefos, 2013; Turgut, 2015; Kaya & Okumuş, 2018, Okumuş, 2019; Sungur & Bülbül, 2019; Okumuş, 2020). Moreover, virtual museums make important contributions to the preservation and sustainability of culture (Styliani, Fotis, Kostas, & Petros, 2009; Cui & Yokoi, 2012; Kampouropoulou, Fokiali, Efstathiou, & Stefos, 2013; Mortara et al., 2014; Atamuratov, 2020; Ismaeel & Al-Abdullatif, 2016; Taranova, 2020), the development of many technological skills by integrating with other technologies (Daniela, 2020), the preservation of historical memory (Kampouropoulou, Fokiali, Efstathiou, & Stefos, 2013; Taranova, 2020), the development of the feeling of patriotism (Atamuratov, 2020; Taranova, 2020), acquisition of democratic skills (Okumuş & Güven, 2018), the development of aesthetic skills (Taranova, 2020), and the active participation of individuals of all ages (Walczak, Cellary, & White, 2006). It ensures awareness, consideration, reintegration, and development of components of national cultural heritage through the educational process. Virtual museums are learning environments that increase diversity and richness in teaching. Considering the benefits offered by virtual museums, educational institutions should pay more attention to such museums in order to expand and improve the learning experience (Ismaeel & Al-Abdullatif, 2016: 38).

With the developments in technology, it is regarded that virtual museums are used more in teaching processes and the subject has drawn intense attention in the literature in recent years. Museums and history share the past. The artefacts exhibited through museums have an important place in the visualization and concretization of history. In this respect, the use of museums and technology-based virtual museums in history teaching processes will contribute to the teaching of the course. In the literature, there are theoretical and research-based studies about the use of virtual museums in history lessons. However, both the pandemic conditions that have adversely affected the world recently and the inevitable necessity of using technology in education made it necessary to increase the number and diversity of these studies. Considering the developments in technology, classroom facilities and literature, the perceptions of teachers, pre-service teachers, and students regarding the use of virtual museums in history courses have become important.

1.1. Purpose and Importance

Using technology in education is an inevitable fact. The fact that teachers are flexible in this regard and using technology tools in history courses with a constructive orientation contributes to the acquisition of inquiry-based learning skills as well as developing students' technology literacy (Lévesque, 2014: 62). Virtual museums are also one of the reflections of technology in the classroom. Museum visits and virtual museum applications, which are an area suitable for providing many technological and pedagogical skills have an important place in the curriculum created with the constructivist learning approach (Ulusoy, 2010: 39).

One of the biggest problems of history lessons is the lack of experience. Students' learning distant past especially through textbook-centred learning does not make a meaningful contribution to meaningful and permanent learning (Syarifuddin, Syahrial, & Suparman, 2017: 53). During the virtual museum visit, students can learn historical knowledge interactively with different pedagogical strategies (Traum, 2016: 807-808). We can expect some benefits in history courses from virtual museums. In the history courses carried out with the virtual museum application, we have the opportunity to carry out the educational process with an effective and active participation due to the visualization and more concretization of the subjects and to have students gain some technological, general and field-oriented pedagogical skills.

It has been revealed in many studies in literature that virtual museums contribute to the educational process. Evaluating the process in terms of history courses, determining the teachers, teacher candidates and students' perceptions and experiences towards virtual museums will be beneficial in terms of improving the process and ensuring quality (Okumuş, 2019: 717). There are studies based on theory, teacher, and student opinions about the use of virtual museums in history courses. It is considered that studies intended for teacher candidates will allow for a more holistic view of the process. In this sense, the main purpose of the research is to learn the opinions and experiences of teacher candidates about the use of virtual museum applications in history courses. In line with this purpose, it is anticipated that the research will make contributions to the literature. In addition, considering the fact that pre-service teachers' attitudes will be reflected in the situations they encounter later in their professional lives, the importance of determining the current approaches becomes important. For the sake of achieving the purpose of the research, the study sought to answer the following research questions/sub-problems.

- What are the participants' opinions about the use of technology in history lessons?
- What are the participants' opinions about the concept of virtual museum?
- Have the participants had any virtual museum experiences before?
- What are the participants' opinions about the feasibility of virtual museum applications in history courses?
- What are the participants' opinions about the effectiveness and efficiency of using virtual museum on which subjects in history courses?
- What are the participants' opinions about the contribution of virtual museum applications to history courses?
- What are the participants' opinions about the limitations of virtual museum applications in history courses?
- What are the participants' opinions on the usability of the virtual museum applications when extraordinary circumstances exist?

2. Method

This section included information about the research method, study group, data collection tool, and data analysis.

2.1. Research Method

The study aimed at exploring history teacher candidates' opinions and experiences about the virtual museum application in history courses based on the qualitative research approach. Qualitative research, in Creswell's words (Creswell, 2020: 43), is figuratively a thin yarn, an intricate fabric consisting of many colours, different textures and various materials, and researchers are the people who meticulously weave and combine this fabric. Due to its clear and spontaneous nature and lack of rigid standards, qualitative research brings along the management of an uncertain and complex process (Glesne, 2013: 35). Considering the nature of qualitative research, the study was conducted with phenomenology design. Phenomenological studies are studies that reveal the lived experiences of participants regarding a phenomenon or concept (Creswell, 2020: 79). In other words, it is the process of finding the meanings people derive from their already-lived experiences and past experiences (Güler, Halıcıoğlu, & Taşkın, 2013: 234).

2.2. The Study Group/Participants

The study group of the research consisted of 15 third grade students studying in the Department of History Teaching at Marmara University Atatürk Education Faculty in 2020-2021 academic year. 8 of the participants are male and 7 of them are female. The participants were selected using the convenience sampling method. Convenience sampling method is defined as a method adopted where data is collected from a close and easily accessible/conveniently available groups because it offers quick and practical data collection (Yıldırım & Şimşek, 2008: 113). The sampling method was determined considering the pandemic conditions and the difficulty of data collection from the students in universities located in geographies independent of each other as well as low cost and advantages.

2.3. Data Collection Tool

Semi-structured interview form was used to collect research data. Semi-structured interviews are a type of interview that is frequently used in qualitative research and after the determination of the general framework related to the research subject, various changes can be made in the interview process and new questions can be added (Güler, Halıcıoğlu, & Taşğin, 2013: 113). In other words, it is an interview technique in which interview questions are corrected and even modified according to the needs sometimes by the researchers and sometimes by the respondents (Sönmez & Alacapınar, 2013: 108). In this sense, when compared to structured interview, it is an interview process in which the participants are more active in responding and state their experiences more easily. Considering the studies by Aladağ, Akkaya, & Şensöz (2014), Karataş et al. (2016) and based on the studies of Kaya & Okumuş (2018) during the preparation stage of the form, some additions were made on the form developed by Okumuş (2019) and the form was created. The form developed was first examined by 4 teacher candidates and 2 questions were removed from the form on the grounds that they measure the same information in line with the teacher candidates' opinions. The form, which was revised in line with the teacher candidates' opinions, was examined by 3 field experts and 1 method expert and it was concluded that there was no need for another change and the form could be used in its current form. The data collection tool was sent to the participants online, and the participants' responses were also received online. Extra interviews were made online with some of the participants about the incomprehensible issues due to some participants' responses.

2.4. Data Analysis

Content analysis method was adopted in the analysis of qualitative data. Content analysis is a systematic, holistic, and purposeful analysis of the interview content, field notes, and written documents. The main purpose of content

analysis is to understand and interpret systematically and carefully what the content of the text means and what it emphasizes (Bal, 2016: 258). In qualitative research, data analysis aims to understand and interpret reality with an inductive approach. The data are collected and recorded, the recorded data is divided into categories after various classification processes, connections are established between the concepts and categories, explanations and interpretations are made and the research is reported (Gürbüz & Şahin, 2014: 385-386). The data obtained from the participants were reported by taking the specified process into account.

2.5. Validity and Reliability

In qualitative research, validity is related to the process of data collection and to what extent the meanings derived from the data constitute objective reality (Stiles, 1993; as cited in Güler, Halıcıoğlu, & Taşkın, 2013: 334). In other words, the researcher must introduce the subject he is working on as objective as possible and as it is (Kirk & Miller, 1986; as cited in Yıldırım & Şimşek, 2008: 256). Reliability in qualitative research is about how consistently a method measures the samples obtained from the data when assigned in the same category by different observers or by the same observer at different times (Hammarsley, 1992; as cited in Güler, Halıcıoğlu, & Taşğin, 2013: 354). In other words, the research results would be the same when carried out by different researchers on the same data no matter they are obtained from the similar environments (Kirk & Miller, 1986; as cited in Yıldırım & Şimşek, 2008: 259-260). Within the context of this study, some validity and reliability measures were taken. Before this study, researchers have conducted studies based on qualitative research many times. Pilot interviews and evaluations with field experts were carried out before finalizing the interview form. The interviews were taken in writing and a final evaluation of the responses was made with the participants. The data were analysed separately by both researchers. After the analysis of both researchers was completed, joint reviews were made, and the analysis was finalized. The results of the analysis were shared with the participants regarding the correct understanding of the expressions, and the analysis was finalized after the last feedback. The opinions introduced by the researcher were supported with participants' examples.

3. Findings and Interpretation

This section will seek answers to the sub-problems / research questions determined in line with the purpose of the research. Based on the sub-questions, the contribution of the virtual museum applications to history courses will be explored.

3.1. Participants' Opinions Regarding Technology-assisted History Education

Within the scope of the research, the participants were first asked what they thought about the use of technology in history lessons. It was found that the pre-service history teachers' opinions about this question focused on the effect of technology on history lessons and some suggestions. The participants' opinions were presented in Table 1:

Table 1: Participants' Opinions About the Effects of Technology on History Courses

Reason	Opinions	f	%
Opinions about the Learning Process (%38)	Makes the lesson effective, interesting, and fun	5	10
	Makes the lesson easier and more understandable	4	8
	Facilitates access to sources	4	8
	Provides permanent learning	3	6
	Supports acquisition of skills	2	4
	Facilitates teaching process of the lesson	1	2
Opinions about the Contribution to Students (% 48)	Draws students' attention to history lesson/ active participation	6	12
	Beneficial for students	5	10
	Keeps students' interest alive	4	8
	Affects student achievement and learning positively	4	8

	Increases students' enthusiasm to do research	2	4
	Gets students to gain skills from studying history	1	2
	Provides students' active participation in lesson	1	2
	Facilitates students' access to sources	1	2
Opinions about the Contribution to Teachers (%14)	Provides convenience to the teacher (time/effort and etc.)	4	8
	Facilitates teacher's in-class communication	2	4
	Develops teacher's imagination	1	2
	Total	**50**	**100**

First, it must be indicated that the participants agree that history lessons are suitable for the use of technology and the technology use in history lessons will provide some benefits in educational processes. It draws attention that the participants' opinions about the effects of technology on history lessons are grouped under three principles. These include learning-teaching process of history course, student, and teacher. About the contributions of using technology in history courses, the participants mostly expressed opinions based on students. In terms of learning and teaching process of history course, the participant opinions that draws attention first is that technology "*makes the lesson effective, interesting, and fun.*" Following this view, the emphasis was on "*making the lesson easier to understand, facilitating access to sources, providing permanent learning, supporting the acquisition of skills for the course, and facilitating the teaching process of the course*." Considering its effects on students, the participants mostly emphasized that technology "*drew students' attention to history lesson/ active participation.*" Secondly, it was stated that it was "*beneficial for the student.*" Following this view, they stated that "*it keeps the student's attention alive and positively affects the students' achievement and learning.*" Next, the following opinions were stated: increasing students' enthusiasm to do research, having students gain historical skills, providing students' active participation in the lesson, and facilitating students' access to sources. When evaluated regarding teacher, it was stated that technology "*provides convenience to the teacher (time/effort etc.), facilitates teacher's in-class communication, and develops teacher's imagination.*"

Quotes from some participants regarding their opinions about the subject were given below:
"*I think it has a positive effect on the achievement level of the students and the percentage of retaining the information about the subjects in mind. In this way, students actively and effectively participate in the lesson and have the opportunity to learn and revise according to their own learning pace.*" (P-3)
"*While the teacher is teaching a historical person, place, or a war, s/he can present them with visuals, videos, voice recordings and sections from films. This situation is more intriguing, catchy, and attention-grabbing than it is verbally conveyed. Thus, the student realizes that history is not really just memorization and is eager to do research.*" (P -6)
"*The imagination of the teacher about technological tools will indirectly develop the students' imagination. And this will enable them to contribute to the social life as more entrepreneurial, farsighted people.*" (P -7)
"*As an example of technology use, the map called Roman World developed by Stanford University will provide great convenience especially in Roman / Byzantine lessons. Using this map, we can find and calculate how long it takes to go from one city to another on foot or horse on average, how weather conditions and seasons affect the speed of transportation, and what the best route is between the selected cities to reach the place we want to go in that period. With the use of this technology, it will be possible to better understand and explain the Roman Empire, one of the biggest empires in the world.*" (P -9)
 "*Considering that the new generation is born and grows up with technology, I think that the use of technology in education should play an important role to attract students' interest in history and history courses. Especially distractibility, a problem emerged with the widespread use of technological devices, has negative effects on students' reading books; thus, I find it particularly important for them to develop an interest in this direction.*" (P -11)

It was noteworthy that some participants made suggestions on the use of technology in history lessons. Suggestions generally include increasing the competence of teachers through in-service training, providing an appropriate infrastructure (for school-teacher-student), and developing and using educational software, programs, and materials. Quotes from some participants regarding their opinions about the subject were presented below:

"*Older teachers or those with lack of knowledge in the field of technological knowledge are unable to teach in line with the age of technology. To be able to use the new technological tools, if teachers have a command of the tool or get training on it, then the efficiency of the lesson will increase effectively.*" (P -1)

"*It is extremely important for the students to revive the historical places in their minds to comprehend and interpret the events. Visuals such as maps that will help the student visualize the historical places in their minds should be presented to the student through the slides prepared before.*" (P -4)

"*In order to ensure the effective and efficient use of ICT tools and applications in history education in our country, it is necessary to develop innovative teaching methods supported by ICT and effective materials designed in accordance with them.*" (P -12)

"*There are many technological tools that we can use today. This situation allows for a better teaching of history. With software such as Socrative, Kahoot, Edplus, etc., the lessons could be more fun, it can be learned, and knowledge can be retained in mind.*" (P -14)

3.2. Participants' Opinions About the Concept of Visual Museum

Participants were asked to explain the concept of virtual museum. The participants' responses about the concept of virtual museum show to what extent they know the concept. Participants' opinions about the concept of virtual museum were presented in Table 2.

Table 2: Participants' Opinions About the Concept of Virtual Museum

Opinions	f	%
Remote visits to the museum with the help of technology	9	56,3
An application introduced by the technology	3	18,8
Virtual reflection of physical museum	2	12,5
A tool whose value is understood with pandemic	1	6,3
Learning style	1	6,3
Total	**16**	**100**

When Table 2 is examined, it is found that the participants mostly think of the virtual museum concept as "*remote visits to museums with the help of technology*." After that, it was stated that the virtual museum was "an application introduced by technology." Another opinion of the pre-service history teachers about the virtual museum was "*the virtual reflection of a physical museum*." Other opinions stated by the participants included the following: "*the virtual museum is a tool and learning style whose value is appreciated by the pandemic.*" Based on this, it is understood that the participants generally emphasized technology and remote visits about the virtual museum. Quotes from some participants regarding their opinions about the subject were given below:

"*Thanks to virtual museums, culture and history are introduced to large masses with just one click.*" (P -3)

"*Virtual museum is like a point on the Internet called virtual "world." Like a grocery store in a neighbourhood.*" (P-7)

"*In my opinion, virtual museum is a perfect learning style. Just like visiting a museum, we visit museums, churches, and buildings and historical buildings on the Internet thanks to technology and thus we learn by visiting and seeing.*" (P -8)

"*Due to various reasons, we may not have the opportunity to visit every museum. It is possible to include geographical reasons, financial problems, and the distance from the region where we live. We can solve this problem with visual museums; we can visit any museum we want with visual museums.*" (P -14)

Since the study was conducted during the covid-19 pandemic process, it was observed that while explaining the concept of virtual museum, some participants associated it with the pandemic process. Quotes from some participants' opinions who evaluated the virtual museum-pandemic relationship were presented below:

"*With the virtual museum application which arouse the feeling as if you are visiting the museums in-situ which are closed due to the coronavirus measures, Turkey's biggest 13 museums have been visited 810.410 times. This has been effective in preventing people from killing leisure time and leading them to educational and useful activities on days when we cannot leave the house.*" (P -2)

"We can say that a virtual museum has become a tool which we understood its value because of coronavirus in our life." (P -6)

"The widespread use and recognition of virtual museum applications occurred during the pandemic period when we were stuck at home. As a matter of fact, when we are really restricted in many respects in this period, the value of such technological infrastructures becomes more evident." (P -9)

3.3. Participants' Experiences About Virtual Museum Applications

In the study, the participants were asked whether they had virtual museum experiences in the past and their opinions on this issue. When the opinions were examined, all the participants stated that they had virtual museum experiences. While mentioning their experiences, the participants emphasized the school period during which they visited the virtual museums, the names of the virtual museums they visited, how it affected them and the pandemic process. For example, while P -10 said, *"I had my virtual museum experience in secondary school when my computer teacher was introducing the virtual environments.";* P -7 stated, *"In the 9th grade of high school, while I was exploring Mt. Everest via Google Maps, I found a museum and visited it."* P-8 told how she met a virtual museum during the lesson at the university: *"During the online education, while our history teacher was teaching, she was showing us the photos of a church in Italy in European history. Due to my curiosity, I searched it on Google, and I found that church with Google Maps and took a virtual tour of the church."* The participants who used virtual museum application gave the names of the museums they visited. P -2 told his virtual museum adventure by giving the names of the museums: *"I visited Zeugma museum which I haven't had the chance to visit for a long time due to its location in Gaziantep. Then, I took a tour of Anatolian Civilization Museum. I saw the artefacts of Hittites and Assyrians. I visited Trojan Museum due to its admirable architectural design. I went from one city to another and examined without having time constraints and getting bored. Then Göbeklitepe came to my mind. I visited both the archaeological site and Şanlıurfa Museum with its perfect architecture and I toured all of them in one day."* Similarly, P -13 stated that he visited Göbeklitepe archaeological site, and P -11 visited Istanbul Archaeology Museum. P -14 stated that he visited the War of Independence Museum and toured the Republic Museum as they presented historical periods from recent history. While these names gave examples of virtual museums in Turkey, P-9 drew attention to the museums abroad: *"I have experienced the virtual museum tours of world famous museums which are accessible such as the Metropolitan and the British Museum."*

Some participants who had the virtual museum experience commented on how these experiences affected them. P-3, one of these names, explained the change in his opinion about the virtual museum as follows: *"Although I did not have positive opinions before my experience, but my ideas changed after I experienced it."* P-1 expressed this impression with the intensity of that emotion: *"It was like a dream… I felt as if all the history, museum, and art were at my hand."* Some participants made a comparison with the real museums when describing the effect of virtual museum experiences. For example, P -14 made a positive comparison, *"I am quite satisfied with the museums I have visited. Since I had visited these museums live before, I felt as if I was experiencing the same environment which I knew the content, texture, and smell. I felt as if my soul was revisiting these museums."* P -15 opined differently: *"Despite my expectations before using the virtual museum application, I was a bit disappointed. I had the opportunity to visit various museums before. Although Göbeklitepe is an archaeological site that aroused a lot of excitement in me, I was less excited to experience it on the virtual museum application. It is quite different from standing in front of a history, feasting my eyes on it, thinking about the work at that moment than visiting it virtually, even if it is panoramic"* Because the research was conducted at the end of the first year of the pandemic, it revealed that it naturally had an effect on the participants' opinions. In this context, the participants stated that the pandemic enhanced the interest and awareness in the virtual museum application: *"During the pandemic period, I visited the museums that I could not visit due to the lock down thanks to the virtual museum application."* (P -3)

"As a person who frequently visits museums and enjoys it very much, I re-experienced the feeling of a museum visit, even from a distance, thanks to the virtual museum application." (P -9)

"While there is a virus epidemic affecting the world today, and I need a budget and a safe environment to go there in this period, as a student I felt as if I went there using my computer at home thanks to the virtual museums." (P -13)

3.4. Participants' Opinions About the Use of Virtual Museum Applications in History Courses

Participants were asked the feasibility of virtual museum application in history courses and, if applicable, on which subjects it would be used more effectively and efficiently. When the participant opinions were examined, except for one participant, they stated that the virtual museum applications could be used in history lessons.

Table 3: Participants' Opinions About the Use of Virtual Museum in History Courses

Reason	Opinions	f	%
Possible	Draws interest in the course	7	25,9
	Provides permanent learning	6	22,2
	Makes the lesson enjoyable	3	11,1
	Offers an opportunity to access history materials	3	11,1
	Adds value	2	7,4
	Makes contribution to the teacher	2	7,4
	Makes contribution to teaching process	2	7,4
	Promotes individual learning	1	3,7
Impossible	Has a web technology that will cause a problem	1	3,7
	Total	**27**	**100**

When Table 3 was examined, the participants stated positive opinions about the use of virtual museums in history courses as follows: virtual museums attract the attention of the lesson, provide permanent learning, make the lesson enjoyable, provide access to historical materials, add value, contribute to the teacher and the teaching process, and support individual learning. One participant who had a negative opinion stated that virtual museums had a network technology that can cause problems when used in class. As it can be understood from here, the participants drew attention to the fact that using virtual museums in history courses would provide various contributions and this would be most effective on attracting the attention to the lesson and learning process. This situation shows that especially the use of technology will increase the interest in history courses and will make serious contributions to the educational process. It also suggests that prospective history teachers will benefit from virtual museums when they work in the future. The quotes from the opinions of some participants who think positively about the use of virtual museums in history lessons were presented below:

"*In my opinion, the virtual museum applications should be used frequently in history courses because it increases the retention of what is laerned in the lesson, makes the lessons more understandable and enjoyable.*" (P -3)
"*All the materials on the subject can be easily accessed through virtual museums and the students' interest can be enhanced and thus their learning becomes more permanent.*" (P -9)
"*It increases students' interest in teaching, facilitates their understanding of historical facts and concepts, creates collaborative learning environments, encourages student-centered learning, supports differentiated individual learning processes, and prepares a suitable environment for learning based on primary resources.*" (P -12)

Participants were asked on which subjects virtual museums would be effective and efficient in history courses. Thus, history teacher candidates' opinions about the effect of virtual museums as a history teaching tool on the course were evaluated. In this context, the participants' opinions about the effective and efficient use of virtual museum applications in history courses were presented in the table.

Table 4: Subjects Where Virtual Museum Applications Can Be Used Effectively in History Courses

Subject	f	%
No subject limitation	5	25
Ancient Age	3	15
Independence War	3	15
Culture and Civilization	3	15
Art history	2	10
Ottoman History	1	5
History of Republic	1	5

		1	5
History of Religion		1	5
National Heroism		1	5
Total		**20**	**100**

When Table 4 was examined, the participants stated that virtual museums would be used effectively and efficiently on subjects such as ancient ages, the War of Independence, culture and civilization, art history, Ottoman history, history of republic, history of religion, and national heroism. Five participants drew attention to the fact that virtual museums could be used effectively and efficiently on all subjects of history without any subject limitation. As can be understood here, virtual museums can be used effectively in many areas of history. Regarding the effects of museums on history education, it is considered that virtual museums can naturally create this effect. Quotes from some of the participants' opinions on the effective and efficient use of virtual museums on historical subjects were presented below:

"*If you tell the students that "there were millions of bullets in the air," this will have a different effect, but if you show the bullets colliding in the air in a million to one-chance in Çanakkale (Gallipoli) War Museum, the effect will be different.*" (P -2)

"*Different archaeology museums could be visited while teaching about ancient history, history of states established and the Museum of Turkish-Islamic Arts could be visited to learn subjects involving the history of states established after Islam such as Karahanli (Karahan), Gaznelis (Ghaznevids), and Seljuks. The Ottoman House Museum, the Enameled Kiosk Museum, Harbiye Military Museum, the Panorama 1453 Museum will be effective on subjects related to the Ottoman. Considering the recent period, Kazım Karabekir Museum, Atatürk Museums in Istanbul and İzmir, Gazi Museum in Samsun, Independence War and Republic Museums in Ankara can be visited. In addition, museums such as Istanbul Modern Museum, Pera Museum and Sakıp Sabancı Museum can be used effectively in art history courses. Moreover, without being limited to our country, many world-famous museums such as the Salvador Dali Museum could be visited. Apart from this, while studying the Second World War subjects, the Holocaust Museum in Germany regarding the Jewish genocide can also be toured by the students.*" (P -9)

3.5. Participants' Opinions About the Contributions of Virtual Museum Applications to History Education

It was found that all participants made a virtual museum tour and stated that virtual museum applications could be used in history lessons in almost any subject. In this section, considering the participants' virtual museum experiences, their opinions about the contributions of using virtual museum applications in history courses were evaluated. In this context, the opinions of the participants about the contributions of the virtual museum applications were presented in Table 5.

Table 5: Contributions of Virtual Museum Application

Reason	Opinions	f	%
	No time constraints	13	20,3
	No space limitation	13	20,3
	Economical	11	17,2
	Practical	7	10,9
Contributions	Accessible to everyone	5	7,8
	Provides permanent learning	3	4,7
	Provides opportunity for different activities	3	4,7
	Provides opportunities for detailed examination	3	4,7
	Opportunity for orientation	2	3,1
	Increases interest in the lesson	2	3,1
	Provides an opportunity to access rich knowledge	2	3,1
	Total	**64**	**100**

Examining Table 5, it was revealed that the participants expressed a wide variety of opinions about the contributions of using virtual museums in history education. The participants stated that the virtual museums had

several advantages in history teaching including not having time and space limit, being economical, practical, and accessible to everyone, providing permanent learning, allowing different activities and detailed examination, having the opportunity of orientation, accessing rich information, and increasing the interest in the course. When these opinions are evaluated, it can be stated that virtual museums will make a serious contribution to history education. It can also be noted that virtual museums can expand the boundaries of history education by removing some problems, especially in teaching history out-of-school settings. Quotes from some of the participants' opinions on the contribution of using virtual museums in history teaching were presented below:

"*In virtual museum applications, we have the opportunity to see and examine the artefacts in more detail by zooming in as much as we want.*" (P -4)

"*You can reach the museum that you need to mention or introduce in your research or homework without worrying about the time spent on the road.*" (P -6)

"*Virtual museum applications allow us to visit museums in different cities and different countries at home in front of the screen by eliminating geographical boundaries. In this respect, it is a very economical tool both financially and time.*" (P -7)

"*Wherever you are in the world and no matter what time it is; a virtual museum can be visited via the internet.*" (P -12)

3.6. Participants' Opinions About the Limitations Introduced by Virtual Museum Applications During the History Education Process

There may be some limitations of using the virtual museum application in history courses as well as its advantages. In this context, the opinions of participants about the limitations of the virtual museum applications in history education were presented in Table 6.

Table 6: Limitations of Virtual Museum Applications

Reason	Opinions	f	%
	Problems related to access/physical infrastructure	8	26,7
	Lack of knowledge	7	23,3
Limitations	Lack of guidance	6	20
	Lack of affective atmosphere	6	20
	Being far from reality	2	6,7
	Taking the easy way out in museum visit	1	3,3
	Total	**30**	**100**

When Table 6 was examined, the participants stated that there were some limitations such as physical infrastructure and access problems, lack of information, lack of guidance and lack of affective atmosphere, being far from reality and taking the easy way out in museum visits during the process of using virtual museum applications in history education. The participants' focus on the lack of information and guidance reveals the importance of doing some preparations and guidance services in using virtual museum applications in history education. Some of the participants' opinions on the limitations of using virtual museums in history education were presented below:

"*One of the most prominent disadvantages of virtual museums is the lack of opportunity to visit historical places with a real guide, to ask questions to the guide when necessary, and to share the issues stuck in our minds.*" (P -4)

"*Being in a place, seeing a work of art live and seeing it on the screen cannot provide the same feeling.*" (P -6)

"*The biggest disadvantage of the virtual museum is actually its biggest advantage. That is, being virtual is to be far from reality.*" (P -7)

"*In order to access the virtual museum applications, it is necessary to have the internet and a technological communication device that provides access to the internet. Therefore, individuals, organizations, or classes that do not have these cannot have access to these applications, or use them in the course.*" (P -13)

3.7. Participants' Opinions About the Use of Virtual Museum Applications Under Extraordinary Conditions

Participants' opinions and evaluations about the use of virtual museum applications under extraordinary conditions were presented in Table 7.

Table 7: The Use of Virtual Museum Applications Under Extraordinary Conditions

Reason	Opinions	f	%
	An outstanding application	10	20
	An effective way of teaching	9	18
Use Under	Support online process	9	18
Extraordinary	Facilitates teacher	7	14
Conditions	Facilitates learning process	7	14
	Provides making use of time efficiently	5	10
	A healthy way of learning	3	6
	Total	**50**	**100**

When Table 7 was examined, the participants stated the following regarding the use of virtual museums in case extraordinary conditions occur: it is a prominent application, it could be used effectively in the pandemic process, it contributes to online lessons, teachers, learning process and effective and efficient use of time and it is healthy. It is clearly viewed that because the study was carried out during the Covid 19 pandemic, it was effective on participants' opinions. In other words, it is understood that using virtual museums under extraordinary conditions is a necessity and provides important benefits. Quotes from some of the participants' opinions on the use of virtual museums under extraordinary conditions were presented below:

"*Using the virtual museums under extraordinary conditions turns a bad situation into an opportunity. Those who do not have the opportunity to go, visit, and explore the museums in -situ can access them via the Internet.*" (P -3)
"*I think the virtual museum applications can be used most effectively during the pandemic period.*" (P -9)
"*When there are restrictions on public spaces and even residents are prohibited from going out, virtual museums become the only alternative in terms of museums.*" (P -10)
"*The virtual museum applications allow us to avoid risks in terms of health while providing access to some museums regardless of time and place. The use and value of virtual museum applications in adverse circumstances such as pandemic are increasing.*" (P -15)

Pointing to the importance of using virtual museums under extraordinary circumstances, some participants made some suggestions, however. These participants 'opinions were presented below:

"*As long as distance education continues during the pandemic period, the interest in virtual museums has increased and attention has been paid to use them in education. However, due to lack of information and technical problems, it was found that they were not sufficiently equipped. Therefore, the content of virtual museums should be enriched, and problems should be solved.*" (P -3)
"*They can be used as an important part of distance education with user-oriented training and technical improvements.*" (P -7)
"*The infrastructure of the virtual museum applications must be strong. In addition, the application itself should be highly developed, that is, it should be deployed in such a way to replace any real museum.*" (P -13)

4. Results, Discussion, and Suggestions

Some results were obtained in this study which tried to reveal the opinions and experiences of pre-service history teachers about virtual museum applications. Before the presentation of the results in general, it is known that the world is going through tough times. People will most likely remember these periods as a painful memory many centuries later. Or maybe there will be greater suffering in the world. It is difficult to interpret the future of the world; however, there is an important fact that the current situation has left a significant mark on people and the interest in technology has increased more than ever.

The participants were first asked about their opinions on the use of technology in history courses. When the mentioned opinions were examined, it was determined that the use of technology in history courses facilitated learning process and contributed to students and teachers. Regarding the contributions of using technology in history courses, Dilek (2007: 75) stated that the lack of knowledge and experience that students encounter in history courses can be minimized with direct intervention of the teacher and the appropriate course material in the learning process. Turan (2012: 220-221) stated that the use of technology in history lessons would make the course interesting for students who use these technologies frequently in daily life and thus increase their participation in the lesson. In addition, according to the author, he suggested that necessary arrangements should be made not only in terms of infrastructure but also in school culture, education system, and teacher training. Güven et al. (2014: 202)'s study is remarkable. In line with the increasing importance of technology in this study, the importance of technology in terms of access to sources, enrichment of the learning environment and modern educational pedagogy was highlighted. Ulusoy (2014: 86) mentioned that many applications including computers and the internet promoted the teaching process of history course. Kaya (2017: 132) stated that with the development of technology today, history courses are more innovative and offers variety.

It was observed that the participants' opinions about the virtual museum concept were generally correct and each participant had a virtual museum experience. It was found that these results were similar to the results of Aladağ, Akkaya, & Şensöz (2014: 204), Karataş et al. (2016: 119-120), Okumuş (2019: 725). It was revealed that participants in these studies generally regarded virtual museums as the presentation of artifacts in museums through technology-based applications. In addition, Karataş et al. (2016: 119-120, 121) and Okumuş (2019: 725) reported that the participants visited the virtual museum and had sufficient experience; however, it drew attention that a similar situation was not valid in Egüz's (2011: 91) study. Okumuş (2019: 726) stated in his study that this situation was time-related and more technology-based studies would be used in history lessons in time. This study supports this finding. In addition, when participants were asked about which subjects would be most efficient in the virtual museum applications in history courses, some of the participants indicated all subjects, yet some drew attention to the wide variety of subjects. The participants' virtual museum experiences and their opinions about their use in history courses give the impression that these applications will be used more in the future and that there will be developments on more efficient use of these applications.

Participants drew attention to unlimited access and easy and practical use as the contribution of virtual museum applications. There are also many opinions about their contributions to learning processes. In terms of the contribution of virtual museums to the course, it is found that similar results have been obtained from many theoretical and research-based studies such as Sylaiou et al. (2005: 5-6), Ulusoy (2010: 42), Aladağ, Akkaya, & Şensöz (2014: 210), Kabapınar (2014: 327-328), Ulusoy (2014: 91), Turan (2015: 195-196) such as Kaya & Okumuş (2018: 137), Okumuş (2019: 726-727), Okumuş (2020: 214). According to Syarifuddin, Syahrial, & Suparman (2017: 56), despite some infrastructural needs, virtual museums are learning environments that are useful in terms of time and cost and contribute to meaningful and permanent learning.

Considering the limitations of virtual museum applications, physical infrastructure and some access problems and lack of information drew attention. In addition, some participants stated the "virtual" nature of virtual museums as a limitation. The studies carried out by Aladağ, Akkaya, & Şensöz (2014: 211), Turan (2015: 195-196) and Okumuş (2019: 727) also support these results. In addition, Cui & Yokoi (2012: 8) mentioned that many virtual museums lacked the necessary background information for the beginners in history. Daniela (2020: 23) stated that the application should meet the learning purpose for the pedagogical use of virtual museums.

It has been stated in most opinions that virtual museum applications are prominent for use under extraordinary conditions, they are an effective way of learning, and they support online education process. In addition, there are some participants who stated that virtual museum applications will contribute to teachers, learning process, and effective use of time and they are healthy. Many studies (see for example Journal of National Education, Special Edition on Education in Turkey and the World During Pandemic, 2020; Campbell, 2020; Koçoğlu et al., 2020) were carried out on the process during the pandemic. Sirer (2020: 2008-2009) stated that technology drew attention in education with the pandemic process and technological tools that support online education were used more.

Bozkurt (2020: 119) stated that the use of technology in education was not related to the pandemic; however, he added that these environments attracted attention during the pandemic period and concrete technology products should be used more functionally in this process. With the pandemic and the new world order, virtual museums ceased to be a necessity of the alternative and became a necessity. Museums that had to be closed opened their doors to visitors virtually to survive, maintain their continuity, not to lose their visibility, and continue to fulfil their functions such as education, entertainment, and communication with the intention of making contributions to society (Kasapoğlu-Akyol, 2020: 77).

The following recommendations are made within the framework of the results obtained from this study.

- Virtual museum environments should be diversified by providing educational explanations considering their pedagogical benefits under the coordination of the Ministry of National Education.
- In-service training should be given to teachers for the use of virtual museums in history courses.
- Student awareness should be developed so that they can use these environments to support the lesson. In this regard, less costly and local history-oriented virtual museums can be developed as an activity in which students and teachers are engaged in the process.
- Further studies focusing on application-oriented quasi-experimental research and action research should be carried out in the future.

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The Role of School Leadership in Improving Teachers and Employee Work Disciplines

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Abstract
This study aims to determine and describe the role of principal leadership in improving the work discipline of teachers and employees and to find out what obstacles are obstacles to the role of principal leadership in improving the work discipline of teachers and employees at SMA Negeri 2 Lahat. This research is a descriptive qualitative research type and uses purposive sampling technique. There are five roles of the Principal and two obstacles faced by the Principal in improving the work discipline of teachers and employees. From the results of the research shows that the principal of SMA Negeri 2 Lahat carries out the role as a leader by planning and deliberating, as a manager by creating collaboration between teachers and employees, as educators by preparing learning program plans as administrators by managing facilities and infrastructure as well as financial administration, motivators. by providing motivation with a conducive school environment. The obstacles faced by school principals in improving the work discipline of teachers and employees are teachers and employees who are less disciplined in carrying out their duties so that they are also difficult to improve their work discipline, as well as obstacles in inadequate school facilities and infrastructure.

Keywords: Leadership, Teacher, Employees

1. Introduction

As it is realized that schools are one type of organization that is often called a formal education organization (Kairienė, 2018), (Tamburlini, 2018). One of the most important organizational elements is the human, the internal personnel of the school organization consisting of the principal, teachers, students and school administration staff, the main activity they do is teaching and learning activities.

Indonesia, which provides education, certainly has its own philosophy and ideology in developing the world of education. The government through the Ministry of National Education as the representative of the government, has more responsibility for education in Indonesia, continues to strive to carry out and develop and improve the quality of National Education with its own interpretation.

In order for the school education process to be good, of course it requires qualified teaching staff who have high loyalty and discipline. High discipline will be very helpful in achieving goals, while to create a condition of discipline it is necessary to have a leader who is truly competent in carrying out his duties and responsibilities in carrying out school management, namely the work process with and through other people to achieve organizational goals efficiently (Andayani & Tirtayasa, 2019). Development and adoption of effective solutions for increasing demand and allocation of resources to develop and implement innovations that will improve school leadership (Moolenaar et al., 2010). Low teacher work discipline can result in the low quality of education in schools. The better the teacher's discipline, the higher the work performance he can achieve (Sudirman et al., 2020). Workplace discipline has a significant impact on employee behavior, which in turn has an impact on employee performance (Tentama et al., 2020).

However, to create this condition, it seems that there is still a need for a process so that school principals can improve the work discipline of employees and teachers. This can be seen from the results of temporary observations at SMA Negeri 2 Lahat, there are indications that lead to low work discipline of employees and teachers. (Moolenaar et al., 2010) said while school improvement efforts are more likely to succeed in a climate that supports innovation, the need for leadership behaviors that foster such a climate is often overlooked. Most reform-related policies focus on the technical elements of reform, and therefore many reform efforts in underperforming systems focus on program loyalty, rigid curricula, and a prescriptive approach. Teacher performance must be considered because the level of discipline can affect the quality, quality, and performance of teachers who do not meet existing standards. Personality, work knowledge, level of discipline, and honesty can all contribute to high performance (Nugraheni et al., 2020).

Some of the findings of low discipline in the workforce of employees and teachers include; Do not come to work without clear information, Neatness in the use of uniforms that have been determined by the school. During the teaching and learning process there are teachers who are not there. Come to school and go home before the time set by the school.

Based on the description above, the work discipline of teachers and employees must be improved to be even better. Realizing the importance of work discipline in order to achieve the vision and mission in schools, a good leadership role is needed in improving the work discipline of teachers and employees. With this description, the authors are interested in choosing the title The Role of Principal Leadership in Improving Teachers and Employees Work Discipline.

2. Methods

The type of research used in this research is descriptive qualitative research. The locations in this research are SMA Negeri 2 Lahat, Data Collection Technique; Library research, field research, Observation, Interviews, Document Studies and Documentation. The data analysis technique used in this study was the interactive model data analysis proposed by Miles and Huberman, namely by collecting data, simplifying data, presenting data, drawing conclusions.

3. Results and Discussion

The Role of Principal Leadership The principal is the highest leader in the school he leads. His leadership pattern will be very influential and will even determine the progress of the school. Principal leadership is the principal's way or effort in influencing, encouraging, guiding, directing, and mobilizing teachers, staff, students, parents and other related parties to work or participate in efforts to achieve predetermined goals. The principal as a leader will certainly have the ability or skills that support his ability as a leader in school such as good communication

skills, technical skills in his field, sharp analytical skills, assertiveness and courage to make decisions, high work ethic and have a clear vision (Akhadiyah et al., 2019)

The position of the principal is the highest leader and must supervise, protect all human resources in the school. In this role, the principal is responsible for the implementation of the entire education process in schools carried out by all elements of the school community. As a leader, it is natural that the principal is required to strive for the implementation of the education process effectively and efficiently. In carrying out his duties, a school principal has several important functions or roles. Apart from being a leader, the role of the principal in relation to the achievement of institutional goals is as a manager, as an administrator, as an educator, the principal must also be able to mobilize all school members, both teachers, students, parents of students, the community and educational facilities to achieve educational goals.

The principal in carrying out his duties needs to have leadership principles. Principles of principal leadership include constructive, creative, participative, cooperative, delegative, integrative, rational and objective. The existence of school principals at every level of education is very important. With the centralization of school authority in the hands of the principal, the school becomes a central feature as the highest leader and determines the success of the school in achieving the expected goals. The existence of school principals in relation to the success of achieving educational goals is largely determined by school management. Successful school management is largely determined by the leadership of the school principal. The existence of the principal is closely related to the ability to manage the school.

Duties and responsibilities are things that must be carried out by someone in holding a position. Likewise with the duties and responsibilities of the principal. The principal is an educational leader who has a very big role in developing the quality of education in schools. The development of work spirit, harmonious cooperation, interest in educational development, a pleasant working atmosphere and the development of professional quality among teachers are largely determined by the quality of the principal's leadership. Thus the principal is one of the keys to the success of the school in achieving its goals.

From the above statement it is clear that the principal is able to carry out his role as a leader in SMA Negeri 2 Lahat, it is proven that the principal has been able to formulate and determine school goals that the school will achieve and decide on the plan by meeting and receiving suggestions or input from existing teachers and employees. in school.

The principal as manager, the role of the principal as a manager in influencing teachers to achieve the desired school goals, improve performance, utilize all school resources to improve the vision, mission and achievement of goals. The principal requires each subject teacher to carry out a learning process that refers to graduation standards and to carry out subject teacher deliberations in schools to have adequate management and leadership skills in order to be able to take initiatives and initiatives to improve school quality. The principal can conduct deliberations to correct weaknesses that may occur in the school in the teaching and learning process (Moolenaar et al., 2010). After the ceremony, every Monday encourages the teachers to carry out their duties and work with a sense of responsibility and can achieve the school goals that have been set together, from this it is evident that the principal has done it to be able to inspire enthusiasm. teachers and employees in order to carry out their work. Even though as a teacher who gets additional assignments, the principal is the person most responsible for implementing innovative educational administration principles in schools. As a person who gets additional assignments, it means that the principal duty of the school is a teacher, namely as a teacher and educator. The principal of the school implements and provides lessons or teaches a particular field of study.

Turning to managerial concepts, managerial is an adjective related to leadership and management. In many literatures, the word managerial is often referred to as the origin of the word management which means to train a horse or literally means to handle which means to take care, handle, or control.

Meanwhile, management is a noun which can mean management, management or management. In principle, the notion of management has the following characteristics: there is a goal to be achieved; as a blend of science and

art; is a systematic, coordinated, cooperative and integrated process in utilizing its elements; there are two or more people working together in an organization; based on the division of labor, duties and responsibilities; includes several functions; is a tool to achieve goals. Management is a process of managing existing resources which has four functions of planning, organizing, mobilizing, and controlling activities carried out to achieve predetermined goals through the use of human resources and other resources.

In this regard, the duties and responsibilities of the principal are planning, organizing, directing, coordinating, supervising and evaluating all school activities, which include the areas of the teaching and learning process, office administration, student administration, employee administration, equipment administration, financial administration, library administration, and public relations administration. Therefore, in order to achieve organizational goals, the principal basically has the duty and responsibility to plan, organize, mobilize, and supervise all existing resources and activities carried out in schools.

The principal in that position functions as an Educator, Manager, Administrator, Supervisor. However, what will be discussed is in the field of Office Managers, the principal has duties and responsibilities. The principal works with, and through others, the notion of others, not only teachers, staff, students, and parents of students, but includes the principal's superiors, other school principals and other parties who need to connect and cooperate. The principal is responsible and accountable, the success and failure of subordinates is a direct reflection of the success or failure of the principal.

With limited time and resources, the principal must be able to face various problems, with all the limitations the principal must be able to arrange assignments appropriately. The principal must think analytically and conceptually, this function means that the principal must be able to solve the problem through an analysis, then solve the problem with a feasible solution. The principal as a mediator, in the school environment as an organization, in which there are people who have different backgrounds; temperament, education and social background. So that it is possible for a dispute to occur, here the principal must intervene as a mediator or mediator.

The principal as a politician, as a politician, means that the principal must always try to improve organizational goals and develop programs far ahead. The principal is a diplomat, in the role of a diplomat in various meetings the principal is the official representative of the school he leads. Difficult decision makers, if there are difficulties such as: funds, persistent employees, differences of opinion, the principal is expected to play a role as a person who can solve these difficult problems.

In carrying out his duties as an office manager, a principal must have 3 skills is Technical skills, Mastering knowledge about methods, processes, procedures and techniques for carrying out special activities, Ability to utilize and utilize facilities and infrastructure to support these special activities. Human skills, the ability to understand human behavior in the process of cooperation, the ability to understand the hearts, attitudes and motives of others, the ability to communicate clearly and effectively, the ability to create effective, cooperative, practical, diplomatic, and acceptable behavior Public. Conceptual skills, analytical skills, ability to think rationally, experts and proficient in various conceptions, able to analyze various kinds of events, able to anticipate various orders, able to recognize various kinds of opportunities and social problems (De Grauwe, 2005), (Memisoglu, 2015).

In addition to the above abilities, a school principal must be able to generate enthusiasm for all staff, teachers and students in achieving the goals that have been set and the principal must also be able to provide advice and input. The principal is an educator, while educating is defined as providing training (teachings, leadership) regarding morals and intelligence so that education can be interpreted as the process of changing the attitude and behavior of a person or group of people in an effort to mature humans through teaching and training efforts (Husna, 2017) as an educator, the principal must be able to instill, advance and increase four kinds of values, namely; Mental, matters relating to human attitudes and character, Moral, matters relating to good and bad teachings regarding actions, attitudes and obligations or moral, Physical, matters relating to the condition of the body or body, health and human appearance Artistic, matters related to human sensitivity to art and beauty.

So the things that need to be considered by a school principal as an educator include two main things, namely the target or to whom the behavior as an educator is directed and how the role as an educator is carried out. Therefore, there are three main targets, namely teachers or other functional personnel, administrative staff and students or students. In addition to the three main targets for implementing the role of the principal as educator, there are also other target groups that are no less important, namely parents 'organizations, student organizations, and teachers' organizations.

The existence of parents' organizations is more needed to help and overcome the needs of various resources in fostering the life of school principals, both in the form of funds, facilities, services and thoughts as well as helping the implementation of student development, especially the implementation of programs outside the curricular. Student organizations are needed in an effort to provide a forum for students to grow and develop various interests, talents, and creativity through co-curricular programs, as well as outside the curricular as well as in an effort to support the success of curricular programs.

According to the author's interview with 10 teachers and employees, the role of the principal as an educator in SMA Negeri 2 Lahat is an important element in improving the teaching and learning process in schools, therefore teachers are expected to be creative educators, highly motivated and noble. All of this can be achieved if the teacher in carrying out the task gets satisfaction in his work. If their needs are met, the teacher will have positive values and attitudes in carrying out their work aimed at getting better education.

The principal in the teaching and learning process at SMA Negeri 2 Lahat uses the question and answer method, assignments and discussions, with question and answer the principal hopes that the method applied in the school can train students' courage to submit opinions that exist in students besides that by question and answer school principals also hopes that students can exchange knowledge with teachers and other students so that it will strengthen the relationship between students and subject teachers. With the assignment of the principal hopes to be able to train students to have a sense of responsibility and be able to do the tasks that the teacher gives students, by fostering a sense of responsibility the principal hopes that students will have a sense of responsibility until graduation, until college or the world of work and in the life that will continue in society.

As principal educators, they are required to provide role models for teachers, employees, students and citizens in good behavior. The success of a leader can be seen from the productivity and achievements he has achieved and judged by his kindness in relation to the implementation of his activities at school, therefore it is necessary to create an effective and good-minded leader. This shows that the principal's function as an educator is always to provide guidance and role models to teachers, employees, students, and other school members. As an educator, the principal must be able to instill, promote and improve at least four kinds of values. First, mental coaching related to the role of the principal in fostering education staff on matters related to mental attitudes and character. In this case the principal must be able to create a conducive climate so that every educational staff can carry out their duties properly, proportionally and professionall (Hermino & Humanities, 2021). For this reason, the principal must try to complete the facilities, infrastructure and learning resources in order to make it easier for teachers to carry out their teaching duties. Second, moral coaching related to the role of the principal in fostering education personnel related to good and bad teachings regarding actions, attitudes, and obligations in accordance with the duties of each educational staff.

Understanding the meaning of educators is not enough by adhering to the connotations contained in the definition of educators, but must be studied in relation to the meaning of education, educational goals, how educational strategies are implemented. The lexical meaning or definition of educators is someone who educates, is educating which means providing training (teachings, leadership) regarding morals and intelligence so that education can be interpreted as a process of changing attitudes and behavior of a person or group of people in an effort to mature humans through teaching and practice (Husna, 2017) the principal's efforts to improve teacher performance, especially related to learning activities, can be described in three activities. First, guiding teachers, especially in matters related to planning and implementing learning programs, assessing student learning outcomes, analyzing learning assessment results and developing enrichment programs and learning

improvement. Second, the ability to give examples of good learning models, by analyzing subject matter, annual programs, semester programs, and learning programs or study units, as well as developing a list of student scores. Third, the principal is required to have the ability to provide an alternative model of effective learning by utilizing a variety of learning methods and resources. Based on the description above, a school principal as an educator must be a role model for teachers, staff and students.

As a school principal educator tries to humanize humans through fostering mental and moral values in matters relating to discipline, honesty, responsibility, friendship, flexibility, and so on. Besides that, the principal must also be able to be an example, have an interest in quality, and work with a foundation of good human relations. The principal as an administrator, namely, the principal must be able to master his duties and carry out his duties properly (Afrita et al., 2018).

The principal must be creative in order to be able to have ideas and initiatives that support school development. Various tasks that must be carried out include planning, compiling annual school programs, teaching programs, student affairs, staffing, finance, and providing the necessary facilities. This plan is then stated in the school's annual plan which is translated into a two-semester program.

The principal is required to understand and manage the curriculum, student administration, facilities and infrastructure administration, and archival administration. These activities need to be carried out effectively so that school administration can be well organized and carried out. As a committee member, it is also related to finance, that to achieve increased teacher competence cannot be separated from the cost factor. In managing this field, school principals must be careful, honest and open so that no suspicion arises from both staff and the community and parents of students(Perkins-Jacobs, 2015). From the results of the research that the author conducted with 10 teachers and employees at SMA Negeri 2 Lahat, they are required to be able to plan activities to be carried out and adjusted in financial administration in this school. which will be held in schools must be able to prioritize what is more important and urgent to be implemented such as completing what is lacking in schools such as books in the library that are still incomplete.

However, in this case the principal has not been able to carry out his role as administration properly, it is evident that the principal has not been able to be transparent in discussing financial administration, not all teachers and employees are involved in discussing financial administration so that it can cause social jealousy that may occur in the school environment. Thus the principal must be more transparent and able to complete the missing needs by using financial administration that is more expedient and open to all teachers and employees at SMA Negeri 2 Lahat.

The principal becomes a motivator to encourage being active and able to carry out his work in accordance with the established methods and procedures, because with the motivation given by the principal, teachers and employees will feel motivated or enthusiastic to carry out their duties and work well. Full of responsibility and can achieve the goals that have been determined together. In its role as a motivator, the principal must understand that motivation is a very important part of the school, teachers and employees will work seriously if they have high motivation (Finnigan, 2015). If teachers and employees have positive motivation, then teachers and employees will show more interest, concern and want to participate in assignments and work. In other words, teachers and employees will carry out their duties properly if there is a high motivation or encouragement factor from the principal (Amankwah & Hua, 2020). The principal always provides motivation and enthusiasm for the teacher to be able to deal with students who have different behaviors, meaning that the principal must be able to motivate the teacher to always be patient and steadfast because he faces students who certainly have standard behavior. thoughts in receiving different lessons, therefore the principal must pay more attention to the teacher in providing motivation in order to achieve the school goals that have been determined together.

The role of the principal as a motivator is to provide motivation to all school members so that they can carry out their duties at school properly and correctly. The ability of the principal as a motivator can be seen from the ability of the principal to regulate the work environment at school, the ability to regulate the work atmosphere so that the work atmosphere becomes comfortable and can lead to creativity and bright ideas from school residents.

The ability of the principal to regulate the work environment includes managing the physical environment of the school, managing office space that is conducive to work, managing classrooms that are conducive to teaching and learning activities, managing a school yard that is cool and orderly, facilitating school facilities and infrastructure to support productivity. work, and manage library space that is conducive to learning.

The principal's ability to regulate the work atmosphere includes creating a harmonious work relationship with fellow teachers, creating a harmonious relationship between the school and its environment, creating an atmosphere of togetherness at school, providing regular direction and guidance, understanding the tasks that must be done by each teacher. , provide moral support to teachers who have problems at work, and create order and a sense of security in schools. Building on the principles of reward and punishment, according to (Tangen, 2021) with appreciation, employees will be stimulated to increase positive and productive activities. Awards will be meaningful if they are openly linked to employee performance so that every employee has the opportunity to achieve it. Meanwhile (Wondal et al., 2019) explained that the application of punishment is intended to reduce and eliminate the possibility of unwanted behavior being repeated. Building the principles of reward and punishment includes giving proper rewards to teachers who excel, recognizing and appreciating every achievement that the teacher makes, 28 giving warnings when teachers do not complete their assigned tasks on time, giving warnings to teachers who come late or don't go to class, give a warning if the teacher does not come to work without permission, the teacher's work that is deemed good is shown to other teachers as a reference, provides criticism if the teacher's work is considered bad, and provides strict punishment to teachers who violate the rules.

Obstacles Faced by the Principal in Increasing the Work Effectiveness of Teachers and Employees. The principal of SMA Negeri 2 is bad in carrying out his role, namely the lack of teacher discipline in terms of the school schedule, because there are still teachers who pick up their children from school and leave lessons that have been carried out at school, besides that there are also teachers who bring their children to school. school so that it can interfere with the teacher's teaching time. In dealing with this, the principal has verbally reprimanded but there are still teachers who repeat it on the grounds that their children are alone at home.
The school principal also encountered obstacles in terms of advice and infrastructure that was still lacking at SMA Negeri 2 Lahat because he saw that the success of the education program through the teaching and learning process was strongly influenced by many factors, one of which was the availability of adequate educational facilities and infrastructure along with proper utilization and management. optimal. Educational facilities and infrastructure are one of the important and main resources in supporting the learning process in schools, therefore it is necessary to increase their utilization and management.

The lack of facilities and infrastructure owned by SMA Negeri 2 Lahat, including electricity that has not met the needs needed by the school so that schools need a generator engine (light machine) to meet school needs, a lack of textbooks / reading books that are still lacking in the library and the absence of a unit. School Health (UKS), this is the duty of the principal which is no less important to fulfill it.

Conclusion

The principal principal in SMA Negeri 2 Lahat is responsible for making improvements and creation of a conducive environment can be achieved effectively. The principal as a manager in influencing teachers to achieve the desired goals. As the principal manager of the school must be willing and able to utilize all school resources in improving the vision, mission and achieving school goals. In other words, teachers and employees will do their job well if there is a high motivational factor from the head of school.

The obstacles faced are teachers and employees who are less disciplined in carrying out their duties and jobs, as well as constraints on facilities and infrastructure. It was found that the problem in the MGMP was not fully operational, the management and all MGMP leaders had to have a good attitude in working together to optimize the MGMP program for organizational resources, namely not all English teachers. Based on the background of this problem, we suggest to the South Sumatra Provincial Education Office to increase the socialization of

Government policies regarding the MGMP Program, especially for English subjects which are carried out in Senior High Schools. Lack of awareness of their active involvement in the subject teacher professional forum.

Steps that can be taken are providing teachers with clearer and more detailed knowledge and understanding about MGMP policies, increasing budget allocations for socialization so that activities can be carried out in accordance with predetermined goals and Involving all levels of teachers, school principals, and leadership elements in The Office of Education and Culture in order to formulate programs / activities so that the involvement and ideas of all stakeholder elements can be accommodated.

In connection with English Learning Management, the following problems were found: the mapped objectives had not been implemented optimally, the monitoring of MGMP activities had not been carried out continuously, and supervision had not been able to provide improvements in teacher administration. The author suggests that the South Sumatra Provincial Education Office can increase the work motivation of teachers, school principals, and supervisors. Steps that can be taken are to provide opportunities for teachers, school principals, and supervisors to get education, training and technical guidance related to their work, encourage teachers to make work innovations in order to improve the results of future programs / activities and increase cooperation. Both inside and outside the work environment to strengthen relationships between teachers of other subjects.

The performance of English teachers is found to be constrained, not all English teachers have made plans for meeting teaching and learning activities according to the academic calendar, not all English teachers who are members of the MGMP can provide an evaluation of student work so that students can find out their weaknesses, and lack of implementation current teaching methods. Based on the background of the problems in the performance of English teachers, the authors suggest that the South Sumatra Provincial Education Office can improve the quality of their knowledge and skills in order to be able to provide excellent service to their students. Steps that can be taken include building a sense of empathy for English teachers through various trainings and self-development motivation. Establishing teaching and learning standards as a service that must be implemented and implementing rewards and punishments for learning

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The Role of Principal Interpersonal Communication on Teacher's Work Motivation

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Abstract
The purpose of this study was to determine the role of the principal's interpersonal communication on the work motivation of teachers in Public High School 1 Merapi Barat. The research method used is descriptive qualitative which is specific to describing, then first of all the author will describe what the results obtained at the research location in this case are the role of the principal's interpersonal communication on the work motivation of teachers in Public High School 1 Merapi Barat. Interpersonal communication aims to convey everything about the contents of his thoughts and feelings to the communicant. The expression of the contents and thoughts and feelings if applied correctly with the right ethics will be able to prevent and avoid conflicts between individuals, between groups and even between nations so as to maintain national unity and integrity. From the analysis of this research, a leader is required to be able to communicate effectively interpersonal in order to be able to have emotional closeness between leaders and subordinates and fellow subordinates so that when the delivery of information takes place it will be easier and more relaxed in achieving the goals of information, the closeness that is owned makes the information. what is delivered is easy to accept and run. Where later these factors can increase and play a role in teacher motivation.

Keywords: Interpersonal, Communication, Learning, Education

1. Introduction

In organizational life, interpersonal communication is very important because interpersonal communication can increase mutual understanding between subordinate employees and superiors, and improve coordination of various different activities or tasks. Poor interpersonal communication can complicate various kinds of joint activities and can further lead to stress and dissatisfaction among employees. For this reason, in organizations or

in employment relationships, an open communication system must be developed because, apart from the existence of many communication systems and some propagation in communication, it can be said that open communication is better than closed communication systems. In this communication system, the signs that can be generated include understanding, pleasure, influence on attitudes, better relationships, and actions.

Principals need carefulness to see that the conditions of education personnel should receive attention considering that they are elements in the delivery of education. Educators are required to have special abilities or competencies to provide the best service for their students. For that, there needs to be an interaction between the two parties above.

From the results of preliminary observations made by the author, the phenomenon that often appears shows that the communication system in schools is not well developed. This often arises in communication problems where either the principal or the teacher tends not to carry out their duties properly.

2. Method

This research used a qualitative approach, which starts with data and leads to conclusions (Ali, 2011; Mubasyaroh, 2016). This research is focused on the role of principal interpersonal communication on the work motivation of teachers in Public High School 1 Merapi Barat which can be seen through Openness of Empathy, Support, Positive Ratio and Equality.

This research was conducted in Public High School 1 Merapi Barat . The research period lasted for one month, namely the end of March to the end of April 2020. The types of data in this study were primary data and secondary data. As for the data collection techniques that I do is through Documentation Observation and Interviews with data analysis techniques through data collection, data reduction, data presentation and conclusion describing. The raw data obtained from using data collection instruments is then reduced. Data reduction is a stage of qualitative data analysis techniques. Data reduction is the simplification, classification, and removal of unnecessary data in such a way that the data can produce meaningful information and make it easier to draw conclusions. The large amount of data and the complexity of the data requires data analysis through the reduction stage. This reduction stage is carried out to determine whether the data is relevant or not with the ultimate goal. This relevant data is related to teacher work motivation

3. Results and Discussion

Public High School 1 Merapi Barat uses the National Standard School (SSN) education model coupled with the Full Day School with learning activities taking place from Monday to Friday from 13.00-17.00 and Saturday as a time for self-development. Public High School 1 Merapi Barat. implementing an integral curriculum which is a combination of the national education curriculum, Islamic education foundation curriculum, and the matriculation curriculum.

Islamic high schools have 15 teachers, with 11 male teachers and 4 female teachers. Following are the names, positions and types of subjects in the fields of Public High School 1 Merapi Barat. From observations and data obtained by the author during the study. The author will discuss the Role of Principal Interpersonal Communication on Teacher Work Motivation in Public High School 1 Merapi Barat, namely: The Role of Principal Interpersonal Communication Against Teacher Work Motivation in Public High School 1 Merapi Barat. In this research, the theory used by the researcher is the theory of interpersonal communication which is considered as the most effective communication because it is done directly between the communicator and the communicant, so that it can influence each other. Interpersonal communication is communication between communicators and communicants (Sudarsana, 2018). This communication is most effective at changing someone's attitude, opinion, or behavior. Interpersonal communication is seen as a basic method that affects basic changes in behavior (Fisher et al., 1995; Graham et al., 1993; Salimi et al., 2013) .

According to Mr. Suyitna as the Principal of the Public High School 1 Merapi Barat, the method used in communicating with teachers here is interpersonal communication, meeting face to face so it will be easier what you want. we convey or vice versa because directly, such as showing openness, empathy, giving support, showing a positive feeling, and equality or equality.

Furthermore, the researchers conducted interviews with several teachers in Public High School 1 Merapi Barat, the teachers felt that the role of the principal was very helpful for them because with interpersonal communication all information was easier to receive clearly. Following are the results of the researcher interview with one of the teachers in Public High School 1 Merapi Barat , Mr. La Uti:

"In my opinion, the role of the Principal is very important, the principal is the one who directs the teachers in the school he leads". We felt very helpful because we got a lot of information from the principal. besides that, some information was given in an interpersonal way which made the teachers feel comfortable because they were face to face, so that it made me and the other teachers feel very appreciated. Not to mention in making decisions, the principal always opens a room for discussion so that teachers can ask questions and give suggestions as much as they like. The principal considers that with interpersonal communication it will be easier to apply openness, show empathy, provide support, create a positive feeling in front of the teacher, and show equality or similarity so that it makes the teacher feel highly valued and needed.

Increasing Teacher Work Motivation by means of interpersonal communication is very effective to be used in increasing teacher work motivation. With interpersonal communication, it will be easier to convey something, whether it is a form of openness, showing empathy, providing support, a positive feeling, and fostering a sense of equality or equality. By using interpersonal communication it will be easier to accept and of course can foster a sense of kinship, a sense of pleasure between superiors and subordinates, so that the message delivery process can run smoothly and a backflow will certainly be created. Things like this are certainly very helpful for increasing teacher work motivation and they feel it is very helpful in increasing work motivation.

From the results of interviews with the principal of the researcher that interpersonal communication is very helpful in increasing teacher work motivation. In this case it can also be said that interpersonal communication can also foster a sense of kinship in the school environment, especially between the principal and teachers and fellow teachers.

In this case the principal, the method conveyed by the principal in communicating with the teacher is to communicate interpersonal so that the message conveyed and the message received is more effective. From the results of the interviews that the author did, the method used in communicating with the teacher here was interpersonal, meeting face to face, it would be easier to say what you want to convey or vice versa. Communication is carried out interpersonal so that there is a dialogue with the existing teacher, so that at that time we can know directly the responses from the teachers, and with certainty we will know whether the communication is positive, negative and successful or not. If it doesn't work, then the teacher will be given the opportunity to have an opinion or ask questions. All efforts made are aimed at making it easier for all teachers to obtain information, understand and participate in program implementation, provide support, both in the form of constructive criticism, and supervision.

A school principal has a role as a coordinator, where they explain or show the relationship between various opinions and suggestions, while each teacher in the school is certainly allowed to play more than one role in participating in school. In addition, school leaders also act as energizers of teachers to act or make decisions, and try to stimulate or encourage teachers to carry out predetermined activities. Increased participation of teacher members will increase school dynamics. This dynamism will provide the maximum opportunity for teachers to work together and participate in realizing the vision and mission of the school so that common goals can be achieved. A dynamic school is characterized by always having activities or interactions, both inside and with outside parties in an effort to achieve school goals.

Various kinds of problems can arise in schools, but the principal must be able to solve them well, so that they do not take sides with certain teachers, regarding problems that arise in school and how to solve them. The results

of the study show that the principal is usually the only problem that occurs is the difference in opinion in the forum, but the principal here always tries to find ways to solve it. The way to solve problems by being a mediator in the forum also helps teachers who have various kinds of different characteristics to be able to work comfortably. This kind of life is what schools expect as a place for implementing education that is part of society at large. Differences of opinion are important to occur in every forum with the aim of finding solutions in dealing with problems that are of common interest. Opening a discussion room will make it easy to find the best solution for the common interest and an agreement is reached that satisfies many parties. This solution can have a positive impact on the interests of schools.

With the existence of interpersonal communication carried out by the principal, it can have a good impact on the progress or quality of the school with a warning or giving advice from the principal, which can further improve teacher readiness in the teaching and learning process such as preparing materials or devices for teaching (Elfisa et al., 2020; Istiqomah et al., 2019; Marzuki & Tolla, 2019; Mukhtar et al., 2020; Murtiningsih et al., 2019; Wong & Daud, 2017). The importance of motivation in this work greatly determines how quickly organizational goals are achieved, both effectively and efficiently. Whereas if it is specifically interpreted as motivation at work, it is stated that teachers are encouraged to always be enthusiastic at work and always comply with the rules made by schools or agencies and optimize institutional facilities. So that it can increase the productivity developed by the school (Abdullah et al., 2013; Fultz & Gimbert, 2009; GÜLBAHAR, n.d.; Juharyanto, 2020; Madigan & Scroth-Cavataio, 2011; Netshitangani, 2016; Terziu et al., 2016).

Conclusion

Based on the results of the research and discussion that the researchers have put forward, it can be concluded that the Role of Principal Interpersonal Communication Against Teacher Work Motivation in Public High School 1 Merapi Barat is as follows. the teacher has done well. The method conveyed by the Principal in communicating with the teacher is by communicating interpersally so that the message conveyed and the message received is more effective. and secondly in the role of influencing and motivating teachers, the principal has carried out its function, where the teacher's interest in participating in every school activity increases by creating a harmonious relationship between the principal and teachers and fellow teachers by implementing effective interpersonal communication in schools. This is intended so that you can easily realize the vision and mission of the school itself as a place for implementing education.

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Academicians' Views on Career Barriers and Academic Alienation

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Abstract
The aim of this study is to reveal the relationship between academicians' career barriers and academic alienation. General screening model which is used in the research work of the working group in Turkey are 203 state universities academics. In the study, 19-item Career Barrier Scale was used to determine the career barriers of academics, and the Academic Alienation Scale with 21 items was used to determine the level of academic alienation. According to the results of the research, there is a positive relationship between career barriers and isolation. In addition, isolation is explained by career barriers to a great extent.

Keywords: Academicianship, Career Barriers, Academic Alienation

1. Introduction

An important part of the working life cycle is shaped by career. Individuals make their choices by taking career stages into consideration while choosing a profession and changing a profession. Because the career development process of that profession is significantly effective in most of the material and moral concerns in professional life. These concerns differ periodically in the choice of profession. In the past, since the development stages of business life were not shaped as much as today, sustainability was provided with one profession, one job, one wage. However, the present systematic processes such as changing the form of business mentality, staging the professional life of the individual, and planning differentiate the duties and responsibilities of the employees in the organization. These diversity and transitions add significant intensity to the career process of the employee within the organization and create various obstacles for a healthy and productive work life. This situation, which is explained as career barriers, can create negative situations for the employees by creating new orders in organizations.

When the reasons for career barriers are examined, it is seen that two titles, individual and organizational, stand out. The most important organizational obstacles are being fired, being prevented, being disgraced, stress and burnout, glass ceiling syndrome, organizational culture and policies, and not being able to join the communication network (Alaçam, 2014). Although these reasons are considered as a part of the development of the organization, they are seen as a career obstacle on an individual basis. Individual career barriers, on the other hand, are related to the right of the individual to lead a satisfying professional life in terms of social, psychological and economic aspects as a requirement of being human (İnandı, Tunç, & Uslu, 2013). Individuals are faced with a great career obstacle when they do not continue their journey by discovering their own capacity, realizing their deficiencies and improving them, increasing their motivation in economic and social terms. These obstacles lead to the development of many different negative situations and attitudes in employees.

Career barriers are observed more prominently, especially in multi-population organizations. Since the high number of employees significantly affects the amount and quality of production, competition among employees increases, causing career phases to come to the fore frequently in that organization. Universities are one of the organizations with this agenda. The large number of lecturers, scientific encouragement, motivation, quality publication, increasing previous knowledge and experience cause the individuals to enter a competition both in their own cycle and with their colleagues. These expressions, which are the keywords of career development, add a progressive perspective to the career process in universities, and can also be an obstacle to prevent this progress. In particular, career development processes of faculty members in their professional lives constitute one of the main goals of the profession. Therefore, the career barriers they encounter not only stop a progress, but also create a multi-faceted picture of negativity. Lack of belonging to the organization, decrease in organizational trust, increase in destructive conflicts, and alienation are among the topics frequently encountered in this picture. Especially the predictive power of alienation is of great importance in the foundation of this study. Considering the recent studies on academic, it is seen that career barriers have been addressed to a great extent. However, research on academic alienation is very limited. There are no studies that deal with career barriers and academic alienation together. Therefore, this study examines the career barriers and academic alienation of academicians in order to fill the gap at this point and to shed light on future studies. In addition, addressing the causes of career barriers as well as their consequences is thought to be very effective in addressing the root of the problem and offering solutions. In this context, this research is based on the hypothesis that alienation is also a result of career barrier.

1.1 Career Barriers

Due to the expansion and diversification of job opportunities in industrialized societies, the increase in the world population and changing lifestyles, the required business areas increase significantly in a short time. This diversification increases the number of employees in different sectors at the same time. Being involved in any profession and continuing to work becomes systematic with the industrialization and the expansion of the service sector. Thus, individuals are faced with concepts such as changing the existing position, appointment, promotion, leaving the job in their business life. These changes and developments have created a concept that deals with the before, during and after of working life and has placed itself as a "career" in both professional life and scientific literature. Career is defined by Tortop (1994), as the progress of a person step by step and steadily in any field of work, gaining experience and skills throughout the years that he can work; by Stone (2003), as a process that includes all of the work done by the individual, the positions they are in, and the attitudes and behaviors related to these positions; by Erdoğmuş (2003) as a concept that includes the positions that the individuals have been in throughout their working life and the work done in these positions; and by Aytaç (2005) as the work done by employees during their working life as a continuity that includes the development and progress in business life. Inandi, Tunç, and Uslu (2013) express the common emphasis of definitions as the increase in social prestige and income level with the increase in the position in working life. In general, career is a flow that deals with the positions of the individuals during their working life, the attitudes they have developed towards their profession, and the income gained in return for the performance displayed due to these attitudes and the status of the individual.

Developments and outcomes in the career process can be both individual and organizational. Bakioğlu and İnandı (2001) define the individual dimension as the ability to create a productive work environment with high job satisfaction by improving one's career; and the organizational dimension as the ability of the individual to exhibit an effective performance in terms of serving the organization with this high efficiency and motivation. Considering the reflection of these two factors on social life at the same time, which cannot be evaluated independently of each other, it is seen that the concept of career has a multifaceted effect area. This effect benefits both the individual, the organization and the social life. Occupational groups from which the organization and the society are profitable according to the career trajectory are more preferred areas in the society. Considering income, status, high motivation and productivity, job satisfaction and working conditions, academicians constitute one of the leading professions in this sense. Academicianship is seen as a profession that draws attention at this point, especially since the knowledge and experiences gained in the long term are seen more useful in the career process.

Being an academician aims to do research in universities, educate students and shed light on social problems in the light of scientific data. It can be stated that academicians have a wide field of study such as seniority, field of study, faculty and university variables, management and they go through a long-term process. However, considering the titles such as promotion and appointment, gender factor, freedom to publish scientific publications, participating in research and projects and engaging in professional development activities, academicians constitute one of the occupational groups with the most career barriers. In this profession, which has long career steps, both maintaining the existing title and encountering various difficulties during promotion periods are a common problem for academicians. The understanding that universities are independent within themselves is being broken day by day by the governments, and the structures that change with the policies of the country affect academicians in many ways and may present themselves as a problem. Foreign language knowledge encountered in the scientific research process, the number of publications, arbitrary practices in promotions and appointments, organizational conflicts and communication problems (Inandi, Tunç, & Uslu, 2013), lack of resources, not being able to spare time for research, using scientific knowledge as an indicator of power and status and Turning into a relationship of interest, conflicts with administrators and economic difficulties are the main problems faced by academicians. In the literature, these obstacles, especially in terms of recruitment, appointment, promotion, financial difficulties and scientific publication, are titled as demographic factors, disagreements, lack of resources, institutional relations and professional attitudes.

In academicians, which is an artistic profession, each individual has a unique idea and action plan. For this reason, the differences of opinion that arise in scientific research, in making joint decisions, in the communication network with managers and in relations with colleagues, make themselves felt intensely. While these differences can be used as an advantage, they can often lead to undesirable consequences. In order to advance the careers of lecturers, both their managers and colleagues can act together with YÖK and reflect this situation to the academicians as a career barrier. In addition, it is thought that this is caused by the current political structuring in the country and the staffing formed depending on it. Therefore, it is seen that differences of opinion and different political attitudes are perceived as an obstacle to the careers of academicians. Considering the lack of resources, another subtitle, the idea that a large amount of resource budget should be allocated to universities in order to ensure the development of scientific research around the world comes forward. However, in Turkey in recent years in the university budget allocated to the statement of expenditure expected to show decreased growth are examined, it is seen that the costs kept to a minimum. Looking at the distribution of 2018/2019 Higher Education Budgets Allocations, we have reduced the expenditures of goods and services by one third (33%) and capital expenditures, which express investment expenditures in higher education, by 30 percent (Eğitim-Sen, 2018), most of the resource is the essential needs of the academician. It is observed that he goes to salary payments and premium debts. Dost and Cenkseven (2007) stated that the highest rate of lecturers was "economic problems" (66%), then the insufficiency of resources (books, articles, etc.) (20.1%), and finally, the insufficiency of facilities such as internet and computers in the business environment (% 10.7) stated that they had problems. This situation shows that there is a lack of academic and technical infrastructure in universities. Institutional relations, on the other hand, include the division of labor and relations between staff in universities, which are a very crowded group in organizational terms. However, when looking at the relationships and communication network of the academic staff, it is seen that the job descriptions are not

clearly differentiated. This situation creates a problem for faculty members to maintain their institutional relations and creates a limitation in conducting their research. Mengi and Schreglmann (2013) stated that the support of academic staff and staff working in the organization for scientific research was insufficient in their research, and that the answer to the question about getting the necessary service was mostly disagree. The fact that all personnel have a research culture in terms of scientific productivity in university organizations positively affects the motivation of the academic staff and plays an encouraging role in academic studies. On the other hand, considering the relations between colleagues, the time periods spent with colleagues are also quite long, especially since universities are organizations that require working outside of busy hours. While the shared work environment and similar study areas are expected to increase motivation and academic encouragement, it is seen that there is no such effect in the literature. In Murat's (2003) study, faculty members ranked third among the problems that bother them the most, while in Sarıoğlu's (2010) study, when academicians show high performance, they are respected and rewarded by the organization and their colleagues. They state that they did not encounter them and that this was not important. It is seen that peer attitudes are an important factor affecting the career lives of academicians in creating an academic culture that supports both the individual and the scientific publication.

The career barriers faced by academicians address a large part of their professional life. This share is seen as a serious obstacle in obtaining the title, which is one of the main goals of academicians, and in the advancement of scientific knowledge. These obstacles do not only prevent the progress of science and scientists, but reduce the sense of belonging, trust and justice in universities, and increase the level of destructive conflict and alienation. As a matter of fact, Özdemir, Yüksel, Cemaloğlu, Çakmak, Çeliköz, Erişen, and Doğan (2006) concluded that academicians do not find the current appointment and promotion criteria as objective and fair, and this situation increases the alienation among academicians. In this respect, determining the relationship between career barriers and other factors in terms of the predictive power of academic alienation constitutes the main purpose of the study.

1.2 Alienation

Alienation, which includes feelings of desperation and loneliness, is as old as the times when the individuals established a relationship with themselves and those around them. While Seeman (1959) defines alienation as a decrease in the capacity to act, it addresses five sub-dimensions as powerlessness, meaninglessness, irregularity, isolation and self-alienation. Explaining that the phenomenon of alienation in individuals and organizations instead of a single definition will manifest itself in the aforementioned five situations, Seeman mentions that these five dimensions complement each other. Erjem (2005) defines alienation as an inhumane situation, the loss of the essence and essence of the human being, the disintegration of the psycho-social dimensions of his existence, distancing and rupture from each other. In the definitions made, the expression "moving away from the current self or the organization" is frequently emphasized. Yapıcı (2004) expresses this as separation from others and mentions the importance of being deprived of warm relationships. When all these definitions are taken into consideration, it can be stated that alienation involves the attitude of isolating the self from the individuals, the group or the organization they are in, not establishing adequate communication and relationship with themselves or with other members of the organization.

Weakness, one of the sub-dimensions of alienation, is a feeling that occurs when the individuals have difficulty in controlling themselves and their environment. Because control brings with it the ability to cope. Inability of the individuals to exhibit this skill causes them to experience weakness. Seeman, in a similar way, explains powerlessness as the lack of control over the products produced by the individual and the tools used in this process (Yıldız & Alım, 2019). The individual, whose effectiveness on products and vehicles has decreased, feels powerless in solving problems with their environment and managers, being involved in production, and processing what is produced. The meaninglessness is the inability of the individual to perceive the act or the production process involved. This obscurity creates a gap by making it difficult for the individual to attribute meaning to things. Seeman (1959) defines meaninglessness as the individual's inability to know what to believe and what general truths to believe (Elma, 2003). Therefore, the individuals cannot make sense of their work, entering into an inaction and falling into a void. The fact that the task and job criteria given to the individual are

not consistent with the criteria that the individual should actually do, prompts him to question. This contradiction will cause the person to not be able to comprehend the function he / she is in and to create feelings of meaninglessness in him. The sub-dimension of irregularity (normlessness) describes the individual who does not adopt the principles of the order operating with social norms. Şimşek, Çelik, Akgemici, and Fettahoğlu (2006) define this situation as not being able to find the principles and measurements that will direct the behavior and to resort to socially unapproved ways to reach the goal. At this point, the individuals feel the need to create their own rules because they cannot benefit from the existing order in their behavior and attitude system. Therefore, the general rules do not make sense for his behavior. At this point, irregularity appears as a structure that complements each other with meaninglessness. Social Isolation sub-dimension is also considered as isolation, the individuals' detachment from themselves or from groups and organizations. Yılmaz and Sarpkaya (2009) state that isolation can be caused by the individuals' withdrawal from the society or by their exclusion from their social circle. In this case, isolation causes the individuals to be unable to relate and communicate with their social circle. Şimşek, Çelik, Akgemici, and Fettahoğlu (2006) state that the alienated individual feels like a 'lonely island' that is separated from his friends, has no ties to them, and experiences a kind of isolation. This isolation causes the individuals to find themselves meaningless and inaction. Therefore, the individuals begin to exhibit a weak and abstentional attitude in achieving the goals with the organization they is in. The isolation dimension of alienation overlaps with the meaningless dimension at this point. The isolation dimension of alienation overlaps with the meaningless dimension at this point. Finally, self-alienation (Self-Cooling) is associated with the weakening of the individuals' ties with their ego. Yıldız and Buyer (2019) explain this weak link as the individual's concern with external factors such as money and security, rather than the internal factors of the job, and thus emphasize the lack of satisfaction from the work done. Therefore, they have difficulties in adapting to the organization. Başaran (1998), on the other hand, evaluates self-alienation as a person's alienation from his / her own realities, and the behaviors, values, norms developed by a person are not based on their needs and desires. It can be defined as an individual's engaging in attitudes that do not represent themselves, and exhibiting these attitudes rather than behaviors in which they are a tool of intrinsic motivation.

Alienation in academicians generally arises in situations that are caused by academicians' work outside of their basic duties and structures within universities. If the employee has a large number of responsibilities and job descriptions are not restricted, the level of alienation may increase. Considering the academic title of YÖK (1981), it is seen that the job descriptions of academicians in universities are not in a restricted system. On the other hand, the fact that universities' specific systems, hierarchies, communication and relationship styles cannot be carried out in a constructive and supportive manner makes systematic work difficult and causes an increase in the level of alienation of academicians. Alienation, which affects both individuals themselves and the system they live in (Kesik & Cömert, 2014), also affects the quality of the individual and the organization, and Başaran (2000) regards this as a situation that harms the organization. Because the profession of academicians requires a free understanding and working in a democratic environment.

1.3 Aim of the Study

The aim of this study is to reveal the relationship between career barriers faced by academicians and their level of alienation. Both career barriers and alienation are problems that employees frequently encounter today. These problems are quite common in the academic community as well. Determining the relationship of these two variables with each other is important in terms of guiding the solution of the problems.

For this purpose, answers to the following questions are sought:
1. Do the career barriers faced by academicians differ significantly by gender?
2. Do academicians' alienation levels differ significantly by gender?
3. Is there a significant relationship between the career barriers faced by academicians and their level of alienation?
4. Do career barriers experienced by academicians predict alienation?

2. Method

2.1 Research Model

This research was conducted using the correlational survey model, one of the quantitative research methods, in order to reveal the relationship between the career barriers experienced by academicians and their alienation. In the correlational survey model, it is aimed to reveal the relationships between two or more variables and their degrees (Fraenkel & Wallen, 2009; Karasar, 2012). In survey studies, the idea is that if people want to know what people think, it should be asked directly (Christensen, Johnson, & Turner, 2015). In this regard, the research data were collected through face-to-face interviews with the academicians participating in the study.

2.2 Study group

Research data were collected from academicians at a state university located in Turkey in 2019-2020 academic year. All academicians who were available within the scope of the study and who agreed to participate in the study were included in the study. 93 (46%) of the academicians participating in the study are female and 109 (54%) of them are male.

2.3 Data Collection Tools

Research data were collected using the Career Barriers Scale (CBS) and the Alienation from Academicians Scale (AAS).

2.3.1 Career Barriers Scale
It was developed by Inandi, Tunç, and Uslu (2013) to measure the career barriers faced by academicians. The scale consists of 5 factors and 19 items. Factors are, respectively, Demographic Variables, Differences of Opinion, Insufficient Resources, Institutional Relations and Colleague Attitudes. Internal consistency coefficients obtained while developing the scale were calculated as Demographic Variables, 55; Differences of Opinion, 83; Insufficient Resources, 75; Institutional Relations, 90 and Colleague Attitudes, 95. The internal consistency coefficient for the overall scale was found to be 88. Within the scope of this research, the internal consistency coefficient for the overall scale was calculated as 88.

2.3.2 Academician Alienation Scale
It was developed by Yıldız and Alıcı (2019) in order to reveal the alienation of academicians towards their profession. The scale of alienation from academicians consists of 5 factors and 21 items. Factors are named as Self Alienation, Alienation from Scientific Research, Alienation from Teaching, Isolation and Powerlessness. Internal consistency coefficients for the sub-factors of the scale are Self Alienation, 79; Alienation from Scientific Research, 79; Alienation to Education, 76; While Insulation was determined as 68 and Powerlessness as 67, the internal consistency coefficient for the overall scale was calculated as 0.867. Within the scope of this research, the internal consistency coefficient for the overall scale was found to be 81.

3. Results

In the results section of the study, there are findings regarding whether there is a significant difference between Career Barriers and Alienation levels experienced by academicians according to gender variables, whether there is a relationship between career barriers and alienation, and career barriers predict alienation.

Table 1: T-Test Results of Academicians' Opinions Regarding Career Barrier Levels According to Gender Variable

Carrier Barriers	Gender	N	X̄	Sd	t	df	p
Demographic Variables	Female	93	3,6071	0,72	2,505	200	0,013*
	Male	109	3,3349	0,80			
Differences of Opinion	Female	93	3,5735	1,043	0,968	200	0,334
	Male	109	3,4312	1,040			
Insufficient Resources	Female	93	3,9072	0,72	2,263	200	0,025*
	Male	109	3,6525	0,85			
Institutional Relations	Female	93	3,8065	1,13	2,310	200	0,022*
	Male	109	3,4464	1,07			
Colleague Attitudes	Female	93	3,3638	1,14	1,197	200	0,233
	Male	109	3,1858	0,96			

*p<0.05

When Table 1 was examined, it was seen that female academicians experienced more obstacles than male academicians in terms of demographic variables (p = 0.013), insufficient resources (p = 0.025), and institutional relations (p = 0.022), which are sub-dimensions of career barriers. This difference is statistically significant. On the other hand, there was no significant difference in opinion differences (p = 0.334) and colleague attitudes (p = 0.233) dimensions.

Table 2: T-Test Results of Academicians' Opinions Regarding Academic Alienation Levels According to Gender Variable

Academic Alienation	Gender	N	X̄	Sd	t	df	p
Self Alienation	Female	93	2,1006	0,56	-1,731	200	0,085
	Male	109	2,2298	0,50			
Alienation from Scientific Research	Female	93	2,6364	0,82	1,372	200	0,172
	Male	109	2,4655	0,92			
Alienation from Teaching	Female	93	2,6517	0,83	0,772	200	0,441
	Male	109	2,5646	0,76			
Isolation	Female	93	3,7312	0,84	1,704	200	0,090
	Male	109	3,5321	0,81			
Powerlessness	Female	93	2,8676	0,916	2,586	200	0,010*
	Male	109	2,5323	0,919			

*p<0.05

According to the results of the t test regarding whether the gender variable in Table 2 made a significant difference according to the sub-dimensions of Alienation, we were self-alienation (p = 0.085), alienation from scientific research (p = 0.172), alienation from teaching (p = 0.441) and isolation (p = 0.090), there was no significant difference in the dimensions. There is a meaningful difference in favor of female academicians in the dimension of powerlessness (p = 0.010). Female academicians feel more powerless than male academicians.

Table 3: Results of Correlation Analysis Regarding the Relationship Between Academicians' Career Barriers and Academic Alienation Levels

	1	2	3	4	5	6	7	8	9	10	X̄	Sd
Demographic Reliables	1										3,46	,77
Differences of Opinion	,247	1									3,49	1,04
Insufficient Resources	,290	,410	1								3,76	,80
Institutional Relations	,267	,480	,383	1							3,61	1,11
Colleague Attitudes	,221	,657	,386	,544	1						3,26	1,05
Self Alienation	-,131	,131	,128	,187**	,107	1					2,17	,53
Alienation from Academic Research	,101	-,049	-,126	,005	,061	,023	1				2,54	,88
Alienation from Teaching	,163*	-,093	-,126	-,010	-,002	-,073	,510	1			2,60	,79
Isolation	,308**	,790**	,598**	,545**	,793**	,067	-,038	-,079	1		3,62	,83
Powerlessness	,093	-,130	-,009	-,023	-,041	-,122	,702	,518	-,118	1	2,68	,93

*p<.05 **p<01

When the relationship between career barriers experienced by academicians and their alienation is examined, a positive relationship has been found between the dimension of isolation and all dimensions of career barriers. A positive and strong relationship was found between the isolation dimension and Colleague Attitudes (r =, 793) and Opinion Differences (r =, 790). A positive and moderate relationship was also found between Isolation and Demographic Variables (r =, 3089; Lack of Resources (r =, 598) and Institutional Relationships (r =, 545).

It has also been revealed that there is a positive and weak relationship between Self-Alienation and Institutional Relationships and between Demographic Variables and Education Alienation.

Table 4. Results of Multiple Regression Analysis Regarding the Level of Career Barriers of Academicians Predicting Academic Alienation

Alienation	Self Alienation				Alienation from Academic Research				Alienation from Teaching				Isolation				Powerlessness			
Variable	B	SH	B	T	B	SH	B	T	B	SH	B	T	B	SH	B	T	B	SH	B	T
Demographic Variables	-,151	,050	-,222	-3,048	,166	,084	,146	1,975	,230	,075	,224	3,061	,041	,035	,039	1,188	,151	,089	,126	1,690
Differences of Opinion	,039	,048	,077	,815	-,112	,081	-,132	-1,374	-,119	,073	-,156	-1,641	,312	,034	,390	9,248	-,187	,087	-,209	-2,161
Insufficient Resources	,067	,052	,102	1,295	-,204	,088	-,186	-2,326	-,173	,078	-,175	-2,208	,265	,036	,257	7,307	,017	,093	,015	,183
Institutional Relations	,091	,041	,191	2,247	-,002	,069	-,002	-,023	-,008	,061	,011	,125	,017	,028	,023	,592	,004	,073	,005	,059
Colleague Attitudes	-,019	,049	-,038	-,390	,158	,083	,189	1,912	,085	,074	,113	1,155	,329	,034	,417	9,598	,053	,088	,060	,601
	R=,290 R²=0,084 F=3,393 p‹,05 (,004)				R=,237 R²=,056 F=2,327 p‹,05 (,044)				R=,270 R²=,073 F=3,076 p‹,05 (,011)				R=,904 R²=,817 F=174,995 p‹,05 (,000)				R=,191 R²=,036 F=1,478 p›,05 (,199)			

According to the results of multiple regression analysis conducted to test whether the career barriers experienced by academicians predict alienation, all dimensions of career barriers explain the isolation experienced by academicians to a great extent ($R^2 =, 817$). It is possible that the isolation of academicians can be explained by career barriers to a great extent

4. Discussion

One of the first professions that come to mind when the concept of career is mentioned is being an academic. For this reason, it maintains its place in the agenda as one of the most discussed topics by career lecturers in higher education. Especially worries about promotion and stress situations are among the most important problems of

academicians. Therefore, in this study, the relationship between career barriers faced by academicians and their level of alienation has been tried to be determined.

First of all, it was examined whether there is a significant difference between the views of academicians about career barriers they have experienced according to their gender. According to these results, female academicians stated that they experienced more obstacles than male academicians in terms of demographic variables, lack of resources and institutional relations, which are the sub-dimensions of career barriers. In demographic variables including foreign language, course load, economic and family obligations, the reason why women experience more obstacles is that in the traditional family structure, women are expected to stay at home instead of participating in business life, to carry out tasks such as home service work and child care. Women who overcome these responsibilities and enter the business life both try to fulfill these responsibilities and have to undertake the foreign language and heavy lessons that require extra effort. In professional life, the fact that senior managers are generally male and social relations are more than women can make men more advantageous in accessing resources. In societies where democracy is not well established, problems are also encountered in inter-institutional relations. Especially when it is desired to be advertised in universities, sometimes within the university itself, sometimes at YÖK, sometimes by the government, the government's suspension of the advertisements and the lack of good inter-institutional relations may have led women academicians to think this way. The results of the research conducted by Er (2008) overlap with the results of this study in terms of demographic variables and lack of resources. In the study conducted by Bakioğlu and Yaman (2004), similar results were obtained from the demographic variables of this study, especially on foreign languages. Belkıs (2016) also reached similar results with the results of my study. Especially 11 out of 14 female academicians among the participants stated that they mostly faced with time problems after they became mothers. On the other hand, it can be said that female academicians are more deprived of the gender stereotypes imposed on women by the society on issues such as going to foreign countries, participating in monthly or annual international seminars, applying to exchange programs. The excessive course burden creates a situation against female academicians, and the fact that they have multiple roles in the balance of home-work-child responsibilities may have caused women to respond in this direction.

Considering the level of alienation experienced by academicians by gender, female academicians stated that they experienced more powerlessness than men in the dimension of alienation. Weakness is a feeling that occurs when the individual has difficulty controlling themselves and their environment. Because control brings with it the ability to cope. Inability of the individual to exhibit this skill causes them to experience weakness. In the literature, it is seen that academicians frequently experience weakness in universities (Halaçoğlu, 2008; Güneri, 2010; Minaslı, 2013). In this study, female academicians stated that they experienced more powerlessness than men due to various problems they experienced. In the dimension of powerlessness, which is directly related to the exhibited performance and feeling self-sufficient, the fact that women experience a higher level of weakness compared to men may be due to the inability to feel academically competent in the classroom or in relations with students, and the transfer of the energies and interests of female academicians to home-business life. Şentürk, Ünnü, and Kesken (2017), in their research on academicians, concluded that the unfair distribution in the division of labor in the home and the time they devoted to jobs that could be described as "second shift" by female academicians decreased their academic performance. The female academic, who mostly undertakes the responsibility of home and children with a traditional understanding, has to share her current performance as a home-child responsibility and a student-teaching responsibility. As a matter of fact, in the metaphorical study of Ehtiyar, Solmaz and Can (2019) called Being a Woman Academician, the metaphor of "having multitasking" is the most recurring theme. In the study conducted by Başarır and Sarı (2015) to determine the perceptions of being a female academician metaphorically, female academicians' emphasis on the theme of 'being a woman academician as a person with multitasking and responsibilities' shows similar findings. Having multiple duties and being obliged to carry out these duties may have caused female academicians to experience higher levels of powerlessness compared to male academicians. Of course, many reasons may have affected the powerlessness of academicians, especially women academicians. Macarie and Moldovan (2012) base one of these on the theory of attribution, when women perform above expectations, this success is associated with luck, and when they fail to achieve the expected success, this situation is based on personal characteristics such as failure and not acting professionally; On the contrary, superior success for male managers; with wit and skill; low performance is

explained by external factors such as bad luck. According to this theory, the association of low performance of female academicians with lack of skills and low achievement suggests that the fact that male academicians are not confronted with such a deficiency creates a vicious circle in the level of powerlessness of female academicians. One might think that the association of women's every failure with their educational deficiency also creates a learned helplessness of powerlessness. There are studies that do not overlap with the results of this study (Güneri, 2010; Akbulut, 2017).

Considering the relationship between academicians' career barriers and academic alienation levels, all of the career barriers faced by academicians have a significant relationship with isolation, which is one of the sub-dimensions of alienation. As the career barrier of academicians increases, their level of isolation increases. As the career barriers arising from the demographic variable increase, the alienation of academicians from teaching and their barriers stemming from institutional relations increase, their level of self-alienation increases. As the career barriers arising from the demographic variable increase, the alienation of academicians from teaching and their barriers stemming from institutional relations increase, their level of self-alienation increases. Regardless of men or women, academicians can be prevented for various reasons at universities. These obstacles may sometimes be related to the attitudes of colleagues, sometimes the attitudes and behaviors of managers, sometimes for political and institutional reasons, sometimes for economic reasons and sometimes for personal reasons. Of course, personal reasons can make the individual less unhappy, while other reasons can make people quite unhappy and even manifest themselves until the emergence of serious symptoms. These obstacles faced by academicians can sometimes lead to their alienation. In the context of this study, academicians experience alienation, especially in terms of isolation. Isolation means getting away from the individual's cat, environment and groups. This isolation can sometimes pull the academician away from the society and sometimes the society can exclude himself (Yılmaz & Sarpkaya, 2009). Şimşek, Çelik, Akgemici, and Fettahoğlu (2006) express isolation as an individual's experience of isolation. This isolation may cause the individual to find themselves meaningless and inaction. There are academicians who have not been able to recruit their staff for years due to the above-mentioned political, economic, institutional relations, managerial attitudes and behaviors. Even aside from being unable to recruit their staff, they are exposed to intimidation, marginalization and intimidation, and the person withdraws himself from everything, alienates himself from teaching and himself, and reaches the level of isolation. Arı (2007), Mengi, and Schreglmann (2012) stated in their study that one of the most important problems was economics. Güneri (2010), in his study on academicians' alienation from work, found that the item with the highest average in the isolation sub-dimension was "I prefer to stay away from people I do not agree with" and the lowest "I find my social environment very boring." This clearly shows that academicians are not socially inadequate and ineffective, but that they diverge politically and ideologically. Therefore, it leads to the conclusion that every academic comes together with those who are like him and that the academic community behaves more conservatively rather than the richness of differences. Inandi, Tunç and Uslu (2012), in their study with academicians, revealed that their career barriers had a negative impact on their management processes, unsuitability of working conditions, economic reasons, and the consequences that led to a decrease in academicians' job satisfaction. The decrease in job satisfaction can also cause them to become alienated and alienated from the job.

Considering the predictive levels of academicians' career barriers to their alienation, the most striking point occurred in the dimension of isolation. Career barriers predict isolation by approximately 82%. It predicts other dimensions at a low level. As a result, career barriers experienced in this study cause the most isolation among academicians. One of the most important problems of higher education is the difficulties faced by academicians in their career process. Experiencing these difficulties are emphasized in various studies (Elliott, 1990; Marginson, 2000; Taylor, 2001; Tekeli, 2002-2003; Aktay, 2003; Martin, 2004;), which reflects negatively both on the academicians themselves, on the institutional functioning and on the teaching dimension. In Karakütük, Tunç, Bülbül, and Özdem (2008) research, it is noteworthy that the basic problems of all teaching staff related to their professions are related to the academic promotion process. It would not be reasonable to expect an academic who is exposed to mobbing in the working environment, who is not peaceful, has low job satisfaction and motivation, and has high alienation and burnout, to be truly beneficial to science, education and society (Inandı, 2009).

For this reason, female academicians who experienced more obstacles than men regarding demographic variables, institutional relations and lack of resources also stated that they experienced more alienation than men in isolation, which is the sub-dimension of alienation.

This research has been done on the career barriers and alienation of academicians, researchers can investigate the relationships between academicians' career barriers and burnout, career barriers, and organizational ties. The obstacles that may be faced by academicians in higher education should be removed, taking into account the scale of their merit, and appropriate working conditions should be provided for them. Regardless of the academic's political view, ethnicity and gender, career planning should be ensured, taking into account his contribution to sharpening.

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The Effects of Pilates Mat Exercises on self-rated health Levels, Body Mass Index and Flexibility in Middle Age Sedentary Women[*]

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Abstract

Goal: This study examines the effects of 10-week Pilates Mat exercises on body mass index (BMI), flexibility and self-rated health level in middle aged women. Method: The experimental group comprises middle aged female voluntary participants in the Pilates mat exercise program at Akdeniz University Sports Facilities in Antalya (n28), and the control group includes middle aged sedentary volunteers (n14). The experimental group members were given 60 minutes of Pilates mat exercise 3 days a week for 10 weeks. The control group members did not participate in any exercise program. Flexibility test, BMI measurements and the questionnaire about self-rated health level were applied to both groups before and after the exercises. Statistical results were obtained using the SPSS 21.0 package program. As the experimental group showed normal distribution, the parametric test of Paired Sample T-Test was applied. Since the normal distribution was not applicable and the sample volume was not large enough in the control group, a nonparametric test, the Wilcoxon Signed Rank Test, was used. Findings: There was no statistically significant difference in BMI values between the pretest and posttest averages in the experimental group ($p>0.05$), while a statistical significance was found in the flexibility values and self-rated health levels ($p<0.05$). There is no statistically significant difference in BMI and flexibility values between the pretest and posttest averages ($p>0.05$) in the control group, while the self-rated health levels were statistically lower in the control group ($p<0.05$). Conclusion: It was revealed that regular 10-week Pilates exercises increase self-rated health and flexibility values in middle age women. These results indicate that Pilates exercise is a substantial method in improving flexibility performance. Pilates exercises should be performed regularly, as they have positive effects on quality of life.

Keywords: Pilates, Flexibility, Self-Rated Health, Body Mass Index

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1. Introduction

The increasing impact of technological innovations on daily life, their effects on convenience in housework and transportation, the frequent use of social media have restricted people's energy expenditure and hence limited their physical activities (Çolakoğlu, 2003). A sedentary lifestyle causes serious health problems. The sedentary lifestyle negatively affects health while causing numerous disorders (Biçer et al., 2005; Çolakoğlu, 2003).

The sedentary lifestyle habit is recently considered one of the most important diseases affecting human health (Aydos and Dönmez, 2000). Avoiding negative conditions caused by inactivity, keeping our metabolism fit and healthy necessitate physical activities, exercise and active life preference. An active lifestyle increases a person's energy and mobility and liberates the person from a sedentary life (Arcury et al., 2006). Healthy life and improving quality of life currently centralizes physical activity with a consensus towards it as a necessity. Physically active people consider their active lifestyles to be a key factor in increasing the sleep and quality of life for a long and healthy life (Haskell et al., 2007; McGrath et al., 2011; Teculescu et al., 2010). This exercise approach, often referred as Pilates, based on the teachings of Joseph Pilates (Chang, 2000), was initially for, almost exclusively, rehabilitation for inpatient treatment (1880-1967). He later became a successful physical trainer who helped well-known dancers recover from injuries, rehabilitation, and performance enhancement (Pilates, 1934). However, in recent years Pilates has become a popular trend in rehabilitation and fitness fields (Chang, 2000). Exercise is currently considered a principle of a healthy life. Pilates strengthens the core of the body, improves muscular endurance, balance, coordination, flexibility, provides mind-body integrity and reduces stress. Therefore, exercise is a necessity in our daily life (Cozen, 2000). These exercises help improve balance, coordinative motor skills, muscle strength and flexibility. Flexibility is a synonym for joint mobility and defined as the ability to perform active and passive movements with the joints at the greatest possible width (Herodek, 2006). While the anatomical structure of each joint defines the point where mobility can extend, muscle flexibility is a prerequisite for successful mobility in the combined muscle function. There are two types of flexibility (active and passive) depending on whether the movement is performed under the influence of internal (muscle) or external (gravity, inactivity, the force of the other exerciser) forces. The flexibility level is affected by several factors such as temperature, fatigue, fitness, gender, and chronological age. If the individual does not participate in the educational process or an organized exercise, individual flexibility deteriorates in childhood and adolescence (Obradovic, 1999). It is argued that the male and female ligaments are physiologically different. However, the mechanisms that contribute to these differences are not completely understood. Estrogen might have a role in this difference since estrogen receptors are found in tendons and ligament fibroblasts, which can alter collagen synthesis and affect tissue behavior (Kjaer & Hansen, 2008). "The smaller, weak, loose muscle tendons and weak muscle tonus in women provide more mobility to the joints" (Zorba, 2001). Although contemporary scholarship hints at Pilates exercises' positive effect on flexibility and body composition and muscular endurance, experimental studies on these issues are yet to approve this argument. Despite the scholarship on the Pilates method arguing that it strengthens the core of the body, and increases flexibility, there are few relevant experimental studies (Siler, 2000; Bernardo, 2007; Katafçı et al., 2014).

In light of these arguments, the study aims to determine the effects of 10-week Pilates mat exercises on body mass index (BMI), flexibility and self-rated health level in middle aged women. After the initial tests, the experimental group was given 60 minutes long Pilates mat exercise 3 days a week for 10 weeks, while the control group did not exercise. The final measurements were applied to all participants in the study. The experimental group and the control group were compared as the statistical analysis was performed. The research spans over 12 weeks in total including the initiation, exercise phase and outcome measurements.

1.2 Explore Importance of the Problem

State why the problem deserves new research. For basic research, the statement about importance might involve the need to resolve any inconsistency in results of past work and/or extend the reach of a theoretical formulation. For applied research, this might involve the need to solve a social problem or treat a psychological disorder. When research is driven by the desire to resolve controversial issues, all sides in the debate should be represented in balanced measure in the introduction. Avoid animosity and ad hominem arguments in presenting

the controversy. Conclude the statement of the problem in the introduction with a brief but formal statement of the purpose of the research that summarizes the material preceding it. For literature reviews as well as theoretical and methodological articles, also clearly state the reasons that the reported content is important and how the article fits into the cumulative understanding of the field.

1.3 Describe Relevant Scholarship

Discuss the relevant related literature, but do not feel compelled to include an exhaustive historical account. Assume that the reader is knowledgeable about the basic problem and does not require a complete accounting of its history. A scholarly description of earlier work in the introduction provides a summary of the most recent directly related work and recognizes the priority of the work of others. Citation of and specific credit to relevant earlier works are signs of scientific and scholarly responsibility and are essential for the growth of a cumulative science. In the description of relevant scholarship, also inform readers whether other aspects of this study have been reported on previously and how the current use of the evidence differs from earlier uses. At the same time, cite and reference only works pertinent to the specific issue and not those that are of only tangential or general significance. When summarizing earlier works, avoid nonessential details; instead, emphasize pertinent findings, relevant methodological issues, and major conclusions. Refer the reader to general surveys or research syntheses of the topic if they are available. Demonstrate the logical continuity between previous and present work. Develop the problem with enough breadth and clarity to make it generally understood by as wide a professional audience as possible (Beck & Sales, 2001). Do not let the goal of brevity lead you to write a statement intelligible only to the specialist.

1.4 State Hypotheses and Their Correspondence to Research Design

After you have introduced the problem and have developed the background material, explain your approach to solving the problem. In empirical studies, this usually involves stating your hypotheses or specific question and describing how these were derived from theory or are logically connected to previous data and argumentation. Clearly develop the rationale for each. Also, if you have some hypotheses or questions that are central to your purpose and others that are secondary or exploratory, state this prioritization. Explain how the research design permits the inferences needed to examine the hypothesis or provide estimates in answer to the question.

2. Method

2.1. Participants

The experimental group comprises middle aged women voluntarily participating in the Pilates mat exercise program at Akdeniz University Sports Facilities in Antalya during the 2017-18 period (n28) and the control group includes middle aged sedentary volunteers (n14). The experimental group and the control group were informed about the study through a Helsinki Declaration distributed, and the informed consent form was approved by signature.

2.2. Application

The experimental group had performed 60 minutes long Pilates mat exercise 3 days a week for 10-weeks. The control group members did not participate in any exercise program. The general form of the exercise program applied is provided in the table below (Table 1). The experimental group data was collected through pretest before the exercises and posttests afterwards (after 10 weeks in total). The control group did not perform the exercises as the pre-exercise, and post-exercise tests were applied. Moreover, a questionnaire on self-rated health was applied to the experimental and control groups before and after the exercises. The study covers a 12 weeks' timeline, including the initiation, exercise, and outcome measurements.

Table 2.1: Exercise Program for Experimental Group

Movement Names	Repetition Quantity	Exercise Week (Progress)
Supine breathing	5 min	Week 1-10
Pelvic clock	5 min	Week 1-4
Femur arcs	6 repetitions for each side	Week 1-4
Basic Bridging	6 and 8 repetitions	Week 1-8
Assisted roll up	6 repetitions	Week 1-4
Quadruped series	6 and 8 repetitions	Week 1-8
Swan	6 repetitions	Week 1-4
Femur circles	6 repetitions for each side	Week 1-4
Side-lying Series	3-6 repetitions for each side	Week 1-4
Hundred	1 set of 100 reps	Week4-12
Single leg stretches	3-6 repetitions for each side	Week4-8
Roll up	6 and 8 repetitions	Week4-8
Rolling like a ball	6 and 8 repetitions	Week4-8
Swan dive I & II	3-6 reps	Week4-8
Single leg kick	6 and 8 repetitions	Week4-8
Leg circles	3-6 repetitions for each side	Week 4-10
Sidekick	6 repetitions for each side	Week 4-10
Spine stretch (extension)	6 and 8 repetitions	Week 4-10
Spine twist	6 and 8 repetitions	Week 4-10
Mermaid	3-6 repetitions for each side	Week 4-10
Standing balance with hip flexion	4 repetitions for each side	Week 4-10
Standing balance with hip extension	4 repetitions for each side	Week 4-10
Single straight leg stretches	6 and 8 repetitions	Week 4-10
Swimming	3-6 reps	Week 7-10
Push-ups	3-6 reps	Week 7-10
Leg pull	3-6 reps	Week 7-10
Leg pull front	3-6 reps	Week 7-10

Source: (Kao et al., 2015)

2.3 Applied Tests in Research

The tests include a Flexibility Test (Sit and Reach), Weight and Height measurements, Body Mass Index measurements and the self-rated health Questionnaire.

2.3.1. Flexibility Test
Flexibility was measured by the sit-and-reach test. The person is seated on the ground, and the soles of the feet are leaning against the bench without bending the knees, and the hands are stretched forward gently as far as possible, and they are told to remain in that position for about 2 seconds. They performed two attempts. The best position reached by a person is the test score. The advantages of a sit-and-reach test are that the procedures are simple, easy to manage, and require minimal skill training (Hoeger & Hopkins, 1992). This test measures the lower back and hamstring muscle flexibility (Özer, 2001). The correlation between the lower back and hamstring muscle flexibility and the pain in the lumbar region is utilized in most test batteries (Balcı and Tamer, 2005; Baltacı et al., 2003; Afyon et al., 1999; Katayıfçı et al., 2014; Şahiner and Balcı, 2010).

2.3.2. Height and Weight Measurements
Weight measurement was performed according to standard values with a scale with a precision of ±0.1 kg (Tanita SC 330S Series-bioelectric impedance analyzer), with bare feet, leggings and t-shirts on the tests. The height measurement was performed in the length meter, with a precision of 0.5 cm, as participants were bare

feet, with a caliper moving on the scale parallel to the floor as it touched their head in a standing position. Height and bodyweight is measured in meter and kilograms (Ergün & Erten, 2001).

2.3.3 Body Mass Index Measurements
Body Mass Index is used in weight assessments in relation to height and is calculated by dividing bodyweight by height per kilogram square (kg/m²) (Arena & Lavie, 2010). BMI is calculated with the formula BMI = (kg)/height (m²). The body mass index below 18.5 kg/m² indicates underweight, as a score between 18.5-24.9 kg/m² shows normal weight, and an index 25 and above kg/m² is considered overweight while over 30 kg/m² is designated as obesity. The ready-available BMI charts provide an easier calculation (Segal et al., 1988). The World Health Organization (WHO) has a segmentation based on the body mass index which is provided in the table below (Seidell, 2002).

Table 2.2: Adult BMI Classification of the World Health Organization

Classification	BMI kg/m²	Disease Risk
Low weight	<18.5	Low
Normal	18.5-24.9	-
Overweight	25>	Moderate
Pre-obese	25.0-29.9	Increased
1st degree obese	30-34.9	Moderate
2nd degree obese	35-39.9	Severe
3rd degree obese	40>	Very Severe

Source: (Heyward, 2002)

2.3.4. Questionnaires Regarding Demographics and Self-rated health
Self-rated health is based on the subjective health level assessment of a person. "How would evaluate your present health?" The answers were determined as "poor (1)", "fairly poor (2)", "average (3)", "fairly good (4)" and "good (5)". It is reported that the self-rated health question reveals the physical health within a short and ergonometric form and can be influenced by the cultural environment (Jylha, 1998). Self-rated health is divided into two groups according to WHO's definition of "health is not only the absence of illness and disability but a complete state of well-being in physical, spiritual and social aspects" as "good and fairly good," "rated health as good" and "average, fairly poor and poor," "rated health as poor" (Fişek, 1983). Currently, exercise is one of the most fundamental principles of a healthy life. Being healthy means feeling well mentally, physically and socially (https://sbu.saglik.gov.tr, Accessed 05 April 2019).

2.3.5. Limitations of the Study
The entire research population has been included in the study. The experimental group was limited to 28 middle aged women doing Pilates in the sports facilities of Akdeniz University in Antalya, and the control group to 14 sedentary middle-aged women who did not exercise at these facilities. The study is limited to height, bodyweight BMI, sit and lie flexibility and self-rated health Questionnaire data.

2.3.6. Personal Information Form
The personal information form prepared by the author was used.

2.3.7. Data Analysis

Statistical results were calculated using the SPSS 21.0 (IBM Statistical Analysis 21.0) package program. Descriptive statistics like frequency (N), arithmetic mean ( ), minimum, maximum values and standard deviation of the measured and tested variables of n28 middle aged female participants who do Pilates in Antalya's Akdeniz University Sports Facilities were calculated. Kolmogorov Smirnov test was applied to test the normality of the data in the study. Based on the results of the Kolmogorov Smirnov test, it was found that the data were statistically suitable for a normal distribution. As the experimental group showed normal distribution, the parametric test of Paired Sample T-Test was applied. In the control group, the non-parametric Wilcoxon Signed Rank Test was used, as the sample volume was not large enough, and because it was not suitable for normal distribution due to violation of the central limit theory and the sample volume was not large enough.

3. Results

This study aims to examine the effects of Pilates mat exercises on body mass index, flexibility and self-rated health level in middle aged women. The experimental group attended 60 minutes long Pilates mat exercise 3 days a week for 10 weeks while the control group did not participate in any exercise program. The findings of the statistical analyzes regarding the experimental and control groups before and after the 10 weeks-long exercise are presented below.

Table 3.1: Descriptive Statistics of Experimental Group

Variables		N	Minimum	Maximum	Mean	Standard Deviation
Age	Pretest	28	26	54	43,64	8,04
	Posttest	28	26	54	43,64	8,04
Weight (kg)	Pretest	28	45	79	62,07	7,61
	Posttest	28	44	78	62,26	7,67
Height (cm)	Pretest	28	149	176	162,46	6,59
	Posttest	28	149	176	162,46	6,59
Body Mass Index (kg/m²)	Pretest	28	17,7	31,5	23,63	3,54
	Posttest	28	17,2	31,4	23,63	3,58
Flexibility (cm)	Pretest	28	6	46	33,46	8,10
	Posttest	28	10	49	38,57	8,72
Self-rated Health Level	Pretest	28	2	5	3,82	0,67
	Posttest	28	4	5	4,96	0,19

The age average of the experimental group participants, as shown in Table 3.1, was 43.64±8.04, the pretest weight average was 62.07±7.61 kg, the posttest average was 62.267±7.67 kg, the height average was 162.46±6.59 cm. Moreover, the pretest BMI average was 23.63±3.54 kg/m² while the posttest BMI average was 23.63±3.58 kg/m2, the pretest flexibility average was 33.46±8.10 cm as the posttest flexibility average was 38.57±8.72 cm, and the pretest self-rated health level average was 3.82±0.67 with a posttest average of 4.96±0.19.
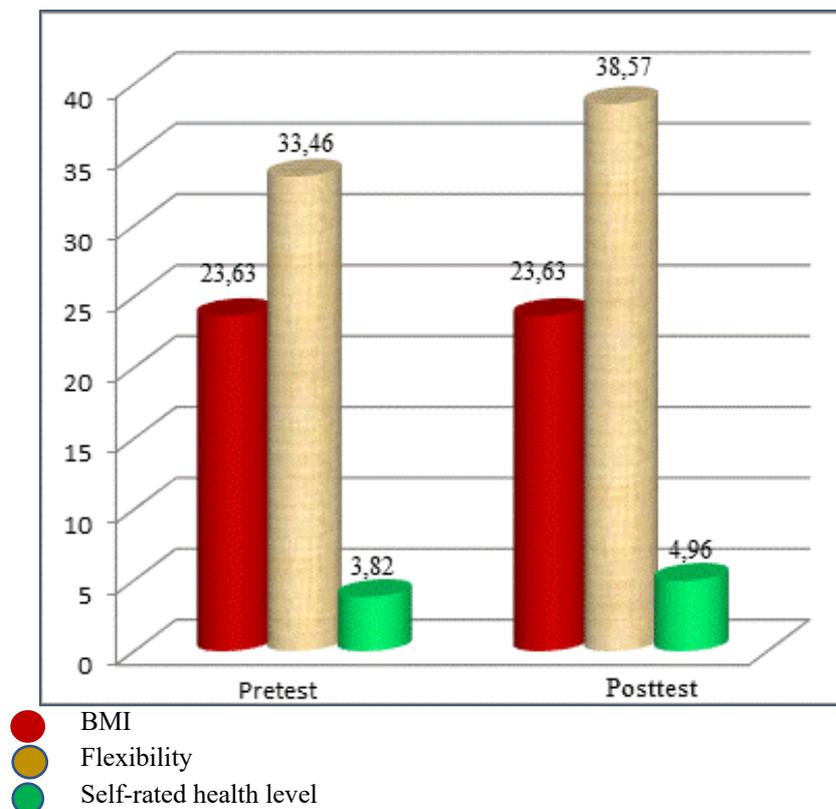
Figure 3.1: Average Values of the Experimental Group Before and After Exercise

Table 3.2: Test Results of the Control Group Before and After Exercise

Variable		N	Avg.±SD	p- value
Body Mass Index (kg/m²)	Pretest	14	26,19±4,43	0,777
	Posttest	14	26,31±4,33	
Flexibility (cm)	Pretest	14	31,71±6,81	0,131
	Posttest	14	30,93±7,30	
Self-rated Health Level	Pretest	14	2,79±0,98	0,002**
	Posttest	14	1,14±0,36	

*, **, and *** indicate 1%, 5%, and 10% statistical significance levels, respectively.

The statistical analysis (Wilcoxon Signed Rank Test) indicates that the BMI pretest average of the control group is 26.19±4.43 kg/m², posttest average is 26.31±4.33 kg/m², flexibility pretest average is 31.71±6.81 cm, posttest average is 30.93±7.30 cm, self-rated health levels pretest average is 2.79±0.98, posttest average is 1.14±0.36 as provided in Table 3.2. There is no statistically significant difference in BMI and flexibility values in the pretest and posttest averages of the control group (p>0.05), while a negative statistical significance was found for the control group regarding self-rated health levels (p<0.05).

Table 3.3: Test Results of the Experimental Group Before and After Exercise

Variable		N	Avg.±SD	p- value
Body Mass Index (kg/m²)	Pretest	28	23,63±3,54	
	Posttest	28	23,63±3,58	0,938

Flexibility (cm)	Pretest	28	33,46±8,10	
	Posttest	28	38,57±8,72	0,000**
Self-rated Health Level	Pretest	28	3,82±0,67	
	Posttest	28	4,96±1,89	0,000**

*, **, and *** indicate 1%, 5%, and 10% statistical significance levels respectively.

Based on the statistical analysis (Paired T-test), the BMI pretest average of the experimental group is 23.63±3.54 kg/m², the BMI posttest average is 23.63±3.58 kg/m², flexibility pretest average is 33.46±8.10 cm, flexibility posttest average is 38.57±8.72 cm, self-rated health levels pretest average is 3.82±0.67, and self-rated health levels posttest average is 4,96±1,89 as shown in Table 3.3. There was no statistical significance regarding BMI values between the pre-exercise and post-exercise averages of the experimental group (p>0.05). However, the flexibility values and self-rated health levels indicate a statistical significance in favor of the experimental group (p<0.05).

4. Discussion

This study aimed to examine the effect of Pilates, an exercise system preferred more by women, on body mass index, flexibility and self-rated health level in women performing mat exercises with interest in sports. The experimental group, 28 middle aged women performing Pilates exercises in Akdeniz University sports facilities, were applied 60 minutes long Pilates mat exercises 3 days a week for 10 weeks, while no exercise program was applied to the control group.

The research data shows that the average age of the experimental group participants was 43.64±8.04 with an average weight (pretest) of 62.07±7.61 kg, and a posttest average weight of 62.267±7.67 kg, as average height was 162.46±6.59 cm. Similar to these findings, 42 women who participated in Şavkın's (2014) study titled "The Effect of Pilates Training on Body Composition" had an age average of 41.00±6.09, a height average of 156.62±5.03 cm, a weight average of 74.80±1.19 kg and the body mass index average was 30.54±5.05 kg/m². Keskin (2018) reported that thirty sedentary women who participated in the study titled "The Effect of Pilates Exercises on Body Composition in Women" had an age average of 36.03±9.267, with an average height of 163.13±6.201 cm, and a weight average of 67.43±12.209 kg. Kao et al.'s (2015) study included 96 women in the study titled "Effects of a 12-week Pilates course on lower limb muscle strength and trunk flexibility in women living in the community". The 53 women in the experimental group had an age average of 42.30±9.97 and a height average of 159.79±5.23 cm with a bodyweight average of 57.15±9.78 kg. The control groups had 43 women with an age average of 41.23±9.83, a height average of 158.93±5.63 cm, as the average bodyweight was 56.24±7.83 kg. The participants' age average in Öztürk's (2008) study titled "The Effects of Aerobic-Step and Pilates Exercise on Strength, Flexibility, Anaerobic Power, Balance and Body Composition" for the aerobic-step (1st group), Pilates (2nd group) were 39.26±3.19 and 38.13±2.84, respectively. Moreover, the height average of these groups was 162.36±6.53 cm and 162.76±6.69 cm, respectively. The bodyweight average for the aerobic-step group (pretest) and aerobic-step of the group (posttest) was 72.12±6.89 kg and 70.66±6.99 kg, respectively. As the pretest bodyweight average of the Pilates group was 59.88±9.21 kg, while the posttest bodyweight average of the Pilates group was found as 59.72±9.26 kg. The age average of 20 sedentary women participants in Yarabaş's (2013) study titled "Investigation of the effect of plates exercises applied 8 weeks on anthropometric features and body feeling at middle age woman" was 42.00±6.66, with a height average of 1.62±0.5 cm and pretest-posttest weight average was reported as 65.7±9.3 kg and 60.8±8.8 kg. Bastık (2018) included 58 sedentary women aged between 25-50 in the study titled "Investigation of effects of mat and reformer Pilates exercises on some physical and functional parameters for middle aged sedentary women." There were 17 participants in the control group, 21 in the mat group and 20 in the reformer group. The age average of the

control group was 36.18±6.54, with a BMI average of 29.16±5.42 kg/m², the age average of the mat group was 35.33±7.38, with a BMI average of 22.39±3.44 kg/m² as the age average of the reformer group was 35.40±7.56, with a BMI average of 21.93±2.7 kg/m². Çağlav (2005) examined 30 women aged between 40-45 in the study titled "The Effects of 8-Week Pilates Training on Flexibility and Balance in Women aged 40-45". The age average of the experimental group was 42.33±1.83, and of the control group was 41.80±1.82, with height averages of 162.80±3.09 cm and 159.33±4.62 cm, respectively. Baştuğ et al. (2014) examined 62 women (32 in the experimental group, 30 in the control group) in the study titled "Examining the effects of Pilates exercise programs on flexibility performance and body composition in women." The age average of the experimental group was 39.96±11.12 with a height average of 160.34±5.34 cm, and the age average of the control group was 38.63±12.89 with a height average of 160.76±6.11 cm. 70 women volunteers participated in Ateş's (2009) study titled "Evaluation of the physical capacity and the quality of life of the housewives." Their age average was 39.4±8.93, as the weight and height average were 68.89±8.93 kg and 159.5±5.84 cm, respectively. The study results coincide with contemporary research and relevant findings.

While the pre-exercise BMI average of the experimental group was 23.63±3.54 kg/m², the post-exercise value was 23.63±3.58 kg/m². The BMI average of the control group before exercise was 26.19±4.43 kg/m² and the post-exercise BMI average was 26.31±4.33 kg/m². The comparison of BMI values before and after exercise in the experimental group showed no statistically significant difference between pre-exercise and post-exercise measurements ($p > 0.05$). Likewise, the BMI value comparison of the control group indicates no statistically significant difference between pre-exercise and post-exercise measurements ($p > 0.05$). Altıntaç's (2006) study titled "Effects of Pilates Exercises on Physical Fitness" with a sample comprising 30 volunteer sedentary women over the age of 30 (mat workgroup, Reformer study group and control group). The mat work exercise (10 participants) had an average body mass index of 20.95±2.16 kg/m² before exercises and 20.67±2.18 kg/m² after exercise. The BMI value change between the first and the second measurement was not statistically significant ($p > 0.05$). Katayıfçı et al. (2014) conducted a study titled "Effects of clinical Pilates exercises on physical fitness of healthy subjects" with a sample including 35 healthy individuals between the ages of 20-50 with an average body mass index of 22.9±3.3 kg/m² before exercises, and 22.9±3.3 kg/m² in the post-exercise. The participants' BMI change after Pilates exercises was not statistically significant ($p > 0.05$). Baylan (2008) established separate mat and control groups from people between the ages 18-25 and 40-50 in the study titled "The Effect of Pilates Exercise on Basal Metabolism and Body Composition in Different Age Groups" and applied 1 hour-long Pilates mat exercises for 3 days a week during 10 weeks. The average BMI values of the pre-posttest comparisons of the 40-50 age group of experimental and control groups were 24.07±2.32 kg/m², 23.87±2.15 kg/m², respectively. The experimental and control groups with participants aged between 18-25 had pre-posttest comparison average BMI values as 20.756±2.34 kg/m² and 20.80±2.32 kg/m², respectively. There was no statistically significant difference in the pre-post exercise body mass index values of these two groups ($p > 0.05$). The results show that similar values to contemporary attempts were reached in this study.

Altıntaç's (2006) study titled "Effects of Pilates Exercises on Physical Fitness," on 30 volunteer sedentary women over the age of 30 (3 groups from 30 volunteers as mat work group, Reformer study group and control group) showed that the Reformer exercise group (10 people) had an average body mass index before training as 21.28±3.04 kg/m² and 20.51±3.09 kg/m² after the exercises. Contrary to the study findings, there was a statistically significant decrease between the first and second measurement ($p < 0.05$). Özdemir's (2014) study titled "Effect of Aerobic-step and Plates Exercises on Body Composition, Blood Lipids and Blood Glucose in Middle-Aged Women" sampled 45 sedentary women. 22 women between the ages of 24-35 and 23 women between the ages of 36-45 were grouped. A combined exercise program, aerobics-step and Pilates, during 8 weeks in total as 1 hour 3 days a week was applied. The 60-70% of the heartbeat statistics in step-aerobics was determined as the exercise intensity. Since the results of bodyweight and body mass index measurements decreased in both groups after the exercises, it was reported that there was statistical significance ($p < 0.05$). Yararbaş's (2013) inquiry titled "Investigation of the effect of plates exercises applied 8 weeks on anthropometric features and body feeling at middle age woman" had a pre-exercise BMI average of 25.1±3.1 kg/m², and an average of 23.2±3.0 kg/m² after exercise ($p < 0.05$). Özcan et al. (2018) conducted a study on 60 young women participants titled "Aqua-Pilates Exercises Improve Some Physical Fitness Features of Healthy Young Women." Participants were randomly divided into two groups as exercise (N=30) and control (N=30). A

60 minutes long modified Aqua-Pilates exercise program was applied to the exercise group 2 days a week for 12 weeks. The control group members did not participate in any exercise program. It was reported that there were statistically significant differences in the bodyweight (t=4.39, p=0.00), body mass index (t=5.49, p=0.00), body fat percentage (t=7.38, p=0.00), flexibility (t=-5.27 p=0.00) values between the pre-post test scores (p<0.05). Baştuğ et al. (2014) had an attempt titled "Examining the effects of Pilates exercise programs on flexibility performance and body composition in women" with an experimental and control group. The experimental group performed walking, running and Pilates mat exercises, while the control group did not exercise. The BMI value average of the experimental group before the exercises was 26.05±4.53 kg/m² as it decreased to 25.8±4.25 kg/m² after the exercises. There was no significant difference in BMI values before and after exercise (p<0.01). The control group's pretest body mass index average was 26.45±5.91 kg/m² as it increased to 26.74±6.13 kg/m² in the posttests. A statistically significant difference was found for the control group between BMI pretest and posttest values in the negative direction (p<0.01). These results indicate that this attempt has generated similar values with contemporary scholarship. The literature review revealed that the study generated divergent BMI values compared to the scholarship on the subject. Several studies reported that exercises such as step-aerobics, dance and aerobics decrease body fat and BMI and increase muscle mass weight (Fenkci 2006, Arslan et al. 2012, Vergili and Yalıman 2012, Tortop et al., 2010).

Tortop et al. (2010) applied a 60-90 minutes long step-aerobic exercise at the 60-80% heart rate level 3 days a week for 12 weeks for the experimental group in the study titled "The Effects of the Some Physical Fitness' Parameters during 12 Weeks Step-Aerobic Exercises' Program on the Women". Statistically significant differences were detected in the bodyweight, BMI and flexibility values of the experimental group members (p<0.01).

The pre-exercise flexibility average of the experimental group members was 33.46±8.10 cm, as the post-exercise flexibility average was 38.57±8.72 cm. While the control group's pre-post exercise flexibility averages were 31.71±6.81 cm and 30.93±7.30 cm, respectively. The flexibility value comparison for the experimental group indicated a statistically significant difference (p<0.05), while there was no statistically significant difference was found the control group (p>0.05). 58 sedentary women between the ages of 25-50 (control group: 17, mat group: 21 and the reformer group: 20) participated in Bastık's (2018) study titled "Investigation of effects of mat and reformer Pilates exercises on some physical and functional parameters for middle aged sedentary women." The exercise groups exhibited statistically significant differences between the pre-exercise and post-exercise test averages (p<0.01), while the control group's pre-post exercise averages were 21.82±5.98 cm and 21.82±6.52 cm, respectively (p>0.01). Segal et al. (2004) selected 45 female and 2 male volunteer participants aged over 18. They applied Pilates practices for 2, 4- and 6-months' periods. At the initial phase, participants' median fingertip-sole distance was 0.2 cm. The feet sole distance median values after 2, 4, and 6 months of exercise were 3.4 cm (1.3-5.7 cm), 3.3 cm (0.3-7.8 cm), and 4.3 cm (1.5-7.6 cm), respectively. These results showed that flexibility increased with negative values (paired nonparametric analysis, P,01). The Pilates exercise resulted in a significant difference in the level of flexibility data (p<0.001). Çağlav's (2005) study titled "The Effects of 8-Week Pilates Training on Flexibility and Balance in Women aged 40-45" comprised 30 sedentary women aged 40-45 (experimental group = 15, control group = 15). This study applied 60 minutes long Pilates exercise 3 days a week for 8 weeks to the experimental group. No exercise was applied to the control group. There was no statistically significant change in flexibility, balance and body fat ratio measurements of the control group (p>0.001). The statistical differences were observed in post-exercise measurements in bodyweight and body fat ratio (p<0.001), flexibility (t=-p<0.001), balance (p<0.005) values. Baştuğ et al. (2014) conducted a study titled "Examining the effects of Pilates exercise programs on flexibility performance and body composition in women" with an experimental group performing walking, running and Pilates mat exercises. The experimental group's pre-exercise flexibility average was 28.53±5.08 cm, and the post-exercise average was 29.87±5.59 cm which indicates a significant difference (p<0.01). The control group showed a decrease from an average of 22.53±4.84 cm to 22.06±4.63 cm. There was a significant difference in favor of the experimental group between pre-exercise and post-exercise results (p<0.01). Kish (1998) reported that the Pilates method significantly increased the flexibility of the adductors and hip flexor muscles (p<0.01). Phrompaet (2011) showed that the lumbopelvic stability and flexibility of the experimental group were significantly increased compared to the control group. These results indicate that this attempt has generated similar values with contemporary scholarship.

The self-rated health level of the experimental group in this study was 3.82±0.67 in the pre-exercise and 3.82±0.67 post-exercise average. The study revealed statistical significance in favor of the experimental group regarding the self-rated health levels between the pretest and posttest averages ($p<0.05$). The self-rated health level pretest average was 2.79±0.98, and the posttest average was 1.14±0.36 in the control group. The study revealed a statistical significance in favor of the experimental group in the self-rated health levels test averages ($p<0.05$). Self-rated health is based on the subjective health level assessment of a person. The answers to the question of "How would evaluate your present health?" were determined as "poor (1)", "fairly poor (2)", "average (3)", "fairly good (4)" and "good (5)" (Jylha M, 1998). Self-rated health is divided into two groups by the WHO definition as "health is not only the absence of illness and disability but a complete state of well-being in physical, spiritual and social aspects" as "good and fairly good," "rated health as good" and "average, fairly poor and poor," "rated health as poor" (Fişek, 1983). This study's experimental group was included in the "rated health as poor" segment before the exercises (3.82±0.67, and in the group "rated health as good" after them (3.82±0.67). The control group (2.79±0.98) was included in the "rated health as poor" group before the exercises, and it (1.14±0.36) was again in the "rated health as poor" group. It can be asserted that self-rated health level is associated with physical activity and can be improved with regular exercise. Vatansever et al. (2015) conducted a study on 302 middle aged people titled "The Relationship Between Physical Activity Level and Life Quality Among Middle Aged Individuals." The research sample comprised 171 middle-age men and 131 middle age women with an age average of 50.44±6.94. They examined the differences in physical activity and quality of life in middle aged men and women. There was no significant difference in quality of life scores by gender (Independent T-test; $p>0.05$) and physical activity category (One-Way ANOVA; $p>0.05$). A positive correlation was found between physical activity scores and physical function, physical role, pain, and social function quality of life scores. These results show that physical activity increases physical function, physical role, pain and social function and quality of life in middle aged people. This change can facilitate increasing quality of life.

Teoman et al. (2003) analyzed 81 volunteer women who naturally experienced menopause and received hormone replacement therapy (HRT) randomly divided into two groups as exercise (n = 41) and control (n = 40). The experimental group followed in a 6-week long exercise program as the control group did not exercise. This study revealed that the experimental group had higher condition and quality of life than the control group. It was also reported that the condition level and quality of life in postmenopausal women can be improved with a 6-week regular and balanced exercise program ($p<0.05$). Vural's (2010) study titled "The Relation of Physical Activity Level and Life Quality at Sedentary Profession" examined 313 people, 172 women and 141 men, with desk jobs. The author analyzed the correlation between the participants' physical activity level and their quality of life. It has been reported that the participants had low physical activity levels. There was no significant difference between physical activity levels and quality of life ($p>0.05$). Eyili's (2007) research titled "The effect of physical activity on life quality and health in woman" on sedentary participants and the ones doing regular exercise found that quality of life average and the standard deviation was 3,34±0,48 for the physical dimension sub-dimension of individuals who exercise regularly, 3,73±10,22 the social dimension value, 3,70±0,65 for the environmental dimension, and 3,64±0,47 for the environmental dimension. The physical dimension value of sedentary participants was 3.09±0.51, as the social, environmental, and the psychological dimensions were 3.23±0.78, 3.36±0.67, and 3.40±0.49, respectively. There were significant differences between the physical, social, environmental, and psychological dimension scores of those who exercise regularly and the sedentary ones ($p<0.001$). The crosstab analysis revealed that 38.5% of those who exercise regularly answered neither good nor bad and 46.2% quite well to the question of how you regard your quality of life. 50.5% of sedentary participants answered neither good nor bad, and 29.3% quite well. There were significant differences found between the group that exercise regularly and the sedentary one, according to the Chi-square analysis ($p<0.05$). The distribution of answers to the question of "How Pleased Are You with Your Health?" given by the group with participants who exercise regularly shows that 44.8% were quite satisfied. 44.4% of the participants with a sedentary lifestyle expressed a moderate opinion. The chi-square analysis revealed significant differences between the individuals that exercise and the sedentary ones ($p<0.01$).

Ateş's (2009) research titled "Evaluation of the physical capacity and the quality of life of the housewives" examined 70 women with an age average of 39.4±8.93 with a weight and height average of 68.89±8.93 kg and

159.5±5.84 cm, respectively. The participants' quality of life was measured with WHO's short questionnaire of the "Quality of Life Scale." This research discovered that there is a positive correlation between physical capacity and quality of life. It was found that women were positively affected by the decrease in fat ratio. Doing regular exercise as a lifestyle is considered important for health and a quality life.

Acknowledgments

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A Study of the Implementation of English Program Policy in Secondary Schools under the Secondary Educational Service Area Office 7

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Abstract

Recognizing that English skills are vital for international communications, for the economic development of the country, and for Thailand to compete with other nations, the Thai government has formalized the teaching of English in its Basic Education Curriculum. In 1999, the Ministry of Education reformed and decentralized the Thai educational system with the National Education Act B.E. 2542 (A.D. 1999). In 2001, the Ministry of Education issued an English Program Policy allowing qualified schools to teach certain subjects under the Basic Education Curriculum in English as an alternative mode of instruction. This mixed method research investigated the implementation of the English Program Policy of three Secondary Schools under the Secondary Educational Service Area Office 7. Instruments used was opinionnaire surveys adopted from the Office of Basic Education Council (OBEC) English Program Educational Standard Educational Institution Self-Assessment Questionnaire and the English Program/ Mini English Program Implementation Student Questionnaire and selected validated questions from studies by Chantarasiri, and Senachit. Respondents were administrators from the Secondary Educational Service Area 7 Office and from the three selected schools with English Program, and teachers and students from the mentioned schools. The data analysis from this study showed that the level of implementation of the English Policy among administrator was Very High, while the level of implementation among students was High. There was no significant difference in the level of implementation among administrators and teachers, and the study found no significant difference in the level of implementation among teachers when compared by the number of years in the position.

Keywords: English Program, Public Policy Implementation

1. Introduction

In today's rapid advancement of technology and innovation, the explosive growth of internet access, the phenomenal emergence of new online commercial and social communications platforms, and lower costs of mobile devices have paved the way for a world of borderless communication. Language skills, especially in English, the international language used for communications as well as to exchange knowledge and technologies, have been an important focus of the Thai government to raise Thai peoples' proficiency in foreign languages in

order to participate in world trade, technology exchanges, research and innovations, good diplomatic relationship, and to remain competitive with other nations, especially among ASEAN members. In order to compete with other nations, One of the Thai government's strategies is to ensure that Thailand remains economically and technologically competitive in the international arena. The first strategy of the 12th National Economic and Social Development Plan aims to improve foreign language skills, especially in English, among the working age population (Office of the National Economic and Social Development Board, 2016). Aligning to the 12th National Economic and Social Development Plan, The Ministry of Education issued its 12th Education Development Plan (2017-2021) aimed to raise the standard of teaching and learning English.

The teaching of English Language in Thailand began in the early 19th Century, but was only available to the elites. It was only in 1921 that the teaching of English was added formally to the school curriculum for class levels after Prathomsuksa 4 (grade 4 equivalent) through the Compulsory education Act (Taladngoen, 2019). Later on, in 1999, the Ministry of Education issued the National Education Act B.E. 2542 (A.D.1999)to reform and decentralized the Thai education systems. The National Education Act B.E. 2542 (A.D.1999) enforced education for all and mandated that all learners must have "a knowledge and skill in mathematics and language, and the emphasis on a correct usage of Thai language (National Education Act B.E. 2542, Chapter IV section 23.4). This was a great influence in the teaching and learning of English in Thailand such that English was taught as a primary foreign language and was a mandatory subject for primary and secondary school students (Taladngoen, 2019). In 2001 the Ministry of Education issued the Directive of the Ministry Education No. BEID 165/2544, Policy, Guidelines, and Method for English Program, a policy allowing schools to use the English Language to teach certain subjects of the Basic Core Curriculum as an alternative mode of instruction is often referred to as the English Program or EP/Mini English Program or MEP). For convenience, we shall refer to these programs as English Program. This program must be accessible to all students and must preserve the institutions of the Nation, Religion, and Monarchy as well as the Thai identity. (Ministry of Education, 2001)

Since English Program Policy originated from the Ministry of Education, it is a public policy, and due to the decentralization of administration by the National Education Act B.E. 2542, the implementation of the English Program Policy will vary from school to school depending on their capabilities and resources with supervision and assessments form their Secondary Educational Service Area Office.

This study employed Chandarasorn's (2011) Management Model of public policy implementation to study the implementation of English Program Policy in three Secondary schools under the Secondary Education Service Area 7. The factors of implementation - formation of organizational structures, administrator Management capabilities in running the program, management of teachers capabilities, financing and budget planning, planning and management of facilities and classrooms, and curriculum planning were looked at to 1) determine the level of implementation of the English Program Policy among administrators and teachers 2) compare the level of implementation of the English Program Policy among administrators and teachers, and 3) compare the level of implementation of the English Program Policy among administrators by the number of years in the position 4) make suggestions for improvements.

1.2 Related Literature

Recognizing the importance of acquiring English skills for Thai people, the Thai government together with departments with roles and responsibilities related to education spent many efforts to develop the most effective programs for learning and teaching English. In 2001, the Ministry of Education issued a Directive "1065/2544" allowing qualified schools to use English as the mode of instructions to teach the Basic Education Curriculum.

A public policy is a guideline of activities by a government with goals or objectives to solve a problem. The public policy process begins from the establishment of the policy, implementation of the policy, and ends with the assessment of the policy. Fowler (2004) defined public policy as a political system addressing problems through a continuous and active process charged with values, while Chandarasorn (2011) refers to it as an operational mechanism, planning, projects, or operation guidelines organized by the government to solve a problem, and Yavaprapas (2014) says that it is a choice that the government makes as a part of their duties to solve a problem,

alleviate problems, and/or prevents problems. A public policy has a sequence that begins with its establishment, implementation, and assessment or termination. Fowler (2004) has further broken this sequence down to six steps – issue definition, agenda setting, policy formulation, policy adoption, implementation, and evaluation. Similarly, Yavaprapas (2014) defined the policy process as policy setting, policy implementation, and policy assessment.

Implementing a public policy is a process of adopting a directive or sets of direction to apply to a series of activities to achieve the predetermined objectives and is dependent on various levels of personnel and organization to achieve its goals. According to Sabatier and Mazmanian (1980), public policy implementation is the execution of basic policies, laws, government orders, cabinet resolution or judgment of the court to achieve results. Yawaprapas (2014) views policy implementation in two ways. First, the implementation of policy is a continuous, non-stop process with each phase containing interrelated step that are neither temporary nor ad hoc. Secondly, public policy implementation is a process to carry out the policy towards the successful achievement of its goals. Chandarasorn (2011) described implementation of policy as the study of how much organizations can are able to lead and stimulate their administrative resources and important mechanisms to do their work as prescribed by the policy. In particular, his Management Model for public policy implementation is based on the basic concepts of organization theories. The model focuses on the capabilities of an organizational belief that the success of their policy implementation depends on how closely the organizations align their execution to reach the expected outcomes. Hence, this model tried to study the problems of policy implementation and develop solutions to for organizations to overcome organizational management issues such as insufficient funding, lack of qualified personnel, hiring delays, and delay in setting up various systems. As such, the success of the policy implementation depends on 1) Organization structure is suitably organized 2) Capable and knowledgeable personnel in techniques of management 3) Proper financial planning and readiness of funding 4) Proper planning and readiness of facilities and 5) Proper planning and readiness of equipment. Thus, the implementation of the English Program Policy is dependent on the 1) formation of organizational structures 2) administrators management capabilities in running the program 3) management of teacher's capabilities 4) financing and budget planning 5) planning and management of facilities and classrooms, and 6) curriculum planning.

Anh (2009) in her study on Educational Administration of the English Program of the Basic Education Institutes in Chiang Mai Province described the problems of implementation of English Program Policy that in most schools in her study, the English Program organization structure was not clearly separated from the school's general administration structures, hence it did not cover all of the necessary functions and clarity of responsibilities were not clearly defined. In terms of teachers, Thai teachers did all of the operational planning for foreign teachers to follow, also there was not enough coordination and sharing of responsibilities between the Thai and foreign teachers resulting in too much work for the Thai teachers. There were too many excess activities for Thai teachers and students resulting from foreign teachers' insufficient knowledge of the English Program as well and the lack of coordination among the Thai and foreign teachers to integrate the subjects in the curriculum and teaching methods. And issues with funding were contributed by the complicated and slow bureaucratic financial processes. Senachit (2016) in her study of the implementation of teaching of English Program in schools under the Primary Education Service Area Office Songkhla Province found inadequacy of the number of foreign teachers. Due to budget constraints, schools could only offer standard teacher salary to foreign teachers for whom many found inadequate. Moreover, the high turnover rate foreign teacher because of the short one-year contractual period caused interruptions or discontinuity in teaching and learning. Some schools do not have adequate number of classrooms, laboratories, libraries, or IT resources for the English Program due to either limited financial means or the lack of land to build facilities. Learning resources, especially computers, networking equipment and English media are insufficient in some schools. Lastly, her study surmised that the lack of or limited funding was the major factors effecting the implementation of English Program Policy.

2. Methods and Materials

This study used a Mixed Research method. The schools under the Secondary Educational Service Area 7 office studied in this research were Prachinratsadornamroong School, Nakhon Nayok Wittayakhom School, and Nawama Rachanusorn School. Respondents were one (1) administrator from the Secondary Educational Service Area 7 Office, six (6) and administrators from the three schools under the Secondary Education Service Area 7, 38 English

Program teachers and 171 secondary education English Program students from the mentioned schools. Convenience sampling was used to determine the sample size of administrator. For teachers the sample size was determined with total population sampling while simple random sampling was employed to determine the sample size of students.

Administrators and teachers responded to Opinionnaires adopted from the official survey questions English Program Standard School self-assessment questionnaire (2014) from the Ministry of Education's Bureau of Academic Affairs and Educational Standard English Program Educational Standard Educational Institution Self-Assessment Questionnaire and from selected validated questions from Chantarasiri (2014), and Senachit (2016). Students answered the opinionnaire adopted from selected survey questions from the Ministry of Education's Bureau of Academic Affairs and Educational Standard English Program Implementation Student Questionnaire. Both versions of the opinionnaire had questions in Thai and English.

The administrator opinionnaire had 3 parts while the opinionnaire distributed to teachers and students had 2 parts. The first part of the administrators and teachers opinionnaire gathered demographics profiles of the respondents. The second part of the administrators and teachers opinionnaire collected data on the degree of implementation of English Program Policy on the following factors: 1) formation of the organization structures 2) administrators' management capability to run the program 3) teachers' competency 4) financing and budget management 5) management of facilities and classroom, and 6) curriculum management. The third part contained open ended questions on challenges and suggestions for improvement in the implementation of the English Program Policy. Administrators and teachers were asked to rank the scale of implementation on a scale of 0 to 5 with 0 represented 0% implementation or no implementation, 1 represented the level between 10%-20% or very low level of implementation, 2 represented the level between 21%-40% or low level of implementation, 3 represented the level between 41%-60% or moderate level of implementation, 4 represented the level between 61% - 80% or high level of implementation, and 5 represented the level between 81%-100% or very high level of implementation.

The first part of student opinionnaire collected demographic profiles of the respondent. The second part opinionnaire used the Likert Scale framework to gather their level of implementation of English Program Policy with the following factors: 1) teacher capabilities 2) students' capabilities 3) curriculum and lesson planning, and 4) learning material and resources. Students were asked to rate their level of agreement on their school implementation on a scale of 1 to 5 where 1 represented Highly Disagree, 2 represented Disagree, 3 represented Neutral, 4 represented Agree, and 5 represented Highly Agree.

The Statistical Package for Social Sciences (SPSS) was used to analyze the quantitative data. For the qualitative data, the responses were analyzed with the Qualitative Data Analysis (QDA) process to summarize key information.

3. Results

3.1 The Level of implementation of English Program Policy

3.1.1   The level of implementation of English Program Policy among administrators and teachers is shown in Table 1.

Table 1: The Level of Implementation of English Program Policy by administrators and teachers

Factors of implementation	$\bar{X}$	s.d.	Implementation %	Description
1) Formation of organization structures	4.142	0.699	82.84%	Very High
2) Administrator Management capabilities in running the program	4.271	0.455	85.41%	Very High

3) Management of teachers' competencies	4.065	0.528	81.30%	Very High
4) Financing and budget planning	4.006	0.578	80.11%	High
5) Planning and management of facilities and classrooms	4.264	0.501	85.28%	Very High
6) Curriculum Planning	4.280	0.443	85.60%	Very High
Level of implementation of EP Policy	**4.170**	**0.412**	**83.40%**	**Very High**

Scale of implementation percent: 81%-100% means Very High, 61%-80% means High, 41%-60% means Moderate, 21% to 40% means Low, 10-20% means Very Low, 0% means no implementation.

From Table 1, The level of implementation of the English Program Policy among administrators and teachers was very High (83.40%). Of the 6 factors, 5 factors were Very High and 1 was High. The level of implementation of Curriculum planning was the highest (85.60%) while financing and budget planning (80.11%) was the lowest.

3.1.2 The level of implementation of English Program Policy according to students is shown in Table 2.

Table 2: The Level of Implementation of English Program Policy by Students

Factors of implementation	$\bar{X}$	s.d.	Description
1) Teachers' capabilities	4.041	0.706	High
2) Students' capabilities	4.026	0.678	High
3) Curriculum and lesson planning	3.953	0.678	High
4) Learning material and resources	4.056	0.720	High
Implementation of EP Program	**4.019**	**0.610**	**High**

Scale: 4.50 to 5.00 means Very High; 3.50 to 4.49 means High; 2.50 to 3.49 means Moderate 1.50 to 2.49 means Low, 1.00 to 1.49 means Very Low

From Table 2, students level of agreement on the implementation of the English Program Policy was High ($\bar{X}$= 4.019) for all factors. The level of implementation was learning materials and resources was highest ($\bar{X}$= 4.056) and curriculum and lesson planning ($\bar{X}$ = 3.953) was the lowest

3.2 Comparison of the level of the implementation of English Program Policy

3.2.1 The comparison of the level of the implementation between administrators and teachers is shown in Table 3.

Table 3 : The comparison of the level of the implementation between administrators and teachers

Implementation of EP Policy	Administrators (n=5)		Teachers (n=38)		t	p
	$\bar{X}$	s.d.	$\bar{X}$	s.d.		
Formation of organization structure	4.257	1.050	4.121	0.632	0.469	0.232
Administrators' management capacity to run the program	4.270	0.440	4.271	0.463	-0.004	0.877
Teachers' capacity	3.953	0.660	4.086	0.508	-0.606	0.773
Financing and budget management	3.821	0.450	4.039	0.597	-0.916	0.319
Planning and management of facilities and classrooms	4.020	0.544	4.309	0.488	-1.415	0.943
Curriculum planning	4.074	0.553	4.318	0.417	-1.352	0.520
Level of EP Policy implementation as a whole	**4.065**	**0.563**	**4.190**	**0.384**	-0.732	**0.667**

p = 0.05*, p = 0.01**

From Table 3, the comparison of the level of implementation as a whole between administrator was not significantly different (p=0.667, p > 0.05). The level of implementation was higher among teachers ($\bar{X}$ = 4.190) than administrators ($\bar{X}$ = 4.065). Factor wise, the comparison of the level of implementation among teachers were higher than administrators in all factors except formation of organization structure. The highest level of implementation among teachers was on curriculum planning ($\bar{X}$ = 4.318) and financing and budget management ($\bar{X}$=4.039) were the lowest. The highest level of implementation among administrators was administrator's management capacity to run the program ($\bar{X}$= 4.270) and financing and budget management ($\bar{X}$=3.821) were also the lowest.

3.2.2   Comparison of the level of the implementation of English Program Policy among administrators by years in the position is displayed in Table 4

Table 4: Comparison of the level of the implementation of English Program Policy among administrators by years in the position

Factors of implementation	Less than 5 Years (n=2)		5-10 Years (n=2)		More than 15 Years (n=3)		F	p
	$\bar{X}$	s.d.	$\bar{X}$	s.d.	$\bar{X}$	s.d.		
1) Formation of organization structures	3.000	1.414	4.900	0.141	4.667	0.231	4.223	0.103
2) Administrator Management capabilities in running the program	3.940	0.792	4.255	0.177	4.500	0.250	0.962	0.456
3) Management of teachers' competencies	3.500	1.273	3.935	0.092	4.267	0.374	0.740	0.533
4) Financing and budget planning	3.375	0.530	3.875	0.177	4.083	0.382	2.020	0.248
5) Planning and management of facilities and classrooms	3.500	0.707	4.000	0.410	4.380	0.295	2.208	0.226
6) Curriculum Planning	3.565	0.615	4.065	0.262	4.065	0.262	1.835	0.272
Level of EP Policy implementation as a whole	**3.480**	**0.891**	**4.175**	**0.092**	**4.383**	**0.206**	**2.283**	**0.218**

p = 0.05*, p = 0.01**

From Table 4, As a whole the comparison of the level of the implementation of the English Program Policy among administrators and teachers by the number of years in position yielded no significant different with $F_{2,4}$ = 2.283 and p = 0.218 (p > .005). The level of implementation among administrators with years in office highest was among those with more than 15 years in the position over those with 5-10 years and less than 5 years in that order. Considering by factors, the highest level of implementation among administrators with over 15 years in the position was the formation of organizational structure while the lowest level was in curriculum planning.

3.3 Challenges with the implementation of English Program Policy and suggestions for improvement.

Administrators were given open ended questions on the challenges of the English Program and their

recommendations some responded as follows:

3.3.1   Challenges with organization structures and suggestions for improvements

Respondents were asked the question *Challenges with organization structures and suggestions for improvements?* [1]The English Program structure is according to the main administrative structure of the school. [2]There is not enough staff in EP. Recommendation is for funding to hire more staff to manage EP. [3]There are only a few numbers Foreign Language Teachers and they have several special assignments resulting in their not being able to continuously function in their work. Recommendation is to set funding of supervisory staff or teachers from other subjects to help look after EP. [4]Teachers responsible must make sacrifices and dedicate themselves. [5]Recruitment for English Program

3.3.2   Challenges of administrators in managing the English Program

Respondents were asked the question *Challenges of administrators in managing EP/MEP and suggestions for improvements?* [1] The administrator's work has many dimensions, hence the following up and giving of assistance are not at a very deep level. Recommendation is to develop existing teachers. [2] The challenge is in the English skills of administrators. Recommendations are to stress on English skills as part of the recruitment for Administrators.

3.3.3   Challenges in EP/MEP teachers' competency factor and suggestions for improvements

Respondents were asked the question *Challenges in EP/MEP teachers' competency factor and suggestions for improvements?* [1] It is difficult to find foreign teachers with the right qualification. Recommendation is government and the Secondary Education Service office to provide information for qualified teachers or they help with teacher exchange. [2] There should me a lot more development in teaching and learning competencies of teachers, especially Thai teachers.

3.3.4   Challenges in Budget Management for EP/MEP and suggestions for improvements

Respondents were asked the question *Challenges in Budget Management for EP/MEP and suggestions for improvements?* [1]Our school should receive support from the Secondary Education Service Area Office. [2] Our school should receive support from the Secondary Education Office, especially funding for hiring foreign teachers of which the costs of hiring could be high. [3] Funding remains a great necessity for purchasing of educational resources, research and field studies, as well as for various aspects of development.

3.3.5   Challenges in the management of Facilities and Classroom for EP/MEP and suggestions for improvements

Respondents were asked the question *Challenges in the management of Facilities and Classroom for EP/MEP and suggestions for improvements?* [1]It is very necessary to have sound Labs and established network with international schools abroad.

3.3.6   Challenges in the Curriculum Management in EP/MEP and suggestions for improvements.
Respondents were asked the question *Challenges in the Curriculum Management in EP/MEP and suggestions for improvements?* [1] Teachers have little knowledge of Academic affairs, but have a lot of work to do. Recommendation is training, development, program drives, follow up and assessment.

4. Summary of findings

 4.1 The level of implementation of English Program Policy

The level of implementation among administrators and teachers was Very High. Considering by factors, the highest level of implementation among administrators and teachers was curriculum planning while the lowest level was financing and budget management. The level of implementation among students was High. Among students factor wise, the highest level was learning materials and resources while the lowest level was curriculum and lesson planning.

4.2 Comparison of the level of implementation among administrators and teachers

The comparison of level of implementation of English Program Policy among administrators and teachers as a whole was not significantly different and the level of implementation was higher among teachers than administrators. By factors the highest level among teachers was curriculum planning while the lowest was financing and budget management. Among administrators, the highest level was administrators' management capacities to run the program while the lowest level was also financing and budget management.

4.3 Comparison of the level of implementation among administrators by number of years in the position

The comparison of the level of implementation as a whole among demonstrators by years in the position yielded no statistical difference. Administrators with more than 15 years in position was highest. Factor wise, the level of implementation was highest among those with 15 years in position in all factors except the formation of organization structure where those with 5-10 years in position were highest.

5.   Discussion

5.1 The Level of implementation of English Program Policy

The Very High level of the implementation among administrators and teachers and the High level of implementation among students implied that the schools under this study satisfied the expectations by the Ministry of Education as mentioned by Chandarasorn (2011) in his description of the implementation of public policy.

The highest level of implementation among administrators and teachers on the factor curriculum planning indicated that the schools have satisfied the guidelines of the English Program Policy (Ministry of Education, 2011) and concurs with a research by Hallinger and Lee (2014) on the impact of educational reform on instructional leadership that one of the roles of the administrator is instructional leadership whose key responsibilities among other is to coordinate and control academic programs and must be shared with teachers and other administrators.

The lowest level of implementation among administrators and teachers on financing and budget planning concurred with the finding in a study by Senachit (2006) on the implementation of English Program of schools under the Primary Education Area Office Songkhla province that shortage of foreign teachers and the insufficient number of classrooms, learning facilities and materials, and IT learning resources were due to the lack of funding and budget constraints which is supported by the administrator comments, *"Our school should receive support from the Secondary Education Service Area Office"* and "*Our school should receive support from the Secondary Education Office, especially funding for hiring foreign teachers of which the costs of hiring could be high."* This finding also aligned with the finding in a research by Anh (2009) on the educational administration of English Program in Basic Education in Chiang Mai Province that the slow and complicated bureaucratic financial process contributed to the schools funding issues.

Among students, the highest level of implementation of Learning materials and resources indicated that their schools have satisfied the conditions to support teaching and learning of the English Program (Ministry of Education, 2014). This also concurred with a criterion in Chandarasorn's (2011) management model of public policy implementation regarding proper planning and readiness of equipment. The lowest level of implementation among students on curriculum planning and management confirmed Anh's (2019) finding that there were too many excess activities for Thai teachers and students resulting from foreign teachers' insufficient knowledge of the English Program as well and the lack of coordination among the Thai and foreign teachers to integrate the

subjects in the curriculum and teaching methods. Moreover, since the English Program curriculum must be in line with the Basic Core Curriculum 2008 and that their development is the responsibilities of local service area offices and the schools (OBEC, 2008), thus there would be variations in the curriculum's congruency and quality control as discussed in Sanonguthai (2014) study on The State of Thai Schools in Response to the ASEAN English Language Policy. Lastly, this challenge is supported by an administrator's comment "Teachers have little knowledge of Academic affairs, but have a lot of work to do."

5.2 Comparison of the level of implementation among administrators and teachers

The comparison of the level of implementation among administrator was not significantly different indicated that both parties had good perspectives about the English policy as discussed in Piriyasattaya (2018) study on the implementation of the policy on promoting English Learning and Teaching in Chiangmai, Thailand. The findings of highest level of implementation of curriculum among teachers and the lowest level on financing and management among teachers and administrators are already discussed in section 5.1, the Level of implementation among administrators and teachers. For the highest level of implementation among administrators on the administrators' management capability to run the program indicated administrators' perception that he or she successfully apply their management capacity to run the English Program which concurred with the explanation of the Self-Efficacy theory by Hoy and Miskel (2013).

5.3 Comparison of the level of implementation of English Program Policy among administrators by years in the position.

Over all, there was no significant difference when comparing the level of implementation among administrators by the years in the position is supported by a study by Iskak (2019) on the 21st - Century professional leadership standards of Secondary school administrators in Nakhon Nayok, Thailand that found no significant difference in the level of leadership standards among administrators' demographic profiles. The administrators with over 15 years in the position highest level of implementation on the formation of organization structure indicated that these administrators assessed very high on the criteria in Ministry of Education English Program Standard School self-assessment questionnaire (2014) and satisfied the condition that there is a suitable organization structure in the Management Model of public policy implementation (Chandarasorn, 2011). Conversely, administrators with less than 5 years in the office level of implementation on formation of organization structures could be supported by the responses, " *The English Program structure is according to the main administrative structure of the school*" concurred with the finding by Anh (2009) that English Program organization structure was not clearly separated from the school's general administration structures, hence it did not cover all of the necessary functions and clarity of responsibilities were not clearly defined. Also, "There are only a few numbers Foreign Language Teachers and they have several special assignments resulting in their not being able to continuously function in their work" concurred with Senachit (2016) finding that found inadequacy of the number of foreign teachers.

6. Recommendations

Based on the findings of this study and from the comments from administrators, this researcher propose the following recommendations

6.1 Formation of organization structure – schools should ideally create an independent organization structure for English Program and clearly specify the roles and responsibilities of each functions. Administrators should to develop existing department heads with potentials and delegate some responsibilities to free up workload. If possible and allocate more budget to invest on hiring and professional developments of personnel.

6.2 Administrator management capability to run the program – Administrators should further develop themselves with the available leadership and development and English proficiency programs. Administrators should build a network with other schools to share best practices in the implementation of English Program Policy. Schools should develop a program to identify and retain potential administrators. Schools should invest in administrator IT and Media Education development.

6.3 Teachers' competencies – Schools should find ways to recruit quality teachers. If budget is a constraint, develop Thai teachers in the areas to join and teach in the English Programs. For existing foreign teachers, school should find ways to increase retention as well as provide adequate training about Thai cultures and the Thai way of life so that they may meet the students' needs more effectively. The Secondary Educational Service Area office should provide schools more support in English Program pedagogy, curriculum design and leaning materials.

6.4 Funding and budget management – The central government should reduce the complications and redundancy of the funding allocation process. The Area offices should assist the schools with their budget planning strategies, especially on funding for teachers and personnel. Schools may wish to collaborate with parents and communities to find sources of funding.

6.5 Management of Facilities and Classrooms – School should continue to maintain their very high level of implementation on facilities management and classrooms. On budget planning in this area, consider practical ways to adequately allocate budgets to maintain the proper ratio of students to classrooms, and leverage the lowering costs of IT technologies for laboratories and learning facilities. Schools may wish to reach out to large corporations to help fund learning facilities.

6.6 Curriculum planning – Schools should train foreign teachers on the mechanisms and goals of the Basic Education Curriculum and involve them in curriculum design. Schools should provide professional development training for teachers for better efficiencies and effectiveness of curriculum. Lastly, schools should find practical ways to include technologies in their instructions.

6.7 Recommendation for further research
This researcher hopes that the findings in this research may be beneficial to other researchers and suggest that perhaps there could be more researches on students', parents, and the community's perspectives on the English Program.

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Inspection Reports in Turkey and United Kingdom: A Comparative Study of Inspections

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Abstract
This study aims to compare the school inspection reports prepared by educational inspectors in Turkey and the United Kingdom. In Turkey, educational inspection is carried out by the Educational Inspectors of the Ministry of National Education. On the other hand, educational inspection in the UK is carried out by Ofsted education inspectors. In both countries, it is compulsory to prepare an inspection report at the conclusion of an inspection, which sheds light on and evaluates the activities carried out at the school. The inspection reports are the subject of this study in terms of both form and content. The qualitative research method was used in the study and a document analysis was carried out. In this context, 10 inspection reports from both Turkey and the United Kingdom each were subjected to the inspection report review. A code was assigned to each inspection report. The reports originating from Turkey that were subjected to review were assigned the code TR, while the reports originating from the United Kingdom that were subjected to review were assigned the code UK. Titles of the inspection reports were determined and sample expressions related to each title were included in the text. As a result, although there are some similarities in the form of inspections, Ofsted reports were judged to be different, especially in terms of participation, evaluation of direct training activities, transparency and participation.

Keywords: School Inspection, Inspection Reports, Turkey, The United Kingdom, Ofsted

1. Introduction

One of the most important elements of the management process is inspections. During the early periods when management was first becoming accepted as a science, the inspection process was used as a control mechanism. However, in the following process, inspection ceased to be a control tool and became instead a feedback and correction tool.

As inspection are activities carried out on behalf of an authority, they constitute a very powerful and effective process. Therefore, inspection is an activity that is taken into consideration often by sub-administrative authorities. An inspection also sheds light on the nature and legality of the works that are being carried out within an

organization. Because every authority wants to know what is happening in the institutions they establish. And inspections are the most effective method for ensuring this. Thanks to the inspectors, it becomes possible to discover the activities that are being carried out within an organization. If these activities are below the desired level, then organization development processes are implemented. If officials are deemed to have a fault during this process, then legal investigation processes are initiated.

In the context of educational activities, measuring the quality of the works that are being carried out, providing feedback to employees about their work, and improving schools are matters of extreme significance. Education is a constantly changing and developing process. Moreover, education is also a social service that is affected and must be affected by external changes. Therefore, there is a need for a mechanism that will continuously monitor and develop educational organizations and provide data to the relevant authority. The name of this mechanism is inspection. It is not possible to talk about an educational activity that is uninspected.

Almost everywhere in the world, schools are being subjected to inspections. However, these inspection activities are carried out by using very different instruments. In some countries, there are inspectors responsible for the inspection of schools, and these inspectors inspect school administrators and teachers on behalf of the authority. The United Kingdom and Turkey are countries where this practice is being applied. In some countries, however, school inspections are carried out by parents. Finland can be given as an example of this model. Additionally, educational inspections are carried out by parent-teacher associations in certain countries, while independent inspectors fulfil this function in others. It is possible to give numerous examples regarding educational inspection models.

In the UK and Turkey, educational inspection activities are performed by educational inspectors. There is a public authority to which education inspectors are affiliated, and each educational activity that is being carried out in a school is documented in a report. Due to these similarities, inspection reports originating from Turkey and the United Kingdom were taken as the subject of this study.

2. Educational Inspection

Organizations are established to serve a common purpose and they must include a proper management system to achieve this goal (Topal & Atay, 2015). An effective model of inspection is a necessity for a good management system. In this context, the primary goal of the inspection is to determine to what level the organizational objectives are achieved and to take the necessary measures to improve the activities of the organization (Oynar, 2014). When considered in line with this purpose, it becomes clear that it is a necessity to inspect organizations (Kocer, 2015). Certain principles should be adhered to for the successful performance of the inspections, which are important for the efficiency of the organizations. Başar (2000) expressed the principles that should be considered during an inspection as purposefulness, planning, continuity, objectivity, integrity, contingency, openness and democracy.

Inspection of educational institutions is a duty that is rendered indispensable by the Constitution, laws and regulations. Educational inspection is a systematic and planned process aimed at ensuring the development of teachers and administrators in their profession, which in turn enables the development of education and teaching (Aldemir, 2012). Since inspection evaluates an organization as a whole and enables the correction and improvement of goals according to the results of this evaluation, it contributes to the realization of the objectives of education systems. It is possible to say that the development, effectiveness and problem-solving skills of organizations that do not take action based on inspection results are left to chance. The extent to which educational institutions achieve their objectives is monitored through inspections. Necessary measures are also taken in cases where these objectives are not achieved. Due to these features, inspections have an indispensable value and function in education and school systems (Gokce, 2009). It is necessary to adhere to certain principles to achieve the objectives of the inspection process, which is important for ensuring the efficient execution of education (Kocer, 2015). These principles are explained in the By-Laws of the Inspection Board of the Ministry of National Education as follows (MEB, 2017):

- Individual, organizational and environmental differences must be taken into account.

- Guiding and preventive supervision should be brought to the fore.
- Inspection activities should aim to correct, improve and develop.
- It should be ensured that good examples encountered during inspections are disseminated.
- Possible risks in the education and management systems should be eliminated.
- Irregularities and corruption within the system must be eliminated.
- Inspections should be open, transparent, equal, democratic, participatory, holistic, reliable and impartial.
- Cooperation is essential in inspections.
- Successes should be highlighted.
- Inspections are scientific and objective.
- Effectiveness, economy and efficiency should be the core principles of inspection activities.

The professional development of teachers, which is deemed to be one of the most important factors in increasing the quality in educational organizations, is a very important issue. Therefore, one of the priorities of educational inspections should be the training and development of teachers (Okutan, 1996). It is possible to define inspection as a multifaceted process that focuses on instruction and provides teachers with information about their teaching so as to develop instructional skills to improve performance (Wanzare & da Costa, 2000). Also, the belief that teachers are not fully prepared when they start their duties and that their self-improvement is a desirable assumption proves the need for inspection (Chidobi, 2015).

2.1 Educational Inspection in Turkey

In terms of history, inspection systems in educational organizations hold a long-established trove of knowledge (Ilgan, 2018). Changes and developments in the inspection system first started to take shape with the establishment of an inspection infrastructure in the Tanzimat Period of the Ottoman Empire, during which innovations and transformations were taking place in all aspects of both the society and the state (Buluc, 1997). There are historical documents showing that the units responsible for the inspection of Sibyaniye (primary school) and Rustiye (secondary school) schools were established in 1846 (Usta, 2017). Schools in the Ottoman period were generally modern schools inspired by the Western style, and these schools were run by religious units. These schools did not have a regular inspection system or a board, except for the Sibyan and Rustiye Schools. However, after 1862, the concepts of inspection and inspectors began to appear in the Ottoman education system. In this period, inspectors were called "muin" and "muhakkik." In a general sense, the word "muin" meant "inspector" during that period and it describes a person who provides consultation, examination, direction or incentive. Regulations and changes regarding inspections in the Ottoman period can be explained in a historical order as follows (Usta, 2017):

- The main purpose of the inspections carried out in 1838 was to determine the deficiencies of the schools and also to attempt to reduce or remedy them. However, more tangible steps were taken regarding the inspection systems in the Ottoman Empire only during the Tanzimat Period, which started in 1839.
- In 1862, Sibyan and Rustiye schools were inspected for the first time in their history.
- In 1875, it became compulsory for schools to keep a book for inspections.
- In 1876, legal inspection directives were published.
- In 1910/1911, the directive regarding the duties of primary education inspectors was published.
- With the regulations published in 1911, the concepts of management and inspection were distinguished from each other.
- In 1912, the duties of the inspectors were stated explicitly.
- In 1913, it was decided that primary education inspections would be made by primary education inspectors and the duties of inspectors were determined as inspection, investigation and informing the public.
- With the directive published in 1914, the responsibilities of the inspectors and the methods they implement in executing these responsibilities were determined.

As explained above, the inspection activities in the Ottoman Empire were established through constant change and development. Many sources do not go farther back than 1918 in describing the chronology of this process. However, looking at the developments written above regarding educational inspection in the Ottoman period, it becomes clear that many documents describing the duties of primary school inspectors can be encountered (Ozmen, Acıkses, Usta & Uluerler, 2014).

If this situation is examined in the context of our more recent history, it can be seen that "educational inspectors" were responsible for the inspection of primary education teachers and "Ministry Inspectors," who were assigned by the central government, were responsible for the supervision of secondary education teachers until the amendments introduced by the "Decree-Law No. 652 on the Organization and Duties of the Ministry of National Education" that entered into force in 2011. With this decree, Ministry inspectors were renamed as "National Education Inspectors" and education inspectors were renamed as "Provincial Education Inspectors," and the areas of responsibility for these officials were distinguished from each other. With these regulations, the supervision and inspection of all formal and non-formal education institutions and provincial and district national education directorates were assigned to provincial education inspectors. Thus, the mandate of provincial education inspectors was expanded. While the positive and negative aspects of this restructuring have not yet been fully explored, it was decided in 2014 that the titles of "MNE Supervisor" and "Provincial Education Supervisor" will be combined under the term "Education Supervisor." It has been stated that these inspectors, called the "Education Inspectors," will take part in in-service training activities related to the training of education administrators, research and development studies, and institutional inspections. However, it has been stated that the in-class inspections of teachers will be carried out by school principals instead of inspectors (Cicek Saglam & Aydogmus, 2017).

In line with the amendments made with the Regulation on the Inspection Board of the Ministry of National Education published in 2017, the Directorate of the Inspection Board was re-attached to the Minister. With this regulation, the establishment or closure of provincial study centres to inspect and supervise the services provided by the Ministry within the scope of educational inspection was permitted, provided that they are deemed necessary (MEB, 2017). Inspectors employed in the fields of supervision, on-the-job training, inspection, evaluation, examination, research and investigation can express their opinions through the "Examination and Research Report" (Okutan, 1996).

2.2 Educational Inspection Reports in Turkey

Article 56 of the Fundamental Law of National Education Numbered 1739 states "the Ministry of National Education is responsible for the execution, supervision and inspection of education and training services provided on behalf of the State per the provisions of this law." Education inspectors perform this task on behalf of the Ministry of Education (Sagir, 2018). In addition to their powers granted to them by the legislation, the inspectors also have certain responsibilities. One of these responsibilities is writing inspection reports in line with the inspection principles and reporting standards and submitting these to the relevant units and persons (Akin, 2015). The inspection report is the document that includes the identifications made by the inspectors during the performance of their duty. "An inspection report is a report that is prepared as a result of the inspection of works and processes that are carried out by the establishments, institutions or personnel that are subject to the inspection of the Ministry and the organizations of the Ministry, and these reports are prepared per the type of inspection and in line with the inspection principles and reporting standards." (MEB, 2021).

The reporting principles that inspectors must comply with can be listed as follows: (MEB, 2016):

- *"The purpose, scope, findings, problematic areas, recommendations and results of the supervision and inspection should be stated in the report.*
- *The statements in these reports should be accurate, impartial, constructive, clear and understandable.*
- *The findings and suggestions that were included in previous reports should also be included.*
- *Reports should be completed within the specified period and submitted to the relevant authority.*

- *If there are matters regarding certain needs related to the requirements of the work that should be reported immediately, an interim report may be filed until a full report can be prepared.*
- *Documents that served as the basis for the report can be annexed to the report.*
- *Good examples of practices identified during inspection activities should be included in the report.*
- *The principle of confidentiality should be observed in the preparation, presentation and storage of reports.*
- *A section explaining the findings, suggestions, opinions and remarks based on evidence and legislation should be included in reports following a summary of the current situation.*
- *Grammar and spelling rules should be observed in the preparation of reports."*

After the conclusion of an inspection, a sufficient number of copies of the report that was prepared in accordance with the aforementioned guidelines should be submitted, alongside its annexes, if any, by the educational inspector to the Directorate for Guidance and Inspection as soon as possible.

2.3 Educational Inspection in the UK

Like in many other areas, the United Kingdom is a prominent country in the field of education. The education system of the United Kingdom, which houses many of the high ranking universities in the world, such as Oxford and Cambridge, is not only very successful in the area of higher education, but also other levels of education. To achieve this remarkable success, many reforms have been carried out in the United Kingdom, especially after the 1980s, and these reforms allowed the education system of the country to reach an important point (Gonulacar, 2018). Undoubtedly, the inspection mechanisms played an important role in the British education system reaching this point.

Educational activities in the UK are conducted locally. Educational activities are under the responsibility of the "Local Education Authority (LEA)." This institution is authorized in all matters related to quality, cost, responsibilities, personnel needs and training regarding education for all educational levels, except for universities. The central system determines the general framework such as goals, objectives and standards. The implementation of this general framework in local governments is carried out by the local inspection board (Gonulacar, 2018, 25).

The foundations of Ofsted were laid with the Education Act, which was implemented in 1992. Ofsted, which is the abbreviation of The Office for Standards in Education (Guzel, Arslan, Aktekin, 2020), is the top educational inspection authority in the United Kingdom. Ofsted is an organization that inspects educational activities. Ofsted's mission is to "make sure that organisations providing education, training and care services in England do so to a high standard " (OFSTED, 2021). Ofsted is headed by a government-funded and queen-appointed chief inspector (Matthews and Sammons, 2004). Ofsted inspectors are trained directly by the institution and supervised by Her Majesty's chief inspector. To become an Ofsted inspector, it is necessary to have expertise in the field of education and five years of experience as a director of an educational institution (Guzel, Arslan & Aktekin, 2020). Ofsted, whose recruitment process takes 5 to 12 months on average, aims to operate as an independent and impartial institution (OFSTED, 2021).

In essence, Ofsted applies a type of performance evaluation to institutions that are under its jurisdiction. The quality of the education of the schools, the level of achievement of the students, the psychological, moral and social development levels of the students, and whether the financial resources of the schools are used correctly are inspected by this organization (Ozcan, 2011). Ofsted plays a major role in the education system of the United Kingdom and it holds a remarkable amount of influence on students, teachers and educational institutions. It contributes to the achievement of the aims of the British education system by closely monitoring the quality and functionality of education in educational institutions (Chapman, 2002, 257).

2.4 Educational Inspection Reports in the UK

According to Ofsted, schools should be inspected regularly every 4 years. During this period, schools conduct their own inspections once a year. Ofsted inspectors evaluate schools with an evaluation form that includes the ratings of "Outstanding, Good, Requires Improvement and Inadequate." Measures are taken to remedy the areas that were deemed inadequate during the evaluation process. Schools that fail to demonstrate progress and change despite these measures are closed. After each evaluation, feedback is provided to the institution and parents (Gonulacar, 2018). The characteristics of a school that has received an "Outstanding" rating are described as follows: "A very good rated school is a school that meets the needs of all students and achieves effective results. These schools have the equipment for providing students with education and training that is necessary for the employment that comes after education." The characteristics of a school that has received a "Good" rating are described as follows: "This school is also an effective school that meets the needs of students. This school can prepare students effectively for the next stage of their education or employment. A school that has received a "Requires Improvement" rating is described as follows: "A school that requires improvement is not inadequate, but neither is it satisfactory. The schools which are rated as requiring improvement will receive another inspection within 24 months." A school that has received an "Inadequate" rating is described as follows: This school has significant weaknesses and is generally inadequate. Significant improvements are required in this school. The management and leadership, however, are judged to be Grade 3 or above. This school will be inspected regularly by Ofsted inspectors. This is a school that requires special measures and it is unable to provide its students with an acceptable standard of education. Additionally, the school's leaders, administrators or managers do not have the capacity to achieve the necessary improvements. This school will be inspected regularly by Ofsted inspectors."

In the education system of the UK, parents can choose a school for their children and are able to send their children to any school that they desire. Parents also take into account OFSTED reports when searching for suitable schools for their children. The quality of the school, its financial resources and how it uses these resources, to what extent it achieves the educational objectives specified in the education law are clearly stated in OFSTED reports. In this context, OFSTED reports are an important factor in providing the necessary information to parents and pushing schools to make the necessary changes and innovations (OFSTED, 2021). Again, for OFSTED, inspection reports are seen as a part of the inspection, not a result. (Field, Greensteet, Kusel & Parsons, 1996).

Ofsted's institutional inspections take 2 days and the number of inspectors to take part in the inspection varies according to the size of the school and the number of students and staff. There are three different types of inspections: Full time, short time and monitoring inspections. Full-time inspections take 2 days, and they are reserved for institutions that have just started operating or have received inadequate ratings in the previous inspection. As opposed to full-time inspections, short-time inspections are short-term visits to institutions that have received good and passing ratings in previous inspections. Monitoring inspections, on the other hand, are short-term visits to institutions that have previously received inadequate ratings and will be subjected to full-time inspections. These are conducted before full-time inspections to monitor the activities of the institution (Güzel, Arslan & Aktekin, 2020, 18). "Outstanding schools" are schools that passed the inspection with full marks, and thus, they are not subjected to routine inspections. In the next inspection, they are inspected via a short-term inspection. Good schools, like very good schools, are subject to short-term inspections. These inspections are done in order to determine whether their quality of education is persistent. Schools rated as requiring improvement are those that are at a level that can continue their educational activities but need to be re-inspected within 24 months after the inspection. Inadequate schools, on the other hand, are schools that are either subject to special measures or completely closed due to their inadequacies (Buyruk, 2018). These inspection types are determined according to previous inspection processes and to the overall ratings of the schools.

It is not mandatory to inform the institution prior to the inspection. However, they are usually informed. Particular attention is paid to gathering opinions from parents about the institution, as well as collecting complaints and requests. Lessons are observed during the observation process. Interviews are also held with parents, staff, teachers and students. Schools are generally inspected under the headings of quality of education, behaviour and attitudes, personal development, and management and leadership (Güzel, Arslan & Aktekin, 2020).

Chief Inspector holds the primary responsibility during the inspection process. After the inspection, a draft report is prepared and sent to the school administration in advance in order to prevent possible objections. The opinions of the school administration are taken. As a result of these processes, the final report is shared simultaneously on the institution and the Ofsted websites within 25 days (OFSTED, 2021). Inspection results are followed by the institution, parents and local media. Interest is shown to schools that are rated good or that has shown improvements. It is the responsibility of the school to make the necessary arrangements in line with the report (Rosenthal, 2004, 145). The following figure shows the ratings certain schools received as a result of the Ofsted inspections in 2017 (NAO, 2021).

Ofsted had graded two-thirds of schools as good at August 2017

Number of schools

	Outstanding	Good	Requires improvement	Inadequate	Not yet inspected	Total
Special schools and pupil referral units	439	775	73	28	71	1,386
Secondary	728	1,750	474	179	244	3,375
Primary	3,062	11,576	1,333	214	598	16,783
All schools	4,229	14,101	1,880	421	913	21,544
Percentage (%)	20	65	9	2	4	100

Note

1   Figures exclude providers that are exclusively nurseries or post-16 provision.

Source: National Audit Office analysis of Ofsted data

Figure 1: Ofsted's grades for the overall effectiveness of state-funded schools in August 2017
Source: https://www.nao.org.uk/

The figure above demonstrates that Ofsted inspectors inspect a total of 21,544 schools in a year and that 1,386 of these schools are special education schools and kindergartens, 3,375 are secondary and high schools, and 16,873 are primary schools. 4,229 of these schools received an "inadequate" rating. This corresponds to 20% of the total number.

OFSTED is a highly influential institution in the British education system. The effectiveness or inadequacy of schools is determined by OFSTED. Ofsted reports constitute an important point of reference for parents' choice of school. Whether a school is good or bad is determined by the report filed by Ofsted (Guzel, Arslan & Aktekin, 2020, 18). For the public of the United Kingdom, Ofsted is an important and reliable resource. According to a study conducted in this context, Ofsted reports have approximately a 50% effect on the parents' decisions regarding the selection of schools (NAO, 2021). Thanks to the elements involved in the inspection process, the transparent sharing of results, and the strict enforcement of the inspection results, Ofsted is recognized as successful in inspecting the schools in the United Kingdom.

2.5 Inspection and Regulation Principles According to OFSTED

Ofsted takes the following principles as the basis while carrying out educational inspections (OFSTED, 2021):

- Inspections should be done in a way that encourages services to be user-oriented, to develop institutions, and to use their resources effectively and efficiently.
- Inspections are independent. With a perspective that examines the institution externally, it provides a review that describes what needs to be done in order to achieve developments and improvements.
- Inspections provide information to families, caregivers, learners and employers on the quality of education and care. These are allowed to make sound decisions as a result of published inspection reports.
- Inspections provide assurances to the public and the government as to whether education, skills and childcare standards are met, whether the public budget is well spent and whether safety regulations are effective.

It is important to have a communication environment between the Inspectors and service providers that is based on professionalism and courtesy in the attempt to apply these principles. Inspectors apply the highest standards in the performance of their work. Inspectors are expected to approach each individual they encounter during the inspection in a fair, respectful and sensitive manner. To meet these expectations, inspectors will:

- Carry out their evaluations objectively. Act impartially.
- Always follow and respect Ofsted's values.
- Carry out their evaluations according to the general framework and national standards.
- Base their inspections on clear and strong evidence.
- Communicate purposefully and productively with those who are being inspected and provide them with information about their evaluations in a precise but clear manner.
- Pay utmost attention to the confidentiality of information regarding their work.
- Use their titles only in their works and relationships related to Ofsted.

- School and institution administrators, teachers and staff also have certain responsibilities. These are:

- They will communicate with the inspectors with respect and courtesy and behave professionally.
- They must openly and honestly allow inspectors to carry out the inspection.
- They will ensure that inspectors are able to gather and access evidence. This includes interviews with the students.
- They will act together to reduce confusion, stress and bureaucratic issues.

Inspectors judge the state of the institution they are inspecting after gathering sufficient evidence regarding the school. While making this assessment, they also consider the quality of education, behaviour and attitudes, personal development, leadership and management areas (OFSTED, 2021). In general, it is possible to say that Ofsted reports are written from a holistic perspective.

3. Method

In this section of the study, the research method, how data is collected, findings and results are described.

3.1 The Research Method

The qualitative research method was used in this study. The qualitative research method is accepted to be a type of research in which approaches such as observations, interviews and document analyses are used and a process is followed to reveal the events in a realistic and holistic manner in their natural environment (Yildirim & Simsek,

2008). It is possible to use different models within the scope of qualitative research. One of these is document review or document analysis.

Document analysis is a systematic procedure used for examining or evaluating documents. Like other analytical methods in qualitative research, document analysis requires the analysis of data. The researcher then interprets the results to extrapolate meanings, gain insight and develop empirical works. There are a variety of documents that can be used for systematic evaluation as a part of a study. These can include organizational agendas, meeting minutes, guides, books, journals, diaries and event programs, letters, maps, radio and television programs, and organizational reports. Such documents can be found in libraries, newspaper archives, historical sources or institutional archives. Researchers usually review previous literature and examine reports in detail as part of their studies (Bowen, 2009, 27-28). Usually, the documents or data obtained by the researcher at the beginning are raw. The researcher systematizes this information with an appropriate method. She categorizes, interprets and discusses this information. Thus, she creates a scientific study.

3.2 Data Collection

Inspection reports were used as data within the scope of this study. These inspection reports constitute the only type of data within this study. The study aims to reach a conclusion by comparing the reports reflecting the two countries. The reports for the UK were obtained from the OFSTED website. The inspection reports of Turkey has been provided by the researchers themselves. Attention has been paid to ensure that the reports obtained from these countries represent the countries geographically. A total of 20 inspection reports have been examined, with 10 (kindergarten + primary education + secondary education) for each country. The school inspection reports of Turkey were coded and numbered as TR and school reports of the United Kingdom were coded and numbered as UK.

3.3 Data Regarding The Reports Obtained under The Research

The inspection reports were classified according to the type of the school; whether kindergartens, primary schools or secondary schools. The characteristics of the reports obtained in the scope of the research are given in the table below:

Table 1: Demographic Characteristics of The Reports That are The Subjects of The Study

	Kindergarten	Primary Education (Elementary and secondary schools)	Secondary Education	City Centre/ Rural	Level of Achievement	Number of the pages of the report	Date
TR1	✓			Rural	X	10	2019
TR2	✓			City Centre	X	11	2019
TR3		✓		City Centre	X	14	2020
TR4		✓		City Centre	X	10	2019
TR5		✓		City Centre	X	10	2019
TR6		✓		City Centre	X	9	2019
TR7		✓		Rural	X	9	2019

ID					Location	Achievement	Pages	Year
TR8			✓		Rural	X	15	2019
TR9			✓		City Centre	X	14	2019
TR10		✓			Rural	X	13	2020
UK1	✓				City Centre	Requires Improvement	13	2017
UK2	✓				Rural	Good	10	2016
UK3		✓		Mixed	City Centre	Outstanding	10	2013
UK4		✓		Mixed	City Centre	Outstanding	10	2015
UK5		✓			City Centre	Requires Improvement	11	2018
UK6		✓		Mixed	Rural	Good	9	2014
UK7		✓		Mixed	City Centre	Good	8	2016
UK8			✓	Mixed	Rural	Good	13	2018
UK9		✓		Mixed	Rural	Inadequate	13	2019
UK10			✓	Mixed	Rural	Good	9	2013

Examination of Table 1 reveals that 4 of the analyzed reports were on kindergartens, 12 were in primary school and secondary school (or primary schools) and 4 were on secondary education schools. Schools indicated as "mixed" in the Table provide mixed education in terms of gender. 9 of the schools are in rural areas (village, town or county), while 11 of them are in the city centres. There are no indications within these reports that demonstrate the level of achievement of the schools in Turkey. Therefore, this situation was indicated with the X symbol. Regarding the level of achievement presented by the schools in the United Kingdom, 2 schools were rated with "Requires Improvement," 5 were rated with "Good," 2 were rated with "Outstanding" and 1 was rated with "Inadequate." The number of pages of the analysed inspection reports is between 8 and 15 pages. The oldest report is dated 2013, and the newest is dated 2020.

While analysing the reports, the headings in the reports were taken as criteria. The headings included within the reports were provided in Table 2.

Table 2: Sections of The Inspection Reports

Sections of the Inspection Reports (TR)	Sections of the Inspection Reports (UK)
Cover	Overall effectiveness
Introduction	Summary of key findings for parents and pupils
Education and Training Environments	Information about this inspection
Safety Precautions	Inspection judgements
Education and Training Activities	a) The leadership and management.
Management Activities	b) The behaviour and safety of pupils.
Financial Affairs and Transactions	c) The quality of teaching.
Movable Goods Transactions	d) The achievement of pupils.

Exemplary Applications in the Institution	e) The early years' provision
General Evaluation	School details
	Concerns and complaints about Ofsted

When Table 2 is examined it is seen that there are 10 main headings in the TR coded reports. There are 6 main headings in the UK coded reports. There are secondary headings under the main headings in both reports.

3.4 Analysis of the Inspection Reports from Turkey

The inspection reports of the schools in Turkey can be accessed from open environments, such as the website of the related school or the TIB (Turkish Inspection Board). In addition, it is also possible to access detailed documents on how inspections are to be conducted on the TIB website. The guidelines and legal texts on this site that determine the framework and legal basis of the inspection reports are presented in Figure 2.
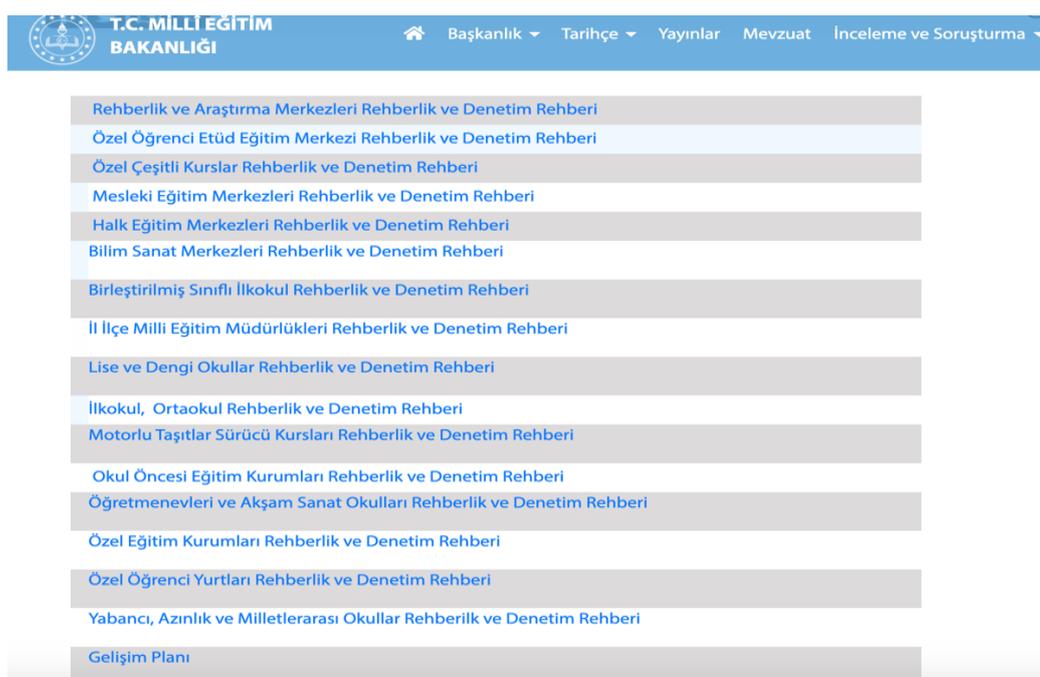
Figure 2: Turkey Inspection Board Web site
Source: http://tkb.meb.gov.tr/www/yayinlarimiz/icerik/13

The following headings are included in the inspection reports, respectively:

Cover form: This section includes introductory information about the school, such as the e-mail and phone number of the school, the date of the previous inspection, the number of teachers and students (TR1, TR2, TR3, TR4, TR5, TR6, TR7, TR8, TR9, TR10).

Introduction: In the introduction of the inspection report, a brief summary is provided about the legal basis of this inspection and the way the inspection is carried out. An example introductory statement is provided below (TR1):

> *"According to the Ministry's Office Approval dated 2.12.2018 and numbered E………… and the appointment orders of the Inspection Board dated 8.06.2019 and numbered E…………, the inspection of the kindergarten named ...., which is located at the .... district of the .... province ...., has been carried out by our group between the dates of 08-11.10.2019. The processes and results related to the Education and Training Environments,*

Educational Activities, Management Activities and Financial Affairs and Operations were examined and evaluated using the precision sampling method in cooperation with the relevant individuals and units and in accordance with the legislation and the predetermined objectives and goals. The issued determined in this regard were explained below."

Education and Training Environments: How many buildings and classrooms the school consists of and the condition of spaces such as gardens, libraries and laboratories is included under this heading. An example statement about education and training environments is given below (TR2):

"It was observed that the school started providing education in the academic year of 2007-2008 and that the school building consists of a single block and a single floor. It was seen that the Turkish flag was hoisted and the Ataturk corner was arranged. School sections were noted to be adequate, suitable for service, tidy and clean and the school garden is arranged in a manner that will allow children to walk around and play. The garden is afforested, there are playgrounds for children to play and the necessary precautions are taken for the physically disabled. Educational environments are arranged in accordance with the developmental characteristics of children, and the entrance and waiting areas are arranged properly."

Security precautions: Under this heading, there are determinations as to whether a report was received on the earthquake resistance of the building or not, whether the fire detection system of the building is operational or not, and whether the electrical installation of the building is inspected regularly or not. An example statement on this issue is given below (TR3):

"It was observed that alarm and personnel evacuation drills regarding earthquakes and fires have been carried in the institution, that reports regarding these drills have been prepared, and that the first-aid cabinet includes all tools and materials that it is required to contain. It has been determined that the layout and order of the boiler room are proper, the boiler has a maintenance certificate, an instruction manual is posted in an appropriate part of the boiler room, and 12 of the 14 security cameras in the institution are in working condition. The institution is constantly monitored with a camera system, and the first-aid cabinet includes all tools and materials that it is required to contain."

Education and Training Activities: Guidance activities, whether the provided education is in accordance with the curriculum or not, the occupational development activities of the teachers and the characteristics of parent meetings are addressed under this heading. Students who require special education, the status of the students receiving inclusive education, whether the teachers conduct house visitations or not, the attendance of the students and the dropout status of the students and other matters are also discussed here. An example statement on this subject is given below (TR5):

"It was observed that unitized annual plans and lesson plans were made, the objectives and outcomes specified in the curriculum were taken as basis in measuring and evaluating the student's achievement, and the teaching methods and techniques to be applied in the teaching of the lessons were determined at the class teachers' board meeting held at the beginning of the academic year. It was noted that questions and answer keys were also prepared before the examinations and stored with exam papers, and an individualized education program was prepared for students receiving inclusive education. It was observed that activities were undertaken within the scope of individual and group counselling services, and the annual report regarding guidance and psychological counselling services was prepared."

Additionally, corrections are requested by checking the inspection reports in cases of negative situations related to education and training activities. An example statement regarding an identified negative situation is as follows (TR5):

> *"It was observed that post-examination analyses to determine whether learning deficits were remedied and predicted outputs were achieved are not being conducted after written examinations."*

The solution proposed by the inspector who has inspected this matter, which is deemed to be problematic, is as follows (TR5):

> *"After each exam, both the course and the group teachers should conduct question and outcome correlation and analysis activities specific to each lesson in order to identify the areas where learning deficiencies exist and take the necessary measures to remedy this situation. This process must always be structured in a manner that will provide the students with the opportunity to learn."*

Management Activities: The number of administrators working in the institution, the education received by the school staff, the status of the books and files that should be kept by the school, whether the teachers' board meetings are held or not, whether there is cooperation with other institutions related to the school or not, and the projects carried out at the school are matters addressed in this section. An example statement on this subject is as follows (TR7):

> *"It was observed that a strategic plan was prepared for the school, the vision and mission of the school were determined, analyses were carried out, the strategic plan monitoring and evaluation unit performed its works, the goals were mostly achieved, and the efforts for unattained goals were continued. It has been observed that the division of labour was made among the personnel and their duties were communicated to the personnel in return for signature. " "It was observed that the teachers' board convened at the beginning, middle and end of the year in line with the agenda items announced to teachers 2 days before the meeting and decisions were taken during these meetings. It has been determined that ballot box and election boards have been established for the election of the school student council chairmanship (TR5). "It was understood that the professional studies were carried out within the framework of the program received from the Ministry, the school principal attended the lectures of the teachers for supervisory purposes, and the necessary follow-up and inspections regarding the works and procedures to be carried out electronically were performed (TR8)."*

It was noted that the problems observed under this heading were expressed in the reports. An example problem is expressed in the following terms (TR8):

> *"It has been determined that the findings and suggestions of the school principal are generally included in the meeting minutes of the Teachers Board, and the opinions and thoughts of the teachers are not included."*

The following expressions were proposed as a solution to this problem (TR8):

> *"The teachers' opinions and suggestions should be included in the meeting minutes of the Teachers Board in line with Article 109/6 of Secondary Education Institutions Regulation."*

Financial Affairs and Transactions: Whether the Parent-Teacher Association has been established, whether there are any allowances in the bank account of this association, and whether these allowances were spent in accordance with their purposes are matters included under this heading. An example statement on this subject is as follows (TR8):

> *"It was observed that all income and expenses of the school and all donations in cash or in-kind were registered to the TEFBIS module (Turkish Education Financing and Educational Expenditures Information Management System) and activities within the scope of extracurricular education were carried out in accordance with the program prepared by 3*

teachers. It was noted that deductions from salaries and wages are made in accordance with the legislation and an approved copy of the relevant documents are kept in the institution, that the income of the family association is spent in line with the primary needs of the school and students in line with the framework of the budget discipline, and that the board of directors of the association kept the minutes of the general assembly, as well as their decision books, income and expense books, incoming-outgoing documents books and expenditure documents."

Movable Goods Transactions: This heading addresses whether the tools and equipment of the school are recorded in the electronic registration system. An example statement on this subject is as follows (TR8):

"It was determined that the numbers of the durable movables were not permanently inscribed on the movables, that the list of movables that are used in classrooms, units and common areas were not up to date, that movable delivery documents were not issued for durable movables assigned for usage, and that insufficient care was placed into registering materials obtained from the parent school association's account to the movable property management system."

Exemplary Applications in the Institution: In this section, a record is kept as to whether there are any applications in the school that is being inspected that can serve as an example for other institutions. An example statement on this subject is as follows (TR4):

"It was observed that an atmosphere that is focused on learning has been established in the school, that the teachers work in harmony with the administrators to develop and improve the education process, that the entirety of the institution participates in a project that was produced within this context with the mindset of "All of Us Are One," and that unique works are being exhibited in the school environment that demonstrate historical events."

In the other 9 inspection reports reviewed, the statement *"There are no applications in the institution that can serve as an example to other institutions."* was used.

General evaluation: General opinions of the inspectors performing the inspection are provided under this section. The statements within this scope are the same in nearly all of the reports. Example statements on this subject are as follows (TR1, TR2, TR3, TR4, TR5, TR6, TR7, TR8, TR9, TR10):

"The inspection of the institution was carried out intermittently by our Inspectorate. The supervision and inspection activities were initiated by holding a preliminary meeting with the directors of the institution, and explanations were made regarding the supervision and inspection activities to be carried out. The activities carried out by our group were carried out in cooperation with the directors of the institution, teachers and staff. Our understanding of inspection prioritizes the guidance approach and it is based on the principles of democracy, planning, transparency and objectivity. It is vital to ensure an objective evaluation during an inspection. The activities of the institution were examined with the precision sampling method and completed as planned in the context of contributing to the efficiency and effectiveness of the education and management activities and financial works and transactions."

3.5 Analysis of the Inspection Reports from the United Kingdom

The inspection reports of schools in the United Kingdom are available in open environments, such as the school website or the Ofsted website. You can find the inspection reports on Ofsted's website via a search engine (under the title of "Find an inspection report). In this search engine, it is possible to find classifications of schools or

institutions based on their education level (primary education, secondary education, other education levels). The search engine screen is shown in Figure 3:

Figure 3. Ofsted Website
Source: https://reports.Ofsted.gov.uk/

The following headings are included in the inspection reports, respectively:

Overall Effectiveness: This section contains the headings of "Effectiveness of leadership and management, quality of teaching, learning and assessment, personal development, behaviour and welfare, outcomes for pupils and judgments of the previous inspections." The ratings these headings received from the general inspection are specified in this section. There are four possible evaluation results. These are "Outstanding, Good, Requires Improvement, and Inadequate."

Summary of key findings for parents and pupils: This section starts with the score the school received from the inspection. For example (UK3): "This is an outstanding school." Following this explanation, information that may be useful for students and parents is provided. Below are some example statements (UK3).

> *"Students behave extremely well in the lessons and in the school environment. They feel very safe at school and enjoy a wide variety of activities planned for them. The curriculum is creative and well planned to enable students to develop literacy and numeracy skills and to provide excellent opportunities to support their spiritual, moral, social and cultural development."*

Some statements about a school that received an "Inadequate" rating during an inspection are as follows (UK9):

> *"Students have very limited opportunities to improve their literacy skills. There are few opportunities for students to solve their numeracy problems. Leaders and directors have failed to impose a curriculum that promotes respect for all special groups that are protected by the 2010 Equality Act. Whereas the implementation of this law provides the students with the opportunity to improve their understanding skills."*

Inspectors make some suggestions for schools that are rated "inadequate." Some examples of the expressions included in these recommendations are as follows (UK9):

> *"The entirety of the staff must have great expectations regarding what pupils, especially the most talented ones, can and must achieve. Teachers should provide students with*

opportunities to practice their literacy skills, especially in English written work and other curricula. Opportunities should be provided for students in the first stage to improve their problem solving and reasoning skills in mathematics. Directors should broaden their skills towards transforming themselves into becoming effective leaders to ensure students' progress. Managers and directors must ensure that the curriculum is broad and balanced. This allows students to learn and progress in a wide variety of subjects. Learning plans that contain the knowledge, understanding and skills that students will learn and acquire should be developed. An effective evaluation system should be implemented so that leaders and teachers can accurately monitor students' progress in the curriculum."

Information about this inspection: In this section, a summary of the activities the inspectors performed before, during and after the inspection is given. Additionally, this section includes the in-class observations of the inspectors, the students they have listened to, the findings resulting from the examination of the textbooks of the students, interviews with the school directors and the views of the local administration regarding the school. Moreover, this section also includes information concerning interviews with parents, examined files, observations about students' behaviour and attitudes, and how many days the inspection took (UK6, UK9, UK10). The following is an example of the information contained in inspection reports regarding this subject (UK3):

"The inspectors observed 16 lessons fully or partially, seven of which were joint observations with members of the school leadership team. A number of student works were examined. A school commission was visited and some time was spent in a reading workshop for a group of parents. Meetings were held with the chairman of the parent-teacher association (Executive Board) and three other officers, the school principal, other school leaders and a representative from the local government. Inspectors spoke with two groups of students, in lectures and around the school, in an informal manner. An inspector also listened to some reading studies of certain students. The inspectors examined the school's records on monitoring and quality of education and training, the student standards, and improvements and procedures to ensure students' safety. Additionally, they also reviewed the records concerning the performance of the personnel, the judgments of the school regarding its own performance, the documents and policies regarding improvement plans. 62 responses were made to the online "Parents' Opinion" questionnaire. 18 questionnaires were filled out by the staff. All these opinions and observations were evaluated by the inspection team."

Inspection judgments: The following subheadings are addressed under this heading: a) Leadership and management. b) The behaviour and safety of pupils. c) The quality of teaching. d) The achievement of pupils; and e) The evaluation of the previous years. Each of these subheadings is rated and evaluated. The first rating is "Outstanding," the second rating is "Good," the third rating is "Requires Improvement," and the fourth rating is "Inadequate."

a) The leadership and management: In this section, the matters of whether the headmaster was able to establish a team that is highly motivated, whether he visits classrooms and provides feedback to teachers, whether student funds are spent effectively, the level of equal opportunities and opportunities at school, whether the students achieved any progress compared to the previous year; whether the building is being ensured and whether good relations with local authorities have been established are addressed. An example statement on this subject is as follows (UK4):

"The headmaster has assembled a highly motivated team that focuses fully on the success and welfare of the students. There is a consensus among the Staff that the school is well managed and directed. One of the staff members responding to the questionnaire commented, "I am proud to be working in a school where the children's love of learning, the pleasure they get from school, the safety of the students and the enjoyment they get from their friendships is high." The school's continuous endeavours and its pursuit of improvement are at the centre of the school's success."

b) The behaviour and safety of pupils: In this section, issues such as student behaviour, student welfare, students' relationships with each other, student participation, whether students are safe, possible threats to students, not being afraid of making mistakes are addressed. An example statement on this subject is as follows (UK6):

> *"The pupils are aware of the potential dangers surrounding them. They know that they should not go beyond the limits set by the adults who take care of them. Mutual respect between adults and students creates an environment where it is safe to make mistakes. When asked about the mistakes that the teacher stated in his work, a 1st-grade pupil replied confidently: 'It's okay to make mistakes, I've learned something new. My sense of responsibility has grown. 'The pupil carefully transferred the water from the indoor faucet to the garden area to water the seeds planted in the schoolyard."*

c) The quality of teaching: Under this heading, the findings of the Inspectors obtained during the observation of the lessons are mentioned. The extent to which students are motivated to learn, the quality of teaching, how teachers evaluate students, the level of the students' mathematics and language skills, and whether or not there are activities such as revealing students' abilities are discussed under this heading. An example statement on this subject is as follows (UK10):

> *"Teaching has improved considerably and is generally at a better level than before. Indeed, inadequate teaching was not observed during the inspection, and many traits were better and they were, in some cases, changed spectacularly. Three joint lesson observations conducted with school leaders confirmed that the school's perspective of quality teaching was correct."*

d) The achievement of pupils: Issues such as students' overall academic achievement, the distance they have covered in learning, their status compared to the national averages in mathematics and language lessons, and the development of disadvantaged students are discussed in this section. An example statement on this subject is as follows (UK6):

> *"Students have made good progress in most subjects, including English and mathematics. A combination of good teaching and a highly targeted intervention has been prepared to support students identified as at risk of decline. As a result, students are typically above the national average at the end of the 6th Grade. Generally, students who graduate from this school exceed the national averages in reading, writing and mathematics. Effective support is provided to students with disabilities and those with special education needs by well-trained teachers and teaching assistants. Education and training are well planned to meet student needs. This enabled the students to achieve the progress expected of them."*

e) The evaluation of the previous years: This section only contains judgments regarding the personal and pedagogical development of students. It includes a comparison of what the situation was in the previous years and what the current situation is. Also, judgments about whether the students are ready for the next year are also included in this section. An example statement on this subject is as follows (UK4):

> *"The children are highly aware of the needs of others, they study and play in harmony with each other. They quickly learn to negotiate with each other, resolving disputes without the intervention of adults. The adults provide a safe environment where children learn to assess and manage risk for themselves. Children who stumble or fall during games get up quickly and continue unhurriedly. As a result of superior leadership and teaching, children are provided with the knowledge and skills they need to start the 1st Grade."*

Cover (school details): This includes a comprehensive table for each inspected school report. In this table, "Unique reference number, local authority to which it is affiliated, inspection number, school type, school category, the age range of pupils, the gender of pupils, number of students in the school roll, number on roll in the sixth form, the proprietor (founder) (if a private institution), chairman, headteacher, annual fees (if a private institution), telephone number, website, e-mail address, the date of previous school inspection.

Complaints and concerns: An important section is included in some OFSTED reports concerning complaints against the inspectors or the report (UK3). According to the descriptions in this section, if there are complaints about the inspection or the report, these complaints can be filed following the procedures outlined in the 'Make a Complaint About Ofsted" guide on Ofsted's website at www.Ofsted.gov.uk. An example statement on the subject is given below (UK3):

> *"Any complaints about the inspection or the report should be made following the procedures set out in the guidance 'Complaining about inspections,' which is available from Ofsted's website: www.ofsted.gov.uk."*

4. Discussion, Conclusion, and Suggestions

Inspection is a function of the management. It is very difficult to determine the extent to which an uninspected organization has achieved its goals. The effectiveness of the organizations is increased and the institution is improved via inspections. Inspections should be carried out by experts. These experts should record everything they find for the future of the institution. These records constitute the inspection reports. A bureaucratic state is a state where everything is kept under record. This is the reason why inspection reports are of critical importance. The fact that findings in the inspection reports are recorded by experts and inspectors is also important.

During the inspection process, employees know that their performance is being observed and recorded. As a matter of fact, things such as fees can be determined based on performance in some countries and some institutions. Furthermore, inspection reports are not only tools for improvement and performance for employees. but also a source of motivation. In this respect, they have serious effects on the psychology of the employees. Therefore, inspectors must prepare inspection reports carefully.

Inspection reports can be compared to taking an MRI of an organization. It is possible to learn from the inspection reports what is happening in the institution, the stakeholders' views on the school administration, and what the school has managed to achieve in terms of academic achievement. Inspection reports are a feedback tool. Therefore, inspection reports should be prepared very carefully. This study has examined the inspection reports of Turkey and the United Kingdom, two countries with robust inspection systems. Issues worthy of notice identified during the examination of these reports are as follows:
Education inspectors in Turkey are governed by a body headed by the Ministry of National Education. Although education inspection has a deep history in Turkey, the inspection system has not yet managed to achieve the desired quality levels. Education inspectors are employees of the Ministry of National Education. And they supervise institutions or schools affiliated with their Ministry. The reports prepared after the inspections performed by the Education Inspectors of the Ministry of National Education of Turkey are not accessible to the parents and the public. They are not published anywhere. Inspectors send their inspection reports to schools in accordance with the confidentiality principle. This is because privacy is essential ("The principle of confidentiality should be observed in the preparation, presentation and storage of reports" MEB Inspection Guide). After being read by the school administrations, they are filed and the necessary actions are taken.

All inspection reports produced in Turkey are similar. It is possible to say that the centralized structure of the Turkish inspection system is effective in the occurrence of this situation (Demirkasimoglu, 2011, 46). Because it is difficult to expect an original and creative approach from an inspection activity managed by an inspection organization in Ankara that has a total number of 500 employees.

Only certain demographic data, such as the number of teachers, the number of students, etc., differ by school. The inspection reports prepared in Turkey contain a great number of spelling and formatting errors. School-specific findings generally include vague statements. The achievement levels of the schools are not compared with other schools or international exams. The names of the inspectors conducting the inspection are included in the reports.

Parent-teacher association record books are examined during the inspection, but no interviews are made with members of the parent-teacher association. There is no participation in the inspection process. Stakeholder views are not reflected in the report. For example, students are not interviewed in any way and student views about the school are not included in the report. Yavuz and Gulmez (2016) express that the inspection reports should be open to all stakeholders of the school and the opinions of parents and students should be sought in their preparation.

The reports include a detailed review of school documents (books and files to be kept). This shows that, in Turkey, school inspections are rather perceived as the inspection performed for the bureaucratic structure. According to Demirkasimoglu (2011), the mandate of the inspectors should be focused on increasing the quality through inspection and educational guidance. Again, according to Yavuz and Gulmez (2016), it would be more beneficial the place the focus regarding inspection reports on improving education and training rather than checking documents and these reports should be revised to emphasize this. Examination of inspection reports prepared in Turkey reveals that the findings and suggestions towards directly improving the quality of education are very weak. According to Dursun and Altinisik (2019), the reason for this is the inspection organization in the Ministry. Because in the organization responsible for inspection, the matters of guidance and investigation are almost completely intertwined. Because of this situation, inspectors cannot be as useful as they should. Inspection staff needs to focus on issues such as improving, developing, increasing the quality of education and educational consultancy.

The inspection reports do not contain any contact information about the inspectors. OFSTED of the UK is directly affiliated to the Queen. All education inspectors are referred to as Her Majesty's Inspectors. As inspectors who are affiliated to the Queen, they inspect schools and institutions affiliated with the British Ministry of Education. However, OFSTED inspectors are not limited to inspecting schools. For example, babysitters are also supervised by OFSTED. If schools have a religious characteristic, these religious features can be clearly expressed in the OFSTED reports. All inspection reports can be accessed on OFSTED's website. Inspection reports are available to parents and to the public. Inspectors meet with members of the parent-teacher association and parents during the inspection and include their opinions in their reports. Moreover, parents can provide opinions about their school and school management at any time by answering a 14-question questionnaire that is available on the OFSTED website. However, there are also questionnaires for the teachers. Opinions of teachers are received through these questionnaires and these opinions are included in the reports. School documents are reviewed and opinions on them are added to inspection reports. In-class observations are carried out. The names of the inspectors are written on the reports. The inspection reports include OFSTED's telephone and other contact information. Certain inspection reports contain information on what procedures should be applied in case of complaints about the inspectors.

Since the inspection reports include the progress and quality of the education process, it attracts the attention of many groups, especially parents. However, the transparency of inspection reports is related to managerial accountability. It is possible to say that OFSTED reports are successful in this respect. It is seen again that inspection reports contribute to school development (Guzel, Arslan & Aktekin, 2020). Additionally, it is noted grammatical mistakes and vagueness are also problems encountered in the OFSTED reports and there are criticisms that readers have trouble understanding these reports. For example, although the OFSTED reports are texts that are taken into consideration by parents to a great extent, there are criticisms that the language used in these reports is not understood by many parents (Field, Greensteet, Kusel & Parsons, 1996). Likewise, there are studies showing that OFSTED reports cause stress on many directors and that the benefits of these inspections are limited when prior preparations and expenses are included in the calculations (Cuckle, Hodgson & Broadhead, 1998). Moreover, the negativities expressed in regards to these reports also include extremely traumatic results on the occupational lives of the teachers (Case, Case & Catling, 2000).

In conclusion, there are similarities and differences between OFSTED reports and inspection reports in Turkey. There are important similarities in the reports regarding the bureaucratic structure of the schools and the matters subject to inspection, and there are serious differences in terms of the quality of education, participation, and transparency. Inspection reports prepared in Turkey should be made public. Inspection reports should evaluate the students who are being educated in the school that is being inspected and include comparisons with local, national

and international examinations. Opinions of administrators, teachers, students, parents and other stakeholders should be included in the report to make the process more participatory. The language employed in the writing of these reports should be revised.

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Higher Education in Pakistan: Challenges, Opportunities, Suggestions

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Abstract
Higher education provides opportunities to censoriously reveal the cultural, moral, socio-economic, and spiritual issues faced by the human race. Pakistan's higher education system has many institutional drawbacks includes a lack of quality management, institutional structure, and knowledge gaps between cross-culture educations systems to improve the efficiency of the current higher education system in Pakistan. To make Pakistan an educational center, Pakistan must strengthen the education system by developing modern technology and higher education. This study focuses on low enrolment and dropout gaps, quality and quantity of higher education standards, infrastructure, facilities, and low-quality teaching methods. This study summarizes these problems with suggestions to improve higher education standards and quality through cross-culture developments, performance standards, teaching methods, and examination reforms in Pakistan's higher education system.

Keywords: Pakistan Higher Education, Challenges, Suggestions

Higher education becomes an input to the growth and development of the industry. It is seen as an opportunity to participate in the individual's development process through a flexible education model (Barnett R., 1992). Higher education is an essential contrivance for constructing a modern, informed, and civilized society by providing in-depth knowledge about various areas of life from the world's broader perspective. The core task of higher education is to educate, train, research, and serve society. In the context of globalization, there are increasing opportunities and demands for higher education. To fulfill these requirements, we need to build world-class, high-quality standards for higher education institutions. Education is the fundamental right of every citizen (Ashraf, 2019) and one of the most critical factors for the development of lower-class families of any country. However, in Pakistan, consumers of education services – parents and students – have little choice or idea in seeking higher education. Since its independence, Pakistan's higher education has experienced an amazing expansion, bringing scientists, engineers, technicians, doctors, teachers, and managers in high demand

worldwide. Higher education provides different opportunities for society to reflect on humankind's social, cultural, moral, economic, and spiritual problems. Higher education offers professional knowledge and skilled personnel for national development. Suppose the government of Pakistan realized the potential of employment capacity. In that case, the young generation's growth will be a huge wealth for its economic growth, but at the same time, if Pakistan's government is unable to provide formal higher education and unable to produce more employment opportunities, it will be a disaster for its socio-economy growth. Education is an important tool to achieve sustainability and creates the core of human capital's economic development. It also adopts the source of autonomous development in the economic process of the externality of human capital.

1. Background Analysis

Even after seven decades of independence, Pakistan's higher education development indicators do not show good results due to the comparatively low access to higher education to neighboring countries. In Pakistan, the quality of education at the primary and secondary levels tends to decline. Especially science education has reached the lowest level, and people urgently need to improve science education. Since independence, there has been a severe lack of teachers, libraries, and laboratories (Ghulam Rasool, 2007). However, the current trend is to concentrate all postgraduate work in university departments to maximize the benefits of interaction between teachers and students but often limits the university teachers' access, which hinders them from carrying out higher-level research because of the lack of rigid standards. Universities play an important role in higher and professional education. However, the actual teaching system is carried out by universities. Still, most of the public and private degree colleges also belong to the provincial universities (Jan & Hussain, 2020). These universities administrate courses through research boards in various disciplines, conduct examinations, and confer bachelor's degrees. These universities have formulated the minimum qualification standards for teachers, their recruitment, and upgrading standards for physical facilities such as classrooms, laboratories, libraries, and regularly dispatched inspection teams to the college. In most colleges and university exams, 35% of the students must pass. Only 60% of them can continue or get admission to a master's degree (Nasir Khan, 2018).

The education of professional and technical colleges produced many doctors and engineers, which is superior. These colleges and universities gave admission to only those excellent students. Those who usually take 85% to 95% marks in higher secondary school examinations (12th grade or HSSC). According to stateuniversity.com, most of the graduated students from these institutions migrate to the Western world's competitive environment to perform well to be compensated or reimbursed for their education expenses (State University.com). The successful transfer of professional graduates from Pakistan to better pastures overseas leads to the so-called brain drain, which leads to the accusation of countries like Pakistan. As for universities' concerns, critics say that local universities can't attract the best people to join their faculty. The services of Pakistan's government, plentiful employment opportunities of Pakistan's multi-national companies, or the lure of overseas work make the university's real talent pool much more diminutive. In addition to various disadvantages like lack of facilities and environment to conduct high-quality research, universities are often unable to fill their teaching positions.

2. Challenges and Opportunities

Pakistan's higher education is not ranked anywhere among the world's best higher education systems in terms of quality. Higher education quality depends on many factors, such as appropriate education and learning environment, infrastructure, teachers, courses, information feedback, research skills, and observation systems (Ahsan Nasir, 2019). Since independence, the Pakistan education system had faced many challenges. The central governments of Pakistan's political parties were working hard to formulate new and effective education policies. These policies were not enough to meet the standards of education a country needs. However, people are still facing many problems in Pakistan's higher education system. Pakistan's higher education commission recognizes the new global situation, which poses unprecedented challenges to the higher education system. The most common issues faced by Pakistan higher education are lack of academic space and teachers, deteriorating research standards, inadequate infrastructure and facilities, low rate of student enrolment, out-dated teaching methods, lack of enthusiasm for students, poverty, and gender discrimination (Salik & Zhiyong, 2014). In

addition to these problems related to deteriorating standards and lack of facilities, many private education providers have reportedly exploited students in rural areas.

2.1 Low Enrolment rate and Drop-out Gap

In the last two decades, student enrolment in primary school is very low as well as the dropout rate in secondary school is also very high. In case of majority numbers of students do not complete their secondary education, future economic opportunities will be reduced for them, and government investment in public universities will be wasted (Sabates, Akyeampong, Westbrook, & Hunt, 2010). In rural areas of the country, most families live in poverty or think that education is not vital for their children (Zulfiqar, Shabbir, & Ishfaq, 2019). Pakistan's government significantly increased the funds for primary education in its education plan to control these issues and involve non-government organizations (NGOs) to manage primary and secondary schools known as private schools. But most of the private schools are located in urban areas and attracting the children of the elite-class and usually affiliated with the world's renowned universities and maintain excellent facilities, including laboratories, computer labs, and qualified, trained teachers. These private schools' tuition fees are very high, where low-income families cannot avail of these school facilities. Due to the low enrolment rate at the primary level and a vast quantity of dropout students at secondary or higher secondary school education (Anwar, Tahir, Saeed, & Ghori, 2012). Pakistan's higher education system is affected most. According to the World Bank, tertiary education enrolment was reported at 9 % in 2018 in Pakistan compared to 26% in India and 48% in China (World Bank, 2018). By 2020, Pakistan's government aims to achieve a 15% gross enrolment in Pakistan higher education, which means Pakistan failed to achieve its higher education sector goals even in 2020. Due to Pakistan's low total enrolment ratio, unable to compete with other developing countries in the higher education sector indicates insufficient socio-economic development progress.

2.2 Deteriorating Research and Quality Standards

Teachers' ability level, study plan, and student admittance standards are the main factors leading to the decline of higher education quality (Ullah, Ajmal, & Rahman, 2011). Ensuring higher education quality is one of the significant challenges faced by Pakistan's higher education system. However, while the government has always focused on quality education, many universities and degree colleges are still failing to meet the minimum requirements set by the HEC. These universities cannot stand out in front of the top universities' research and quality standards globally. Pakistan has a very low enrolment in Masters and Ph.D. degrees, which means Pakistan does not have enough high-quality researchers. There is a lack of early research experience, lack of creativity and innovation, and low industry participation. Universities and higher education institutions are more focused and dependent on theoretical knowledge than fieldwork or experimental research.

2.3 Inadequate Facilities and Infrastructure

According to Younis Ahmad Sheikh's research analysis, poor infrastructure is the main reason behind the flawed higher education system of Sub-continental (Pakistan, India, and Bangladesh), particularly the institutes run by the public sector's inadequate physical facilities and infrastructure. Many colleges in India function on the second or third floor of the building on the ground or the first floor; therapists, readymade hosieries, or photocopy shops (Younis Ahmad Sheikh, 2017). The same problems occurred in the Pakistan education system; most of the school infrastructure is there. Still, there is no student or faculty staff in these colleges or schools are under the control of politicians; they use it for their benefit. In Pakistan, many of the universities don't have proper facilities and adequate infrastructure to teach students. Even in the modern era of education technology, most of the degree colleges and universities in Pakistan are running without computer labs, digital libraries, and internet or in-campus internet facilities to assist their students. Poor infrastructure is one of the harsh truths in Pakistan's higher education system, particularly in those institutes run by the government sector suffering more than private colleges and universities. Many degree colleges are functioning in the same old-traditional teaching methods without the immersion of technical facilities.

2.4 Low-Quality Teaching Methods

The main reasons for the poor academic integrity of Pakistani students are classroom behavior, teacher evaluation, and the popularity of recitation among students (Haq, Mahmood, Shabbir, & Batool, 2020). The main reasons behind the low-quality teaching methods are the interference of political parties in job quotas. These political parties try to hire their political workers; thus, most people do not have any professional experience. Most teachers lack basic instruction of training. According to global academic-industry demands, they are still using old teaching methods when most Western teachers help modern educational techniques. Some private universities and colleges recruit young graduates as professors or lecturers on low salaries who do not have any experience or teaching knowledge. Because of non-professionals hiring, many institutions and universities have inferior quality teaching methods, which torture the quality of standards education. In the modern era, traditional teaching methods are now out-dated, and lack of quality assurance, lack of accountability, research separation, rigid pedagogy and curricula, and low-quality teachings are raising objections to Pakistan's higher education system. Most of the professors and management authorities don't want to involve in educational activities and wish to stick to their own financial and political growth.

2.5 Uneven Growth of Opportunities

Pakistan has experienced increasing student mobility, which is a significant aspect of the higher education scenario. Due to the uneven growth of opportunities in South Asian countries, especially those in the subcontinent, international students' mobility has dramatically changed the environment of general higher education. The number of Pakistanis students going abroad for higher education or job opportunities is growing incessantly with every passing year, especially in the field of medical and engineering studies (Javed, Zainab, Zakai, & Malik, 2019). Also, most of the young generation is engaged in taking an excellent job with high salary packages as they are not interested in serving their country. Half of the young people do not want to stay in Pakistan after graduating from universities; according to a survey of the local media network, 48% of young people of Karachi (the largest populated city of Pakistan) don't want to stay in Pakistan because of reduced opportunities and financial problems. Most graduated students from medical and technical institutions with excellent grades want to find opportunities in the Western world's competitive environment, which allows them to compensate or reimburse their education costs. In this case, the Pakistani government's mismanagement of the education system and corruption related to the higher educational institutions considered to be the most valuable (Aly & Taj, 2008), transfer of Pakistani professional graduates to better pasture abroad has resulted in up to 70% to 80% of the so-called brain drain, leading to accusations against Pakistan and other developing countries. The majority of Pakistani medical graduates wish to leave the country for postgraduate qualification abroad, mainly due to low salaries, poor job structure, insecurity (Nazli, N Shah, T Shah, & Sidra, 2016). After graduating from higher education, most students cannot find a job in the country, and the government cannot afford them ample opportunities. Due to the lack of uneven growth of opportunities, most engineers, technical professionals, and doctors have no choice but to settle in a developed country.

3. Suggestions for the Improvement of Higher Education

Pakistan cannot move forward until the quality of its higher education system is sufficiently high. Because poor-quality reduces job opportunities, reduces professional productivity, and lacks innovative ideas. These are the critical elements of continued success and progress. In summary, Pakistan needs to be more sensitive to the changing world and expand the adaptability and quality of higher education systems to meet national and global economies' diverse needs.

3.1 Balanced Teaching Methods

The time has come to switch from teaching centered on the teacher's actions to a dynamic learning method centered on pupils' actions (Sylvain Denat, 2017). Higher education institutes need to approach teaching methods according to learners' needs to learn, learn to do, and become. With student-centered education and balanced teaching methods, instructors need to intend new skills and attitudes. Through lectures, teaching

methods should follow self-study, personal counseling between teachers and students, and methods that highlight lively seminars and symposia. There is a shared approach to learning in balanced teaching. Students and teachers are equally responsible for students' performance, including behavior, attendance, and academic growth (M Kammer, 2019). A gradual transition of annual exams and semester exams reform needs to be implemented to assess student academic performance regularly. Internationalization and Exchange student programs between Pakistan and world-renowned universities have to be a significant channel for promoting higher education and disseminating knowledge. Every university must invite world-renowned professors and experts to teach professional and modern pedagogy methods to their teaching staff.

3.2 Quantity and Quality

Higher education quality depends on many factors, including appropriate learning environments, infrastructure, teachers teaching standards, practical courses with annual feedback, research skills, and unbiased institutions observation systems (Nasir Khan, 2018b). In 2019, 1,200 higher education public colleges and 188 universities were accredited by the Higher Education Commission (HEC) of Pakistan. Due to the high population rate, Pakistan needs to build more universities as the population number is huge compared to current universities' quantity. Since the Government of Pakistan could not reach the total enrolment rate of 15% in the higher education sector by 2020, the government should recommend establishing new universities to achieve 20% in 2030. Various models have been developed based on the Total Quality Management System and have been used or implemented successfully in many countries such as the United States, United Kingdom, Japan, and China (Soomro, & Ahmad, 2012). Pakistan needs to learn from these countries' higher education models and introduce or develop quality management standards in its higher education system. The government also needs to establish an independent administrative authority on Higher Education Commission and all public-private institutes to oversee Pakistan's higher education institutions' quality. Ensure the quality of educational activities. All colleges and universities need to be reviewed academically and administratively by external experts before applying the new five-year academic plan. Self-funded colleges and universities must move forward, pass the certification, and meet certification requirements. According to global education standards, universities should recognize the need for quality education and propose action plans to improve higher education quality.

3.3 Development of Cross-Culture Awareness

Research shows that international and domestic students have many advantages in facilitating interaction in an educational environment with teachers' support. With faculty and staff support, students can frequently interact to enhance their intellectual, effective communication, and intercultural effects. Higher education studies should arrange cross-culture social activities with social or non-government organizations' cooperation to help students understand the culture, art, literature, religion, and technological development. The analysis of social and academic exchanges between local and international students is not extensive enough to learn each other's cultures and traditions. Cross-cultural development requires designing interventions carefully, feedback, and mentoring/coaching. Regardless of whether the institution is fully prepared and supported, sending people abroad or inviting international students cannot guarantee the development of multicultural attitudes or the cognitive framework of students (Lokkesmoe, Kuchinke, & Ardichvili, 2016). Students with abilities and talents can use it to develop the world for peace, prosperity, and progress. Many universities in Western countries such as the United States, United Kingdom, Germany, Australia, and China allow international students in their home countries to study higher education through distance learning or by inviting international students to local universities. Similarly, Pakistan's top universities can use the globalization process to offer courses to international students. To achieve this goal, educational institutions must adopt a unified international syllabus.

3.4 Libraries Standards

The Government of Pakistan does not prioritize the development of standard libraries in its higher education system and should pursue according to the requirement of international standards of education. The library must prove its value and record its contribution to the organization's effectiveness for higher education development (Patricia A. Iannuzzi et al., 2011). Library standards in higher education should be designed to encourage and

support public and privates libraries. These libraries should play a collective role in student learning, fulfill corporative missions, and position themselves as library leaders in higher education development quality assessment. The Pakistan government, administrators, and educational policymakers or decision-makers should build more libraries in higher education institutions, universities, and colleges to benefit from quality research-data (Khan, A., & Ahmed, S. 2013). The implementation of multiple libraries will help improve the students and researchers' knowledge and research skills from the experience of library resources. This experience can assist with future engagements and training and make the most of these resources to help students and researchers conduct research and analyze research. The Higher Education Commission of Pakistan should provide funds or facilitate its institutions to help students develop standards libraries. We need to make more and more E-learning or E-library soft wares. These soft wares should accommodate print and electronic resources and provide a single interface for the students to search for multiple resources (Siddique, N., & Mahmood, K. 2016). Pakistan's government needs to build institutional and public libraries according to the world-class standards and be facilitated with high-tech standards with a wide range of educational and experimental research facilities. Pakistanis universities should focus more on providing quality education comparable to international standards.

4. Conclusion

To improve quality higher education in Pakistan, parents and students expect the government to implement transformational and innovative approaches to higher education according to the globally relevant and competitive requirements. Universities and higher educational institutes of Pakistan need to improve their quality standards and reputation, and infrastructure to attract students. The government must reform higher education policy and promote internationalization by collaborating with the world's renowned universities and building more institutional laboratories and research centers for quality and concerted research. Universities need to arrange such courses, in which students can gain quality knowledge and experience. Invite more multi-national companies for higher studies students to reduce recruitment problems to get jobs in their own country instead of migrating to western countries. To improve enrolment and economic growth, Pakistan needs to build more institutions with quality standards to meet future requirements. There is an urgent need to rethink financial resources, education policies, access, equity, quality standards, relevance, and responsiveness. Human resource development will continue, especially by promoting appropriate academic development programs, including learning methods and education. Internal self-assessment and external reviews must be conducted regularly and publicly by independent professionals and international higher education professionals. The government should restrict political involvement, favoritism of faculty recruitment, money-makers institutions, and explore awareness about women's education or gender discrimination in universities and higher educational institutes.

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Comparison of Kick Boxers Participating in the Turkey Inter-University Championship According to their Multiple Intelligence Levels

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Abstract

The purpose of this study is to compare the multiple intelligence level of athletes participating in Inter-University Kick Boxing Championships in Turkey according to different variables. The universe of the study is created by 650 athletes from 65 universities that attended to the Inter-University Kick-Boxing Championship in Turkey (between 06-11 March 2018). And the sample of the study is 87 athletes who voluntarily accepted to participate in the study. In the study, "Self-Assessment Inventory in Multiple Intelligence Areas," which was developed by Howard Gardner, translated into Turkish by Saban (2002) and whose validity and reliability (α = 0.93) were made, was used as the data collection tool in the study. SPSS 20 package program was used to analyze the data. The normality of the distribution was examined using the Shapiro Wilk test. It was observed that the available data had normal distribution. In the analysis of the data, descriptive statistical analysis, one-way analysis of variance (ANOVA) that compares the multiple intelligence levels of the athletes according to the universities they attend, the Tukey test, and the Independent sample t test that compares the multiple intelligence levels of the athletes according to the age variable were used. At the end of the study, depending on the age variable, Linguistic intelligence (p = .663; p <0.05), Logical intelligence (p = .724; p <0.05), Visual intelligence (p = 0.900; p <0.05), Musical intelligence (p = .815; p <0.05), Nature intelligence (p = .450; p <0.05), Interpersonal intelligence (p = .713; p <0.05), Kinesthetic intelligence (p = .548; p <0.05), Intrinsic intelligence (p = .799; p <0.05) no significant difference was found between the sub-dimension levels and the ages of the athletes.

Keywords: Multiple Intelligences, University Student, Kick boxing

INTRODUCTION

For many years, studies have been carried out on what the meaning of intelligence is. During these studies, many different definitions were made by the researchers. Some psychologists have expressed different views on the definition of intelligence. Some believe that intelligence consists of many special abilities. Galton, who was trying to measure intelligence for the first time, treated intelligence as structuring and using information (Bümen, 2011). According to Binet, the concept of intelligence is reasoning, good judgment and self-criticism (Toker, Kuzgun, Cebe). First theories about the basic nature of intelligence, learning capacity; dealt with three main

points: the total knowledge gained by the individual and the ability to successfully adapt to new situations and the environment (Senemoğlu, 2007). *"Intelligence is a general mind force. This power is equally manifested in any field of man. It is also claimed that intelligence is independent from environmental conditions. However, recent studies have revealed that environmental conditions affect intelligence to some extent. Until the theory of multiple intelligences emerged, many views on intelligence were put forward in the history of education. For many years, the prevailing opinion was that people had a certain intelligence field and continued their lives with this field of intelligence; Today, the boundaries of intelligence have begun to be determined again with the researches. All these developments have taken the history of world education to a different point, and have made it compulsory to re-evaluate human intelligence in the light of new developments. Over time, the view that intelligence consists of many factors has prevailed. Although it was accepted that intelligence consists of many factors, it continued to be determined by a singular measurement as a unique combination of these factors. During this process, Gardner approached intelligence differently and stated that intelligence should not be considered in one dimension, but in many different dimensions. Based on this understanding, the theory of multiple intelligences was developed. According to the multiple intelligence theory, a person has different areas of intelligence such as verbal intelligence, mathematical intelligence, social intelligence, musical intelligence, visual intelligence, physical intelligence, intrapersonal intelligence, and naturalistic intelligence. Gardner stated that in the development of intelligence domains, besides inheritance, environmental conditions can also play a supportive or preventive role."*(As cited in Çalı & Kangalgil, 2020; Elik ve Tazegül, 2018).

Multiple Intelligence Theory was defined by Gardner in 1983 (Köksal, 2006). This theory is an approach that opposes the IQ intelligence perspective of the individual, claims that intelligence is multi-part, and emphasizes that individuals come to the learning environment with different learning styles (Gardner, 1993). According to Gardner, intelligence; It is the ability to present products and solve problems that find value in one or more cultures (Gardner, 1993).

1. **Linguistic Intelligence:** This type of intelligence includes the ability to use and produce language effectively. Individuals with this type of intelligence are the best people in areas of use such as thinking and expressing with words, evaluating complex meanings in language, explaining and speaking on a topic (Armstrong, 2003: 13; Armstrong, 2009: 6; Moran, Kornhaber, & Gardner. , 2006: 27).

2. **Kinesthetic Intelligence**: Individuals who develop a physical intelligence type control their body movements well and can use their brain and body coordination effectively. This includes skills such as balance, strength, flexibility, speed, manual skill, and coordination (Babacan & Dilci, 2012; Nolen, 2003: 117).

3. **Visual Intelligence**. Individuals with developed visual intelligence have the ability to fully perceive visual elements and to transform things into different forms. The skills of thinking of pictures, images, shapes and lines, perception and reasoning of three-dimensional objects are developed.

4. **Musical Intelligence**: Individuals who are dominant in this field of intelligence are sensitive to the rhythm, melody tuning and timbre in music. In addition, they have the skills to voice, change, separate, and produce musical structures and to be successful in these issues (Armstrong, 2003: 13; Armstrong, 2009: 7; Moran, Kornhaber and Gardner, 2006: 27; Gardner, 1999: 42; Nolen, 2003: 116).

5. **Logical Intelligence**: Individuals who are dominant in this field of intelligence use numbers very well. Individuals with this type of intelligence have high skills of thinking with numbers, calculating, making conclusions, establishing logical relationships, generating hypotheses, problem solving, critical thinking, meeting abstract symbols such as numbers, geometric shapes, and establishing relationships between parts of knowledge (Armstrong, 2003: 13. Armstrong, 2009: 6; Moran, Kornhaber and Gardner, 2006: 27; Gardner, 1999: 42).

6. **Intrinsic Intelligence:** It includes recognizing the characteristics of the individual such as his / her habits, potential, tastes, abilities, and ambitions, symbolizing the experiences in his/her inner world and

helping others with what he/she gains from this field (Armstrong, 2003: 13). Individuals who strengthen the field of intelligence will help them plan and manage their own learning and enable them to better understand the areas where they expect success (Moran, Kornhaber, & Gardner, 2006: 27). People such as painters, therapists, and shamans are included in this intelligence field (Armstrong, 2003: 13; Armstrong, 2009: 7; Moran, Kornhaber, & Gardner, 2006: 27).

7. **Interpersonal Intelligence:** Individuals with abilities such as being aware of the characteristics of individuals and seeing the differences between them and guiding for the benefit of others in this direction are included in this intelligence field. In other words, they have the ability to perceive and discriminate on people's emotions, aspirations, intentions and moods. They are sensitive to facial expressions, voices and gestures. They are adept at distinguishing these characteristics that are different to most people and using them for their own benefit. Nolen (2003: 118) states that individuals who are dominant in this field of intelligence prefer learning through cooperative learning, observation and experiences more frequently due to their characteristics. Professional areas such as teachers, association founders, administrators, politicians are included in this group (Armstrong, 2003: 13; Armstrong, 2009: 7; Moran, Kornhaber, & Gardner, 2006: 27).

8. **Natural Intelligence :** People who are dominant in the field of natural intelligence are sensitive individuals who create a consciousness about nature and the environment (Green et al., 2005: 355). This area of intelligence includes the ability of the individual to recognize the animal and plant community around him, take care of them, or communicate with them in a way. It is the ability to recognize all living things in nature, research and reflect on the creation of living things (Armstrong, 2003: 13; Armstrong, 2009: 7; Moran, Kornhaber, & Gardner, 2006: 27; Gardner, 1999: 48).

9. **Existential Intelligence:** Existential intelligence is not a field of intelligence peculiar to individuals who have positive or negative opinions about the end of life, who form moral values, on the contrary, it is a field of intelligence that can be developed by each individual who can think skillfully and deeply on certain issues (Gardner 1999: 69). Nevertheless, among the dominant individuals in this field of intelligence, there are philosophers, religious leaders and statesmen who have left a lot of marks (Gardner, 2006: 20). This area of intelligence includes the ability to think over questions and phenomena beyond emotional knowledge (Moran, Kornhaber, & Gardner, 2006: 27).

The aim of this study is to compare, kick boxers participating in the Inter-University Championship in Turkey according to their multiple intelligence level with the above mentioned various variables

METHOD

In this study, the causal comparison model included in the quantitative research method was used.

Universe and Sample

The universe of the study is created by 650 athletes from 65 universities that attended to the Inter-University Kick-Boxing Championship in Turkey (between 06-11 March 2018). The sample of the study is 87 athletes who agreed to participate by random sampling method.

Data Collection Tools

Multiple Intelligence Scale

In order to determine the distribution levels in multiple intelligence areas, the "Self-Evaluation Inventory in Multiple Intelligence Areas," which was developed by Howard Gardner and translated into Turkish by Saban

(2002) and whose validity and reliability ($\alpha = 0.93$) were made, was applied. The inventory consists of 80 questions. There are 8 intelligence theories and 10 questions from each intelligence theory. Linguistic intelligence, Logical intelligence, Visual intelligence, Musical intelligence, Natural intelligence, Interpersonal intelligence, Kinesthetic intelligence, Intrinsic intelligence questions were asked. The items are prepared according to the five-point grading system and 0 = "Not suitable for me at all"; 1 = "Less suitable for me"; 2 = "Partially suitable for me"; 3 = "Well suited to me"; 4 = "Perfect for me." The scores of each student candidate from eight parts of the inventory were collected in accordance with the rule and their total scores in intelligence areas were determined. According to these results, those with a total score of 33-40 in the areas of intelligence are very highly developed, those between 25-32 are highly developed, those between 17-24 are moderately developed, those between 9-16 are slightly developed, and those between 0-8 are not developed.

Data Analysis

SPSS 20 package program was used in the analysis of the data. In the analysis, the data set was primarily examined in terms of erroneous value, outlier and multiple correlations. It was observed that there was no data entered incorrectly during this process. The normality of the distribution was examined using the Shapiro Wilk test. It was observed that the available data had normal distribution. In the analysis of the data, descriptive statistical analysis, one-way analysis of variance (ANOVA) that compares the multiple intelligence levels of the athletes according to the universities they attend, the Tukey test, and the Independent sample t test that compares the multiple intelligence levels of the athletes according to the age variable were used. The significance level was taken as $p < .05$.

Results

Table 1: Frequency analysis showing the universities attended by the kickboxers in the sample.

	f	%
Sakarya University	13	14.9
Erciyes University	10	11.5
Yeditepe University	13	14.9
Bahçeşehir University	10	11.5
Özyeğin University	5	5.7
Bilgi University	8	9.2
19 Mayıs University	1	1.1
Aksaray University	3	3.4
Çukurova University	2	2.3
Marmara University	11	12.6
Total	87	100

When Table 1 is evaluated, 14.9% (n = 13) of the athletes were from Sakarya and 14.9% (n = 13) Yeditede Universities, 12.6% (n = 11) were from Akdeniz and 12.6% (n = 11) Marmara Universities, 11.5% (n = 10) from Erciyes and 11.5% (n = 10) from Bahçeşehir Universities, 9.2% (n = 8) from Bilgi, 5.7% of them (n = 5) were from Özyeğin University, 2.3% (n = 2) from Çukurova and 1.1% (n = 1) from 19 Mayıs University.

Table 2: One-way analysis of variance (ANOVA) and Tukey test results comparing the multiple intelligence levels of athletes according to their universities

Scale Sub-Dimensions	Universities	N	$\bar{x}$	Level	ss	F	P	Tukey Difference
Linguistic Intelligence	Yeditepe University(4)	13	22,54	medium	5.87			4<8
	Bahçeşehir University(5)	10	22.50	medium	4.60	2.057	0.044*	4<9
	Bilgi University(7)	8	19.38	medium	4.10			5<8
	Aksaray University(8)	3	33.00	Very high	1.73			7<8

Logical Intelligence	Çukurova University(9)	3	33.67	very high	2.52		7<9
	Erciyes University(3)	10	20.70	medium	6.17		
	Yeditepe University(4)	13	23.15	medium	6.15		3<8
	Bahçeşehir University(5)	10	20.90	medium	5.30		4<8
	Özyeğin University(6)	5	14.60	Low	3.36	2.759	**0.008**	5<8
	Bilgi University(7)	8	16.75	Low	3.11		6<8
	Aksaray University(8)	3	34.67	very high	1.53		7<8
	Marmara University(10)	11	18.82	medium	10.21		10<8
Visual Intelligence	Akdeniz University(1)	11	20.00	medium	10.50		1<8
	Sakarya University(2)	13	25.38	High	8.87		1<9
	Erciyes University(3)	10	21.70	medium	8.21		2>6
	Yeditepe University(4)	13	24.38	medium	7.29		3<8
	Bahçeşehir University(5)	10	23.90	medium	4.28		3<9
	Özyeğin University(6)	5	16.20	Low	5.40	2.317	**0.023**	5<9
	Bilgi University(7)	8	19.25	medium	7.89		6<8
	Aksaray University(8)	3	33.00	very high	3.61		6<9
	Çukurova University(9)	3	34.33	very high	4.04		7<8
	Marmara University(10)	11	20.55	medium	8.90		7<9
							10<9
Musical Intelligence	Akdeniz University(1)	11	20.00	medium	12.17		
	Sakarya University(2)	13	23.69	medium	7.86		2<9
	Erciyes University(3)	10	20.10	medium	7.16		2<9
	Yeditepe University(4)	13	24.92	medium	8.76		3<8
	Bahçeşehir University(5)	10	22.90	medium	5.17		3<8
	Özyeğin University(6)	5	15.80	Low	5.12	2.358	**0.021**	5<8
	Bilgi University(7)	8	19.50	medium	3.82		5<9
	Aksaray University(8)	3	34.33	very high	2.08		7<8
	Çukurova University(9)	3	33.33	very high	1.15		7<9
	Marmara University(10)	11	20.64	medium	8.70		10<9
Natural Intelligence	Bahçeşehir University(5)	10	19.70	medium	5.56		5-8
	Bilgi University(7)	8	17.13	medium	5.77	2.312	**0.023**	7-8
	Aksaray University(8)	3	33.33	very high	2.89		
Kinesthetic Intelligence	Akdeniz University(1)	11	23.00	medium	9.91		1-9
	Sakarya University(2)	13	22.85	medium	8.84		2-9
	Erciyes University(3)	10	19.40	medium	8.54		3-9
	Yeditepe University(4)	13	24.15	medium	4.91		4-9
	Bahçeşehir University(5)	10	20.30	medium	7.42	2.522	**0.014**	5-8
	Bilgi University(7)	8	18.38	medium	5.34		5-9
	Aksaray University(8)	3	33.00	High	2.65		7-8
	Çukurova University(9)	3	37.00	very high	1.00		7-9
Intrinsic Intelligence	Erciyes University(3)	10	19.40	medium	8.24		3-9
	Yeditepe University(4)	13	21.46	medium	6.42		4-9
	Bahçeşehir University(5)	10	19.10	medium	7.02		5-9
	Bilgi University(7)	8	18.63	medium	3.58	2.590	**0.012**	7-9
	Aksaray University(8)	3	36.00	very high	4.00		8-9
	Çukurova University(9)	3	32.33	High	2.08		10-8
	Marmara University(10)	11	17.09	medium	9.45		10-9
Multiple Intelligence Schale	Özyeğin University(6)	5	144.60		38.69		6-9
	Bilgi University(7)	8	148.63		11.61	2.964	**0.004**	7-8
	Aksaray University(8)	3	267.67		12.10		7-9

Theory	Çukurova University(9)	3	272.00	12.77
	Marmara University(10)	11	165.73	56.70

When Table 2 is evaluated, One Way ANOVA analysis was conducted in order to examine the difference between the multiple intelligence behavior levels of the athletes according to the status of the university variable. As a result of the analysis, it was determined that there was a statistically significant difference at the level of 95% in terms of the university variable they studied at the Multiple Intelligence Theory levels ($F_{(9-77)}$=2.964;p=.004;p<0.05). When the source of the meaningful difference is examined, there is a significant difference between Özyeğin, Bilgi Universities and Çukurova University, and between Bilgi University and Aksaray University. Based on the averages, the multiple intelligence levels of the athletes studying at Çukurova University ($\bar{x}$=272.00); It was determined that athletes studying at Özyeğin ($\bar{x}$=144.60), Bahçeşehir ($\bar{x}$=22.50), Bilgi ($\bar{x}$=148.63) and Aksaray Universities ($\bar{x}$=267.67) had lower levels of linguistic intelligence than Çukurove University. According to these results, it can be said that the linguistic intelligence levels of the athletes studying at Çukurova University are very high.

It was determined that there is a statistically significant difference at the level of 95% in the logical intelligence sub-dimension of the athletes according to the university variable they studiedi. ($F_{(9-77)}$=2.759;p=.008;p<0.05). When the source of the meaningful difference is examined, there is a significant difference between Özyeğin University and Aksaray University, and between Bilgi University and Aksaray University. Based on the averages, the logical intelligence levels of the athletes studying at Aksaray University ($\bar{x}$=34.67); and studying at Özyeğin ($\bar{x}$=14.60), Bilgi ($\bar{x}$=16.75), Erciyes ($\bar{x}$=20.30), Yeditepe ($\bar{x}$=23.15), Bahçeşehir ($\bar{x}$=20.90) and Marmara Universities ($\bar{x}$=16.75), it can be said that the logical intelligence levels of the athletes studying at Aksaray University are very high.

It was determined that there is a statistically significant difference at the level of 95% in the visual intelligence sub-dimension of the athletes according to the university variable they have studied ($F_{(9-77)}$=2.317;p=.023;p<0.05). When the source of the meaningful difference is examined, there are significant difference between Akdeniz, Çukurova Universities and Aksaray University, between Sakarya University and Özyeğin University, between Erciyes University and Aksaray, Çukurova Universities, between Bahçeşehir University and Çukurova University, between Özyeğin University and Aksaray, Çukurova Universities, between Bilgi University and Aksaray, Çukurova Universities. There are significant differences between Çukurova University, Marmara University and Çukurova University.

Based on the averages, the visual intelligence levels of the athletes studying at Çukurova University ($\bar{x}$=34.33); Aksaray ($\bar{x}$=33.00), Akdeniz ($\bar{x}$=20.00), Erciyes ($\bar{x}$=21.70), Bahçeşehir ($\bar{x}$=23.90), Özyeğin ($\bar{x}$=16.20), Bilgi ($\bar{x}$=19.25), Marmara Universities ($\bar{x}$=20.55), it was determined that the in Çukurova University educated athletes have higher levels of visual intelligence. So it can be said that the visual intelligence levels of the athletes studying at Çukurova University are at a very high level.

It was determined that there is a statistically significant difference at the level of 95% in the musical intelligence sub-dimension of the athletes according to the university variable they have studied. ($F_{(9-77)}$=2.358;p=.021;p<0.05). When the source of the meaningful difference is examined, there is significant difference between Sakarya University and Çukurova, Aksaray Universities, between Erciyes University and Aksaray, Çukurova Universities, between Bahçeşehir University and Aksaray, Çukurova Universities, between Özyeğin University and Aksaray, Çukurova Universities, between Bilgi University and Aksaray, Çukurova Universities, and between Marmara University and Çukurova Univeristy. Based on the averages, the musical intelligence levels of the athletes studying at Aksaray University ($\bar{x}$=34.33); Çukurova ($\bar{x}$=33.33), Sakarya ($\bar{x}$=23.69), Erciyes ($\bar{x}$=20.10), Bahçeşehir ($\bar{x}$=22.90), Özyeğin ($\bar{x}$=15.80), Bilgi ($\bar{x}$=19.50), Marmara Universities ($\bar{x}$=19.50), it was determined that the in Aksaray University educated athletes have higher levels of musical intelligence. So it can be said that the musical intelligence levels of the athletes studying at Aksaray University are very high.

It was determined that there is a statistically significant difference at the level of 95% in the nature intelligence sub-dimension of the athletes according to the university variable they have studied. ($F_{(9-77)}$=2.312;p=.023;p<0.05). When the source of the meaningful difference is examined, there are differences between Bahçeşehir University and Aksaray University, and between Özyeğin University and Aksaray University. Based on the averages, the nature intelligence levels of the athletes studying at Aksaray University ($\overline{x}$=33.33); It has been determined that Bahçeşehir ($\overline{x}$=19.70), Bilgi ($\overline{x}$=17.13), athletes studying at their universities have lower levels of musical intelligence. It has been determined that the athletes studying at Aksaray University have very high levels of natural intelligence. So it can be said that the nature intelligence levels of the athletes studying at Aksaray University are very high.

It was determined that there was no statistically significant difference in the interpersonal intelligence sub-dimension of the athletes according to the university variable they studied (p = .076; p> 0.05).

It was determined that there is a statistically significant difference at the level of 95% in the kinesthetic intelligence sub-dimension of the athletes according to the university variable they have studied. ($F_{(9-77)}$=2.522;p=.014;p<0.05). When the source of the meaningful difference was examined, significant differences were observed between Akdeniz, Sakarya, Erciyes, Yeditepe, Bahçeşehir Universities and Çukurova University, and between Bahçeşehir, Bilgi Universities and Aksaray University. Based on the averages, the kinesthetic intelligence levels of the athletes studying at Çukurova University ($\overline{x}$=37.00); Akdeniz ($\overline{x}$=23.00), Sakarya ($\overline{x}$=22.85), Erciyes ($\overline{x}$=19.40), Yeditepe ($\overline{x}$=24.15), Bahçeşehir ($\overline{x}$=20.30), Bilgi ($\overline{x}$=18.38), it has been determined that sighted athletes that are in Çukurova Univeristy have higher levels of kinesthetic intelligence. So it has been determined that the kinesthetic intelligence levels of the athletes studying at Çukurova University are very high.

It was determined that there is a statistically significant difference at the level of 95% in the intrapersonal intelligence sub-dimension of the athletes according to the variant of the university they studied($F_{(9-77)}$=2.590;p=.012;p<0.05). Significant differences were determined between Sakarya, Yeditepe Universities and Çukurova University, between Bahçeşehir and Bilgi University and Çukurova University, between Marmara University and Aksaray and Çukurova Universities. Based on the averages, the intrapersonal intelligence levels of the athletes studying at Aksaray University($\overline{x}$=36.00); Çukurova ($\overline{x}$=32.33), Erciyes ($\overline{x}$=19.40), Yeditepe ($\overline{x}$=21.46), Bahçeşehir ($\overline{x}$=19.10), Bilgi ($\overline{x}$=18.63), Marmara Universities ($\overline{x}$=17.09), it was determined that sighted athletes have higher levels of intrapersonal intelligence. It has been determined that the musical intelligence levels of the athletes studying at Aksaray University are very high.

Table 3. Independent sample t test comparing the multiple intelligence levels of athletes according to age variable

	Age Group	N	$\overline{x}$	ss	F	t	p
Linguistic Intelligence	19-21	58	22.26	8.87	1.939	-0.438	0.663
	22-23	29	23.10	7.65			
Logical Intelligence	19-21	58	21.31	8.92	0.546	-0.354	0.724
	22-23	29	22.00	7.79			
Visual Intelligence	19-21	58	22.53	9.15	3.76	0.000	0.900
	22-23	29	22.83	7.08			
Musical Intelligence	19-21	58	22.24	9.19	3.978	-0.235	0.815
	22-23	29	22.66	6.90			
Natural Intelligence	19-21	58	21.93	8.91	1.462	-0.758	0.450
	22-23	29	23.38	7.24			
Interpersonal Intelligence	19-21	58	21.78	7.58	0.006	-0.369	0.713
	22-23	29	22.41	7.64			
Kinesthetic Intelligence	19-21	58	22.57	8.93	4.213	-0.603	0.548
	22-23	29	23.59	6.53			
Instrinsic Intelligence	19-21	58	21.26	8.22	0.272	-0.256	0.799

	22-23	29	21.76	9.33		
Multiple Intelligence	19-21	58	176.17	60.77	1.942	-0.426 0.671
Theory Scale	22-23	29	181.72	49.67		

At the end of the comparison made depending on the age variable in Table 3, these results are observed; Linguistic intelligence (p = .663; p <0.05), Logical intelligence (p = .724; p <0.05), Visual intelligence (p = 0.900; p <0.05), Musical intelligence (p = .815; p <0.05), Nature intelligence (p = .450; p <0.05), Interpersonal intelligence (p = .713; p <0.05), Kinesthetic intelligence (p = .548; p <0.05), Intrinsic intelligence (p = .799; p <0.05). And it is observed that there was no significant difference between the total score levels they got from the Multiple Intelligence Theory Scale and the ages of the athletes.

Discussion and Conclusion

As a result of the statistical analysis, kick boxers who continue their education life in Çukurova University are more dominant in linguistic intelligence, visual intelligence and kinethetic intelligence. Also it has been observed that the intelligence levels of kick boxers who continue their education life at Aksaray University are more dominant in the field of logical intelligence, musical intelligence, intrapersonal intelligence and nature intelligence. Based on these statistical results, kickboxers who continue their education life at Çukurova University are better at thinking and expressing words with which they use their language skills better, evaluating complex meanings in the language. They have better features such as perceiving visual elements fully and transforming things into different forms; perception and reasoning skills of three-dimensional objects are more developed; it can be said that they control body movements well and can use their brain and body coordination more effectively. On the other hand, the kickboxers who continue their education life at Aksaray, use numbers very well and they use logic. They know how to establish more logical relationships between events; rhythm and sound perceptions are at a better level. It can also be said that they can help people plan and manage their own learning, better understand the areas where they expect success, and are more conscious of nature and the environment.

When the multiple intelligence level of athletes was examined according to the age variable, although there was no significant difference between age groups, it is observed that students in the 22-23 age group have higher scores than the students in the 19-21 age group in the sub-dimensions of Linguistic Intelligence, Logical Intelligence, Musical Intelligence, Nature Intelligence, Interpersonal Intelligence, Kinesthetic Intelligence, Intrinsic Intelligence.

At the end of the review, studies supporting the data of this study were encountered. Some of these studies are given below:

In a study conducted by Ermiş in 2018, the intelligence dimensions of the athletes competing in golf and wrestling were determined as follows. Linguistic Intelligence Golf 27.54 and Wrestling 21.53, Logical Intelligence Golf 30.69 and Wrestling 26.09, Visual Intelligence Golf 31.31 and Wrestling 25.13, Musical Intelligence Golf 25.41 and Wrestling 24.34, Kinethetic Intelligence Golf 28.15 and Wrestling 24.25, Intrinsic Intelligence Golf 29.23 and Wrestling 24.00, Nature Intelligence Golf 26.31 and Wrestling 24.03. In their studies conducted in 2020, Çalı and Kangangil found a statistically significant difference between the age of the students studying at sports high schools and their linguistic, logical, visual, musical, interpersonal, intrinsic and naturalistic intelligence scores. According to the sports age variable, when the kinethetic intelligence scores were compared by two, it was found that among those who do sports for less than 1 year and those who do sports for 3-4 years, participants who do sports for 3-4 years are in favor; Between those who do sports for less than 1 year and those who do sports for 5-6 years, in favor of those who do sports for 5-6 years, between those who do sports for less than 1 year and those who do sports for 7 years or more, participants who do sports for 7 years or more are in favor. Among those who do sports for 3-4 years and who do sports for 1-2 years, the ones who do sports for 3-4 years are in favor and among those who do sports for 5-6 years and 1-2y years, in favor of those who do sports for 5-6 years. They found a significant difference between those who do sports for a year or more

and in favor of those who do sports for 7 years or more. Also, in their study conducted in 2016, Aygül and Koç found that female students 'visual-spatial and musical-rhythmic intelligence scores were higher than the male students' average. In the studies conducted by Altınok (2008) for physical education students and Demir (2010) for ninth grade students, the musical-rhythmic and visual-spatial intelligence scores of female students were found to be higher than the scores of male students. In Serin's (2008) study, a significant difference was found in the intelligence scores of teachers in favor of male teachers in the field of visual-spatial intelligence, and in favor of female teachers in the field of interpersonal intelligence. McClellan (2006) developed a scale to identify the dominant intelligence areas of university students in his study. In his study on 874 university students, the field of musical-rhythmic intelligence ranks second with a rate of 18.8%. Müderrisgil (2012) revealed that musical-rhythmic intelligence has the highest rate among eight intelligence domains in terms of the number of students in the percentage ranking among 210 student samples.

Taşkın and Korucuk determined the intelligence dimensions of university students in their studies in 2019 as follows. Linguistic Intelligence 24.13 Logical-Mathematical Intelligence 24.43 Visual-Spatial Intelligence 22.02 Musical-Rhythmic Intelligence 24.30 Kinesthetic Intelligence 23.04 Intrinsic Intelligence 24.57 Naturalist Intelligence 21.96 Social Intelligence 35.82.

In the review, it was determined that athletes or individuals and students who exercise are more advanced in Linguistic intelligence, Logical intelligence, Visual intelligence, Musical intelligence, Kinesthetic intelligence, Inner intelligence and Naturalist intelligence. One of the biggest reasons for this result is undoubtedly the positive contribution of sports and exercise to brain development (https://bilimgenc.tubitak.gov.tr/makale/spor-yap-beynin-formda-kalsin). Another important effect is that sports significantly contributes to the socialization and personality development of the individual (Tazegül, 2021; 2014; 2018). The theory of multiple intelligences, utilizing cognitive science, developmental psychology and neuroscience, argues that the intelligence level of each individual is formed by autonomous powers or abilities and that there are 9 intelligence powers. Nowadays, with the developments in sports education, performance and psychology, it has been started to consider what athletes able to do rather than what they are already doing. The theory of multiple intelligences reveals the opinion that athletes should be evaluated in terms of their sportive potential abilities and success. The theory of multiple intelligences was put forward for people to think of new educational methods for this purpose. In this study, it was concluded that the human brain has a modular structure and the use of multiple intelligences is an important factor in the structuring of sportive and psychological performance.

As a result, kick boxers who continue their education life at Çukurova University scored higher that students in the group in Logical Intelligence, Musical Intelligence, Intrinsic Intelligence and Natural Intelligence. On the other hand, it is examined that kick boxers who continue their education life at Aksaray University have more dominant intelligence levels. And that students in the 22-23 age group (Kick boxers) had higher scores in the total score of the Multiple Intelligence Theory Scale and in the sub-dimensions of Linguistic Intelligence, Logical Intelligence, Musical Intelligence, Nature Intelligence, Interpersonal Intelligence, Kinethetic Intelligence, than students in the 19-21 age group. When the data obtained in this study were compared with the results of different studies on the same subject, it was observed that individuals who exercise are more dominant in multiple intelligence dimensions. For this reason, students should turn to sports and exercise in order for their intelligence dimensions to develop correctly and efficiently. Thus, they can use their potential more effectively.

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Examination of General Competencies and Needs of Pre-School and Classroom Teacher Candidates in Terms of Assessment and Evaluation Course

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Abstract

This study examines the general competencies and the requirements of classroom and preschool teacher candidates in terms of assessment and evaluation course. The study group consisted of 140 4th-year teacher candidates randomly selected from a total of 256 teacher candidates studying at Classroom Teaching and Preschool departments of Burdur Mehmet Akif Ersoy University Education Faculty, Turkey. In this study, a mixed research approach and a convergent design, in which quantitative and qualitative studies are used to support each other's strengths, were used. To collect quantitative data, the "Measurement and Evaluation Common Competency Perception Scale for Teacher Candidates" (MECCPSTC), which was developed by Nartgün (2008), was used. The qualitative data of the study were obtained thorough the open-ended questions that were asked to 13 teacher candidates through focus group interview technique. In the analysis of the quantitative data, descriptive statistics, t-test and one-way ANAVO were used. Content analysis was used in the analysis of the qualitative data. The findings showed that approximately one fourth of the teacher candidates had the opinion that they were "sufficient and very sufficient" in terms of their learning in the assessment and evaluation course. The scores of three quarters of the teacher candidates obtained from the scale were at "moderate and very insufficient" interval. In addition, it was examined whether there was a significant difference between the scores of teacher candidates obtained from Basic concepts" (BC), "Measurement techniques" (MT), "Statistical analysis and Reporting" (SAT) dimensions, and total score of the scale in terms of age, gender, department and belief in appointment variables. The codes obtained from the analysis of qualitative data were grouped under themes. Each theme was arranged and interpreted in a table with the codes within the scope. The results obtained from the analysis of both quantitative and qualitative data were combined and discussed and recommendations were developed.

Keywords: Assessment and Evaluation Competence, Preschool Teaching, Classroom Teaching, Teacher Competence

1. Introduction

Competence is defined as the knowledge, skills, attitudes and values required to perform a job effectively and efficiently (Ministry of National Education, MEB, 2017). On the other hand, professional competence is generally considered as a set of minimum norms that show what knowledge, skills, qualifications, attitudes and values are required for individuals to successfully fulfill the requirements of a profession (Deakin Crick, 2008; cited in Bulur, 2014).

Teaching profession, as in each profession, requires specific knowledge, skills and competencies. These competencies are defined as the knowledge, skills and attitudes (MoNE, 2006; Şahin, 2004) that teachers should have in order to fulfill their profession effectively and efficiently. As can be understood from this definition, teacher competencies reveal the qualifications that a teacher should have in order to fulfill his duties and responsibilities regarding education in the best way.

Therefore, the competencies that teachers should have at the end of teacher training processes in order to implement the curriculum in the most effective way and obtaining efficient results (MoNE, 2006), are grouped under the headings as personal and professional values-professional development, b. knowing the student, c. teaching and learning process, d. monitoring and evaluating learning and development, e. school, family and community relations, f. curriculum and content knowledge. On the other hand, these competencies are determined as general professional competencies, professional knowledge, professional skills and attitudes and values (MoNE, 2017). In this context, qualification criteria for teacher candidates (TC) to fulfill their responsibilities related to their professions have been defined by drawing the framework of what behaviors teachers should have regarding their profession. TC should be prepared for the profession by gaining knowledge, skills, attitudes and values regarding these competencies in pre-service education. It is aimed for TC to acquire these professional knowledge and skills through courses of field knowledge, teaching profession knowledge and general culture (Council of Higher Education, CHE, 1998, 2007 and 2018) in pre-service education processes. One of these basic professional knowledge skill areas that prospective teachers should gain is assessment and evaluation (AE).

In general, while assessment is considered as the process of observing any quality, expressing the results of the observation with numbers or symbols, evaluation is defined as the decision-making by comparing the measurements obtained from the measurement process with a criterion (Turgut, 1990; Tekin, 1993; Baykul, 2001; Tan, 2008; Tekindal, 2009; Özçelik, 2010). In the evaluation phase, defining, explaining and implementing the criterion are decided on the objective value, quality, benefit, efficiency and importance of the evaluation made based on this criterion (Fitzpatrick, Sanders, & Worthern 2011). According to these features put forward regarding the concepts of assessment and evaluation, it can be said that both concepts are dimensions of an integrated process that cannot be considered separately from each other.

Black and William (1998) and Baykul (2001) stated that the aims and functions of AE are the evaluation of the curriculum, evaluation of teaching effectiveness, determination of learning deficiencies, determination of students' interests and abilities, and evaluation of student achievement. On the other hand, according to Popham (1995), AE provides benefits in determining the strengths and weaknesses of students, monitoring students' progress, evaluating classroom learning and placement of students according to determined institutional standards. In this context, AE indicates whether the curriculum achieves the expected results, whether the expected knowledge, skills and attitudes are developed in students; provides the opportunity to continuously monitor the teaching process, to identify and regulate the problems that arise at every stage (MoNE, 2009). The fulfillment of the stated objectives and functions of the AE largely depends on whether teachers perform the AE processes and activities correctly. Therefore, it can be said that AE is an indicator of the effective use of teachers' competencies.

The competences of the teachers in AE includes determining the objectives for the assessment process, determining and developing the measurement tool (test types) appropriate for the purpose, ensuring the reliability and validity of the measurement tools, using basic test statistics and scores, student achievements or

grades (Kubiszyn and Borich, 2003). On the other hand, the competencies that teachers should have in the field of AE are defined by MoNE (2006, 2007) as determining the methods and techniques of AE, measuring the knowledge level of the students by using different measurement techniques, analyzing and interpreting the data, providing feedback on the learning of the student and reviewing the learning and teaching process according to the obtained results.

In the literature, it is seen that there are various studies that address TC and teachers' AE competencies in terms of various variables. Some of these studies focus on Primary School Teaching and conducted by various reesearchers (Birgin, 2007; Gelbal & Kelecioğlu, 2007; Kilmen, Kösterelioğlu, & Kösterelioğlu, 2007; Birgin-Gürbüz, 2008; Duban & Küçükyılmaz, 2008; Kilmen & Çıkrıkçı-Demirtaşlı, 2009; Pektaş, 2010; Yeşilyurt and Yaraş, 2011; Yaman and Karamustafaoğlu, 2011; Erdoğdu & Kurt, 2012; Yeşilyurt, 2012; Gencel & Özbaşı, 2013; Özenç, 2013; Özbaşı & Çıkrıkçı-Demirtaşlı, 2013; Şahin & Uysal, 2013; Yaşar, 2014; Yaralı, 2017; Sabancı & Yazıcı, 2017), and in these studies TC and teachers' AE competencies were examined in terms of various variables. In these studies, some problems were found in the knowledge and skill levels of TC and teachers in terms of AE, or the participants stated that they regarded themselves as inadequate. On the other hand, (Sezer 2010; Işıkoğlu-Erdoğan & Canbeldek, 2017) conducted studies on the AE competencies of pre-school TC and teachers. However, it is seen that the studies on the AE competencies of Preschool teacher candidates (PTC) and teachers are limited, which is found to be very striking.

In the above-mentioned studies, it was concluded that TC had significant problems and deficiencies in AE competencies in general, and Plake (1993) associated this situation with the inadequacy of pre-service training of teachers. However, since these studies are mostly based on collecting data through questionnaires, the results obtained quantitatively do not give much opinion on the causes of the problem. In addition, in the literature, the studies of PTC and in-service teachers regarding their AE competencies and applications could not be reached, and this situation was considered as an important deficiency for the field in question.

2.Purpose

In this context, the current study examines the general competencies of Classroom Teacher candidates (CTC) and PTC in terms of the basic concepts, measurement techniques, statistical analysis and reporting dimensions in the AE course and their level of fulfilling the requirements of these processes and determining their needs and problems in this regard. In this context, the following questions were sought:

2.1.What is the common competency perception level of TC in terms of assessment and evaluation?
2.2. Is there a significant difference between the scores of the TC obtained from MECCPSPT in terms of gender, department, and belief in appointment variables?
2.3.What are the opinions of TC on their competency levels in terms of AE course?

3.Method

In this study, a mixed research approach (Johnson & Christensen, 2014) and a convergent design, in which quantitative and qualitative studies are used to support each other's strengths, were used for the purpose of examining the general competencies and needs of CTC and PTC in terms of assessment and evaluation course. In this design, the researcher collects qualitative and quantitative data together, but analyzes them separately and compares the findings. In this approach, detailed qualitative information about the perspective of the participants and quantitative scores based on the measurement tool are frequently presented (Creswell, 2014; Creswell & Plano Clark, 2014).

3.1.Participants

The study group of the study consisted of 140 TC randomly selected from a total of 256 TC studying in the fourth grade of Classroom Teaching and Preschool departments of Burdur Mehmet Akif Ersoy University Education Faculty, Turkey. In the study, it was aimed to reach the whole population. However, volunteering was

taken as a basis and only the students who wished to take part in the study are included. Among these TC, 57 of them were studying at Classroom Teacher department. In this group, 19 of them were male and 38 were female. On the other hand, 83 of them were studying at Preschool Teacher department, and 8 of them were male and 75 of them were female.

A total of thirteen TC, five CTC and eight PTC, who were volunteer to take part in the study, were selected in order to obtain qualitative data. Among these students, three were male and ten were female. Based on the expert opinion, the number of the TC was found sufficient for obtaining qualitative data.

3.2.Data Collection Tools

To collect quantitative data on the general competencies of TC, the "Measurement and Evaluation Common Competency Perception Scale for Teacher Candidates" (MECCPSTC), which was developed by Nartgün (2008), was used. The scale consists of three sub-dimensions as "Basic concepts" (BC, 6 items), "Measurement techniques" (MT, 9 items), "Statistical analysis and Reporting" (SAT, 9 items). The scale is 5-point Likert type and the items range between "I am very sufficient" and "I am very insufficient." The internal consistency coefficients for the sub-dimensions of the scale were found as .84, .79 and .77, respectively. The reliability of the overall scale was found as .87. The reliability coefficient for the test-retest application of the scale was .91. For the data obtained from this study, the Cronbach Alpha reliability coefficients of the sub-dimensions of the scale found as α=.88; .90; .88, respectively and it was found as .93 for the overall scale.

Qualitative data in the study, on the other hand, were collected in the form of a focus group interview using a semi-structured interview technique. According to Seidman (1991), interview techniques makes it possible to understand the experiences of people and how they make sense of these experiences, and it is possible to systematically examine the subjective worlds of the individuals (cited in Türnüklü, 2000). Therefore, in this study interview technique was used in order to add depth and richness to the data regarding the general competencies of TC in the field of AE. Based on this, the following questions were addressed to the prospective teachers:

1. How do you evaluate yourself in terms of your knowledge of assessment methods and techniques and your application skills? (In terms of concepts, exam preparation, application, evaluation)
2. In which of the subjects in the AE course do you find yourself adequate and inadequate?
3. To what extent do you think you can reflect the concepts, assessment techniques, tools and other applications you learned in the AE course to your teaching life?
4. Which of the AE methods and techniques do you think you use and/or you will use better?
5. How did you use what you learned in the AE lesson in practice schools?
6. How would you like the AE course to be processed and which applications would you like to be included in order to be more effective?

3.3. Data Collection Process

In order to collect the quantitative data, the scale was applied to TC. Volunteering was taken as a basis and the scale were applied to the TC who were willing to participate in the study.

The qualitative data of the study were obtained thorough the open-ended questions that were asked to 13 TC using focus group interview technique. The focus group interviews were carried out in separate groups with PTC and CTC at different predetermined days and hours. Prior to the interview, TC were informed about the scope of the study. The focus group interviews were conducted in the instructor's office and each session lasted two hours, and in total four hours. In line with the answers given by the TC to these questions, it was aimed to provide depth in the data. Interview processes were recorded with a tape recorder.

3.4.Data Analysis

In this study, it was observed that the quantitative data showed normal distribution and the variances were equal. In this context, t-test and one-way ANAVO among parametric tests were used to analyze the data. The significance level of $p<.05$ was taken as a basis in interpreting the findings.

Content analysis was used for the data obtained through interviews conducted with TC. In this analysis process, similar data are brought together within the framework of certain concepts and themes, and arranged and interpreted in a way that the reader can understand. In this context, in the analysis of the qualitative data, the steps recommended by Yıldırım and Şimşek (2011) were followed. Accordingly, the data were encoded, the themes were found, codes and themes were revised and edited, the findings were identified and the interpreted. During the data analysis process, the interviews on the tape recorder were transcribed with the help of an assessment-evaluation expert besides the researcher. The transcribed data were examined sentence by sentence, and word by word, and coded. Later, the codes were checked by listening to all the recordings in the tape recorder twice. Thus, the determined codes were brought together, gathered under a common theme and interpreted.

For the rater reliability of the findings obtained during the analysis process, Miles and Huberman's (1994) formula of Reliability (Reliability= Agreement/ (Agreement+ Disagreement) x 100 was used. According to this formula, the rate of consistency between codes was calculated as [82 / (82 + 10)] x100 =, 89. In addition, the analyzed data were shared with the participant TC and their confirmation was obtained.

3.5.Validity and Reliability

The following measures were taken for the validity and reliability of the qualitative data:
While preparing the open-ended questions, opinions and assistance were received from two experts in the field of assessment and evaluation, and one expert in the curriculum development in education. During the interviews, the assessment and evaluation expert was also present together with the researcher to benefit from his opinions when necessary. All interviews were recorded with audio recording devices. Focus group interviews took place in the instructor's office in a comfortable environment and in a conversation mood. It was tried to have no impact on the participants and their identities were kept confidential. In the data analysis process, an objective approach was employed in determining the codes and themes, with the help of the assessment and evaluation experts besides the researcher. The identified codes were checked by listening to the interview records twice from beginning to end. The data obtained with the encoder consistency were then confirmed to them after analyzing. Regarding the themes, examples are given with direct quotations from the statements of each participant.

4.Results

In this section, the findings obtained from the study are presented in Tables in accordance with the sub-problems.

Competency level of TC in terms of AE course

The findings related to the competence level of the students in terms of AE course are presented in Table 1.

Table 1: Descriptive Statistic Results for the MECCPSTC

Dimensions	n	x̄	ss
BC	140	2.71	.76
MT	140	2.72	.74
SAT	140	2.79	.72
Total	**140**	**2.74**	**.63**

As can be seen in Table 1, the mean scores of the TC was x̄=2.71 for BC dimension, x̄=2.72 for MT dimension, was x̄=2.79 for SAT dimension. In addition, it was obtained as x̄=2.74 for the total mean score of the scale. Accordingly, it was determined that the general competencies of the TC in terms of AE course were at "moderate" level.

Within the second sub-problem of the study, it was aimed to determine whether the scores of the TC obtained from MECCPSPT differ significantly in terms of gender, department, and belief in appointment variables. The findings are presented below separately.

Competency level of TC on AE course in terms of gender variable

Table 2: Independent Samples t-Test Results for Gender Variable

Dimensions	Gender	n	x̄	ss	t	df	p
BC	Male	27	2.57	.89	-1.043	138	.299
	Female	113	2.74	.73			
MT	Male	27	2.67	.87	-.436	138	.664
	Female	113	2.73	.71			
SAT	Male	27	2.47	.78	-2.667	138	.009*
	Female	113	2.87	.69			
Total	Male	27	2.57	.76	-1.634	138	.104
	Female	113	2.79	.59			

According to the Table 2, no significant difference was found in the BK, MT dimensions and total mean score according to gender variable [p>0.05], while a significant difference was found in the SAT dimension [p<0.05] in favor of female students. Therefore, it can be said that female TC consider themselves more component in terms of AE course than male TC.

Competency level of TC on AE course in terms of department variable

The results of independent samples t-test conducted to determine whether the scores obtained from the scale differed significantly according to department variable are presented in Table 3.

Table 3: Independent Samples t-Test Results for Department Variable

Dimensions	Departments	N	x̄	ss	t	df	p
BC	Preschool T.	83	2.88	.71	3.729	138	.000
	Classroom T.	57	2.47	.79			
MT	Preschool T.	83	2.90	.70	3.153	138	.002
	Classroom T.	57	2.45	.71			
SAT	Preschool T.	83	2.92	.70	3.667	138	.000
	Classroom T.	57	2.60	.72			
Total	Preschool T.	83	2.90	.58	2.644	138	.009
	Classroom T.	57	2.51	.64			

According to Table 3, significant differences was found in the BC, MT and SAT dimensions in terms of department variable [p<0.05]. When the source of the difference was examined, it is seen that the mean scores of the PTC were higher than CTC. Therefore, it can be said that PTC find them more competent in AE course than

CTC.

Competency level of TC on AE course in terms of belief in appointment variable

Table 4 presents t-test analysis results regarding the comparison of the scores obtained from the scale in terms of belief in appointment variable.

Table 4: Independent Samples T-Test Results for Belief in Appointment Variable

Dimension	Belief	n	x̄	ss	t	df	p
BC	Yes	91	2.74	.82	.512	138	.609
	No	49	2.67	.65			
MT	Yes	91	2.72	.72	.100	138	.921
	No	49	2.71	.77			
SAT	Yes	91	2.81	.72	.515	138	.608
	No	49	2.75	.74			
Total	Yes	91	2.76	.66	.419	138	.676
	No	49	2.71	.59			

According to Table 4, no significant difference was found in the BK, MT, SAT dimensions and total mean score according to belief in appointment variable [p>0.05].

Opinions of TC on their competency levels in terms of AE course

Within the third sub-problem of the study, it was aimed to reveal TC' opinions on their competency level in terms of AE course. For this purpose, students were asked to what extent they consider themselves component in AE course. The obtained themes and sub-codes are presented in Table 5.

Table 5: TC' Opinions on The Their Competence Level in AE Course

Themes	Codes
High or very high competency	Defining basic concepts of measurement and assessment
	Knowing the features of the basic concepts
	Knowing the characteristics of test type measurement tools
	Being familiar with the characteristics of alternative assessment
	Knowing the central tendency and distribution measurement

As seen in Table 5, the participants studying in two different departments thought that they were component in AE course in terms of knowing the features of measurement tools (T/F, Short answer, multiple choice, matching, written and oral examination, portfolio, performance, observation form, etc.), knowing the characteristics of test type measurement tools, knowing the characteristics of alternative assessment, knowing the central tendency and distribution measures. For example, P-TC 3 stated that; *" ... I am very happy that the we had AE course. Due to this course, I know the topics such as measurement, standard deviation, range, arithmetic mean, types of evaluation etc."* Similarly, C-TC 5 mentioned that; *"AE course helped me learn the concepts related to measurement better."*

The Opinions of the TC on their incompetency in AE course

It is aimed to reveal TC' opinions on the issues that they find themselves incompetent in terms of AE course. The opinions of the TC on this issue were examined separately. It was also aimed to examine whether preschool

and CTC opinions differ from each other. For this purpose, the opinions of the preschool and CTC were examined in detail and the findings were presented in separate columns in Table 6 below.

Table 6: TC' opinions about the issues that they find themselves incompetent

	f	CTC	PTC	f
Common Codes	5	Preparing and applying measurement tools for Preschool/Primary Education		7
	4	Preparing T/F questions, short answer, multiple choice, matching, written exam, verbal exam, etc		6
	4	Alternative measurement tools (Observation form, rubrics, self, peer and performance evaluation etc.)		6
	3	Writing questions in accordance with the learning outcomes		5
	3	Application of measurement tools		4
	4	Scoring measurement tools		5
Differentiated Codes	4	Establishing the relationship between learning outcomes, related domain and the questions	-	-
	3	Ensuring and determining the appropriateness of question types and expressions for primary school students	-	-
	3	Deciding in which situations product or process-based approaches will be used	-	-

As can be seem in Table 6, CTC and PTC find them incompetent in terms of preparing and applying test types or alternative measurement tools, writing questions in accordance with learning outcomes, scoring measurement tools, performing statistical analysis on the obtained scores and interpreting them. On the other hand, it was obtained that CTC mentioned about some issues that were not stated by PTC. Other than the common opinions stated by both primary and PTC, CTC said that they felt incompetent in terms of establishing the relationship between learning outcomes, related domain and the questions; ensuring and determining the appropriateness of question types and expressions for primary school students and deciding in which situations product or process-based approaches will be used. Some of the opinions of the TC are as follows:

"... I cannot establish the relationship between target level, question type and measurement tool..." (C- TC1, TC3).
"... We can use checklists and rubrics, but we are not very sufficient in preparing them... We can only use existing tools... We can also prepare them by using the indicators of the learning outcomes, but I have no idea how appropriate it will be" (P- CT7).
"... I'm not very good at preparing questions such as true-false, short answer, multiple choice, matching, observation form, rubrics and statistics ... There is no application for the field..." (C-TC1, TC5, TC6).
"... We are lacking in adapting measurement tools for preschool period. No sample application has been conducted" (P- TC2, TC5).
"... But I am not competent enough to prepare measurement tools." (C-TC3).
"*Right now, if many TC are asked to prepare true-false, gap filling tests, I do not think that most TC will be able to prepare them according to the qualifications they should have."* (C- TC1).
"... As long as it is not put into practice, the preparation of measurement tools for the product or the process is not a permanent knowledge for us..." (C-TC 5).

As it is understood from the opinions of the participants, they prefer using measurement tools which are prepared by others and appropriate for a certain target level. In addition, it is clear that they do not know how to create and apply them. It is also indicated that they find themselves insufficient or very insufficient in terms of when to apply the process and product evaluation approaches.

Classroom and PTC also mentioned about the reasons that caused them feel incompetent. Their opinions were grouped under three themes as; a. The teaching process of AE courses in the faculty; b. teaching and school practices c. negative examples regarding the applications of AE course. The codes obtained for these sub-themes are presented in Tables 7.1, 7.2 and 7.3, respectively.

Table 7.1: Reasons Caused by Teaching Process of AE Course

	f	CTC	PTC	f
Common Codes	2	Inability to establish a relationship between concepts	2	
	3	Abstract nature of the course	2	
	3	Being passive in the course	4	
	2	Surface learning in some topic	2	
	2	Insufficient content of the AE course taught in the faculty	3	
	4	Mismatch between course content and the application of this course	3	
	4	Not being prepared to apply measurement tools in lessons	4	
	5	No sample practices for Pre School and Classroom Teaching field	4	
Differentiated Codes	2	-Considering that some topics are unnecessary/unimportant	-	-
	3	-Less experienced faculty members in classroom teaching	-	--
	1	- Inadequate knowledge of the instructor to apply the assessment and measurement		
	4	- Desire to just pass the exams	-	-
	3	- Not including/not processing measurement applications classes in special education	-	-

As can be seen in Table 7.1. the teachers stated that some approaches and practices in the teaching of the AE courses in the faculty make hem feel inadequate in this course. In this context, TC stated that the AE courses at the faculty were processed in an abstract way, they were not active in the course, in some topics the learning was very surface-based and not detailed, and the course contents could not be adapted to their field. In addition they thought that the content of the assessment and evaluation course was not sufficient and sample applications could not be made for his fields. It is found that these issues caused both preschool and classroom teacher candidate feel incompetent in term of the knowledge and skills related to AE course.

In the sub-dimension of the teaching of the AE courses in the faculty, the CTC also stated that some subjects in the AE course were seen as unimportant or easily ignored or overlooked by the instructors regarding their departments and fields. They also said that some instructors followed just text-book based teaching style they lacked classroom teaching experience and they did not know how to apply the theoretical knowledge, which also negatively affects the efficiency of the AE course. In addition, they stated that in the courses such as Turkish Teaching, Life Science Teaching, Science Teaching, Mathematics Teaching which are taught within the Classroom teaching department, there were no applications related to AE course content, and further the AE course content was just covered in one of these courses.

Table 7.2: Reasons Caused by Teaching and School Practices

	f	CTC	PTC	f
Com. Codes	4	No opportunity to make practices in schools		5
	3	Measurement activities are not given importance in schools		6
Dif. Codes	-	-	Faculty-School conflict and incompatibility between them	4

In the sub-dimension of Teaching and School Practices, the TC of both departments stated that they were not provided with the opportunity to make practices in schools related to AE topics, they were not asked to do activities on these issues, and even based on their observations they concluded that AE course was not given importance in schools. In addition, in this sub-dimension, PTC, in particular, thought that in some other courses, what they were taught at the faculty was not used in schools, did not work or was used differently, and in this case, they were in a dilemma (Table 7.2).

Table 7.3: Reasons Caused by the Negative Examples Regarding the Applications of AE Course.

Sub-theme	f	CTC	PTC	f
I. In terms of instructors of AE course	3	Not applying the measurement principles and criteria in the classes		4
	4	Not preparing the exams in accordance with the exam preparation criteria		3
	4	Not preparing the exams in accordance with purposes		3
	3	Not applying validity and reliability issues in exams		3
	3	Not using criteria and answer keys		3
	2	Negative scoring approaches (biased/not checking the exam papers in detail)		2
	3	Directing by saying the topics that the questions will be asked about		3
	3	Asking the questions that were asked in previous exams		3
II. In terms of teachers in the practice schools	3	Downloading measurement tools from the internet	-Not paying attention to AE applications	6
	4	Asking the questions in the text books		
	3	Having multiple choice test applications in 1st and 2nd grade primary school students		
	3	Make students compete with each other		
	3	An effort to prepare students for the exams in future years		
	2	Not to take into account the learning outcomes and developmental characteristics of the student		
	2	Making applications that measure the product (level of knowledge), not the process		

As can be seen in Table 7.3. the TC had negative opinions regarding the use of AE course knowledge and skills both in faculties and in practice schools. In this context, TC stated that lecturers of the AE course at the faculty generally do not apply the assessment and evaluation principles, criteria and tools they teach themselves. On this issue, TC said that instructors did not apply the principles of writing questions and preparing measurement tools in their exams, the purpose of using these tools. In addition, they did not pay any attention to validity and reliability issues, determining criteria in scoring, using answer keys and making objective scoring. The TC were also in the opinion that some of the instructors of the AE course guided the students by saying the topics that they would ask in the exam, which shows that the faculty members did not comply with some of the information they taught.

Some examples that reflect the opinions of the pre-service teachers about the reasons that cause them feel incompetent are given below:

"...I did not prepare a measurement tool in school practices, but many of the subjects we covered in AE course are not used in Preschool grade, and so these topics cannot be applied...."(P-TC5)

"...They did not make us prepare measurement tools and make application studies, statistical analysis and evaluation applications." (C-TC3, TC4)

"...The measurement subjects and applications taught us at the faculty in pre-school and applications in the practice school are very different... Which one is correct" (P-TC6)

"...Teachers are not competent about AE course, they do not prepare exams, they download it from the internet, they do not know what and how to evaluate, they do not take into account the characteristics of the students." (C-TC3)

"...In the faculty, the subject of measurement tools and their characteristics is şgenerally covered as the last subject of the measurement courses..." It is already considered as an easy subject, and just the photocopies are used to review the course content, but I think this is wrong. Questions such as true-false, gap-filling, matching, etc. for primary education are important but we cannot learn how to prepare these measurement tools properly. (SS-TC1)

"... They taught the features of multiple choice gap filling, written examination and similar measurement tools both in the faculty and in the classroom, but they do not fit themselves either. For example, the instructor of the measurement course applied a 10-question multiple-choice test, and all correct answers were option A... "C, TC4)

"... In practice schools, teachers only ask us to teach our lessons; they do not expect or want any activity related to measurement from us..." (C-TC3)

"...The teacher tells us that "you will not use any of the courses you take at the university, the kitchen of the job starts when you start working... you will improve in the first 3 years. You just learn teaching mathematics, teaching science, teaching Turkish, you learn how to teach these courses, but you will not use any of them when you start working." (C-TC3)

"... We could not make connections between the topics covered in the classes and the applications we did in the classes, because private education course content is based on preparing a presentation or a report...." (C- TC3).

"... There is some struggle about how to teach in private education classes, but measurement is neglected; connection is not established"(C-TC1, TC5)

TC were asked about the assessment and measurement tools that they plan to use in their professional lives. The findings are presented in Table 8.

Table 8: AE Tools That TC Think to Use in Their Professional Lives

CTC	PTC
• Observation forms	• Observation
• Game	• Portfolio
• Written exam	• Rubrics
• True-false questions	• Game
• Gap-filling	• Checklist
• Matching	• Interviews
• Portfolio	• Project
• Project	• Home visits
• Concept maps	• End-of-activity questions.
• Diversify measurement tools as much as possible	-
• Process assessment	-

As can be seen in Table 8, primary school TC stated that they would prefer using the measurement tools such as game, observation, written exam, true-false, gap-filling, matching, portfolio, project, concept maps, process evaluation and they aimed to diversify measurement tools as much as possible. PTC stated that they would use games, observations, projects, rubrics, individual interviews, home visits and end-of-activity questions. Some statements of TC' on this sub-question is given below:

"I can use observation techniques and I can observe the student in each part of the school" (C-TC8)

"I think I will use end-of activity questions as they help students to reinforce what they learn..." (C-TC3)

"...I want to observe students in the process with games. I think we will not use test type exams as we will be primary school teachers. "(C- TC1)

"...it is better to use games or different measurement tools rather than tests" (C-TC2).

Even if TC of both departments tried to list some measurement tools for product and process evaluation in the theme of the AE tools they intend to use in their professional lives, they could not put forward satisfactory justifications based on "why and how to use them." As a matter of fact, the issue of preparing and applying measurement tools was at the forefront among the subjects that they found "insufficient or very insufficient."

Table 9: Recommendations for Teaching the AE Course at The Faculty

	f	CTC	PTC	f
Common Codes	2	Motivating the TC that what is learned in the course is necessary professionally		2
	4	Asking TC for preparing measurement tools.		5
	4	The course content to be taught should be useful in schools		6
	5	Presenting practical information on how to use the information in the course content in Preschool/Classroom Teaching		6
Differentiated Codes	1	AE course should be taught in two semesters	To have AE course for pre-school	4
	1	Teaching research statistics course prior to measuring course		
	2	To use data entry and analysis programs		
	2	University must have a practice school		

Under this theme, the TC stated that it is important to motivate the TC about when to use what they learned in AE course with a common view and understanding, it would be much more beneficial to give the course contents in practice and to ask TC to prepare measurement tools in lessons, which emphasizes that the information to be taught within the scope of the course should be applicable in schools (Table 9).

In addition, PTC recommended that a separate AE course for preschool term should in the curriculum. CTC, on the other hand, stated that the AE course should be given in two semesters, research statistics course should be taught prior to measuring course, data entry and analysis programs should be used in these courses, and university should have a practice school in order for the TC to apply what they learn in the classes. Some statements of the TC reflecting their recommendations regarding the teaching of the AE course in the faculty are given below:

"When I graduate, I will not be able to apply my knowledge properly in the school where I work. … The faculty should prepare me for teaching; teach me how to prepare a test, how to apply. However, I cannot do this. We know the features of the concepts, but these are the information that can be applied in upper classes, not suitable for Preschoolers ..." (P-TC7)

"...There must be consistency between the faculty and the practice schools… We should either apply what we have learned or learn what to apply. We should learn useful topics ..."(P-TC6)

"...The theoretical existence of knowledge does not make sense; we should learn useful things" (P-TC5, TC8)

"...AE course we take at the faculty should be oriented towards Preschool, and I should be given a practice like it would be applied in a preschool…" (P- TC8)

"...I think it is necessary to take the research statistics course first and then the AE course...(C- TC1)
"...I do not think about how we can associate AE course with teaching life, where I will use it, so I have only anxiety of passing the course…" (C- TC3)
"...the instructor of the AR course has higher level of knowledge, but he cannot teach the course efficiently. Sample applications should be made for the field of classroom teaching (C-TC4)

Table 10: Misperceptions of TC About AE Course

	f	**CTC**	**PTC**	**f**
Common Codes	3	To have the understanding that AE means taking an exam (information assessment-grading)		3
	4	To have the understanding that they will learn through trial and error after appointment		4
	2	Not considering process evaluation practices as a part of AE		3
	4	Considering making practice as solving test questions		4
	3	Considering learning the concepts as memorizing		1
Differentiated Codes	1	Using written exams for student creativity	Considering that assessment subjects are not applicable in Preschool	6
	2	To have the understanding that a person who teaches well will conduct better assessment and evaluation	To have the understanding that it is impossible to make evaluation using one learning outcome	5
			To think that children cannot do self and peer assessment	4
			To think that AE course is not professionally applicable	6

As can be seen in Table 10, regarding the misperceptions of TC about AE course, the TC of both departments consider AE as only taking an exam, determining the level of knowledge of the student and giving a grade to the student in return. For this reason, they do not consider alternative evaluation practices regarding the process as a part of AE. In addition, TC in both departments stated that they would solve their deficiencies regarding the AE course through trial and error when they needed it after they were appointed. In addition, it was obtained that they considered solving multiple choice test questions as the application of the knowledge about the course and the way to learn the concepts as memorization.

Apart from this, PTC stated that AE subjects will not be applied at Preschool level since they think that there are no exams in Preschool and therefore Preschool children cannot do self and peer assessment. Some of the opinions reflecting the opinions of the preservice teachers regarding their misperceptions about the AE course are as follows:

"...For example, I wish students could associate the things I taught today with the numbers they learned before. Therefore, I would do the assessment tomorrow, not today. I would do it by relating it with the next learning outcome. I would see if students could remember…"(P- TC7)
"... Preschool children cannot do self-evaluation and peer evaluation. The children are not so aware of themselves yet…"(P- TC6)
"A teacher who teaches in accordance with the leaning outcome correctly in the teaching process can also evaluate very well" (C- TC1)
"Of course, the AE course is important for us ... When we have our own class after appointment; we will learn the missing aspects by trial and error, unfortunately!" (C-TC4)

As the misperceptions of TC about AE, the TC studying in both departments basically experienced confusion of knowledge and perception towards the goals and principles of AE applications, and they considered these practices as only knowledge assessment and grading.

5. Discussion

In this section, the results obtained at the end of the study are first evaluated on the basis of quantitative and then qualitative findings and recommendations are presented.

a. Quantitative Results

It was determined that TC' competencies in BC, MT, and SAT dimensions of and the total mean score obtained from MECCPSTC were at "moderate level." Accordingly, in the studies conducted by Pektaş (2010), Erdoğdu and Kurt (2012); Yeşilyurt (2012) and Sabancı & Yazıcı (2017), who used the same scale in their studies, it was found that TC were "sufficient" in terms of BC and MT dimensions, which contradicts with the findings obtained in this study. However, in this study it was found that TC' competency level was at "moderately sufficient" level in terms SAT dimension. This finding supports the studies conducted by Pektaş (2010); Sabancı and Yazıcı (2017); Erdoğdu & Kurt (2012). Various variables such as university, curriculum, teaching approaches, and student characteristics can be considered for the causes of this situation.

On the other hand, when the frequency and percentage distributions of the answers given by the TC in the study are examined, 21% of them considered themselves adequate in terms of BC; 24% of them considered themselves adequate in terms of MT and 24% in terms of SAT. From this point of view, 23% of the TC considered themselves adequate and very adequate regarding what they learned in the AE course, 37% considered themselves sufficient at moderate level; and 40% of them found them inadequate and very inadequate. Accordingly, those who consider themselves competent constitute a quarter of the total participants. Considering that being competent at moderate level is not an acceptable level for TC, it can be said that three quarters of the TC (about 77%) do not have the general proficiency of AE.

When the AE competencies of the TC were examined according to the gender variable, no significant difference was observed in the scores of the basic concepts, measurement techniques and total dimensions of the scale. Accordingly, it can be thought that there is no difference in the competencies of the TC in the basic concepts, measurement techniques and total dimensions of the scale. This finding shows similarities conducted by Pektaş (2010), Yeşilyurt (2012) and Yaralı (2017).In addition, many studies in the literature reveal that there is no significant relationship between AE competencies and gender variable (Yavuz, 2011; Yaman & Karamustafaoğlu, 2011; Çalışkan, 2012; Şahin & Uysal, 2013; Evin Gencel & Özbaşı; 2013; Çalışkan, Uymaz & Tekin, 2013; Şaşmaz-Ören, Ormancı & Evrekli 2014; Sabancı & Yazıcı, 2017; Yaralı, 2017). However, in this study, a significant difference was found in favor of females in the SAT dimension of the scale. In other words, it can be said that female TC consider themselves more competent in statistical analysis than male candidates. On the contrary, Şimşek (2018), who used the same scale, found a significant difference in favor of females in BC dimension. These results contradict with both the results of the above-mentioned studies and the results of Yeşilyurt (2012), who determined the perception levels of male TC regarding the field of AE at a higher level than female TC. These different and inconsistent results in terms of the gender variable emphasize that other factors related to gender should also be considered.

The findings also showed that there was a significant difference between the AE competence level of TC and department variable in favor of PTC. This finding is similar to the studies (Karaca, 2003; Kilmen, Akın-Kösterelioğlu, Kösterelioğlu, 2007; Karacaoğlu, 2008; Yavuz, 2011; Erdoğdu & Kurt, 2012; Evin Gencel & Özbaşı, 2013) which concluded that CTC' competences in AE is higher than the TC studying in other departments. Among the possible reasons of this result, it may be that there has not been much work in the Preschool field regarding the AE competencies, and the TC in both programs take courses from lecturers who have different characteristics in terms of teaching understanding and approaches. On the other hand, Yaman & Karamustafaoğlu (2011); Şaşmaz-Ören, Ormancı and Evrekli (2014); and Yaralı (2017), no significant difference was obtained between the department variable and the measurement competencies of TC.

A significant difference was not obtained between all dimensions of the scale and TC' beliefs in appointment. In this context, it can be said that beliefs of TC in appointment do not make a difference in terms of competency characteristics in the AE course. However, it may be necessary to examine the reasons that cause the emergence of such a result in TC who are expected to be more competent in order to be appointed to the profession.

b. Quantitative Results

When the data obtained through focus group interviews were analyzed, it was seen that TC stated that they found themselves sufficient in terms of knowing the features of basic concepts of measurement tools, central tendency and distribution measures.

The TC of both programs thought that their adequacy level was low or very low in terms of using measurement tools, creating and applying them in accordance with a specific purpose and learning outcomes; knowing in which situations they will use the process and product evaluation approaches, performing statistical operations and interpreting the scores. In relation to this result, even though Classroom and PTC tried to list the names of some measurement tools within the framework of the AE tools, and they intended to use them in their professional lives, they could not make convincing explanations based on the correct information "why and how to use them." These results support the findings that teachers cannot apply what they know about AE, that their knowledge is not sufficient in determining the methods and techniques apprporiate for the purpose, analyzing and interpreting the data (Ulutaş, 2003; Güneş, 2007 & Karacaoğlu, 2008) On the other hand, they support the findings that teachers are also inadequate in using alternative measurement tools (Acar, 2008; Akdağ, 2011 & Özenç, 2013). In addition, these results are in line with the research results stating that prospective teachers and teachers were inadequate or weak in terms of their AE competencies (Güven, 2001; Çakan, 2004; Gelbal & Kelecioğlu, 2007; Birgin & Gürbüz, 2008; Yaman & Mustafaoğlu, 2011). This shows that the weakness (/insufficiencies) of TC in terms of AE competencies continues to exist as a general "problem." Considered in this context, although CHE (2006) emphasizes "the ability to apply" while defining the content of the AE course in teacher training programs, the fact that CHE (2018) only defined AE in the theoretical dimension in the curriculum also reveals a thought-provoking result in terms of how well pre-service teachers can gain these competencies in the future.

It was also obtained that the issues that TC found themselves inadequate or very inadequate were grouped under three headings as teaching process of the AE course at the faculty, their teaching and school practices, and the negative examples they experience in these two institutions. The TC stated that the AE courses at the faculty is taught in an abstract way. They particularly emphasized that the subjects were not associated with each other, some subjects are not handled in detailed, sample applications could not be made especially regarding the course contents, and they did not participate actively in the lessons. In addition to these, CTC stated that some subjects in the AE course were ignored or they were considered as easy and unimportant by the instructors, some instructors lacked classroom teaching experience and did not know how to apply the theoretical knowledge, which decreased the motivation of TC. In addition, TC stated that in private education courses that are taught in their department (Turkish, Life Science, Science, Mathematics, etc.), the emphasis was given to "how to teach," but AE course content was not given. Considering that AE aims primarily at teaching basic concepts and principles as a common lesson, it is thought that the functionality of the private teaching lessons in both programs should be discussed especially for the application and sample inadequacies for the fields. In summary, these opinions of TC are consistent with the studies of Pilten (2001), who stated that teachers do not believe that they have received sufficient information from their school, and Yaman and Karamustafaoğlu (2011), who stated that the TC did not consider themselves competent in the subjects of AE.

In terms of teaching and school practices, candidates of both programs emphasized that schools were not provided with the opportunity to practice and that they were not asked for doing activities on these subjects. In addition, they argued based on their own observations that there was no emphasis on AE in schools. Another issue that TC stated strongly is that what they were taught at the faculty was not used in schools, did not work or used differently, and in this case they were in a dilemma. This finding supports the ideas of Sağ (2019)

emphasizing that the knowledge learned in the education faculties is not applied in schools.

Another factor that TC cited as a source for their inadequacies is the negative examples of the AE practices they have experienced in faculty and in school practices. They also stated that instructors generally did not implement the principles of preparing exam questions and measurement tools and scoring. In practice schools, PTC said that AE applications were not included and ignored in schools. CTC, on the other hand, stated that teachers in schools applied the measurement tools downloaded from the internet or in the textbooks; that they made students compete with each other in an effort to prepare students for the exams in advanced years (exam-oriented). They also expressed that they did not take into account the learning outcomes and developmental characteristics of the student in these measurement tools used, and that they did multiple-choice tests and knowledge-measuring exams in 1st and 2nd grades of primary school. The TC stated that these practice made the AE course insignificant for them.

In the theme of recommendations for the teaching of the AE course, TC indicated that it would be very beneficial to give "hands-on" course content and to ask them to prepare measurement tools. They stated that it is very important to take care that the lecturers who teach this course should be from Preschool or Classroom teaching department or they should know what is applied in that field. In addition, they wanted the instructors to motivate them about where to use what they have learned within the scope of the course. The TC also recommended that the Research Statistics course should be taught prior to the AE course in Classroom Teaching in terms of forming the basis of the AE course, the AE course should be taught during two semesters, data entry and analysis programs should be used, and there should ve practice school in the university to enable them practice while learning.

Finally, TC in both departments stated their misperceptions about AE course. They stated that they considered AE course only as taking an exam, determining the students' knowledge level and giving a grade to the student in return; and they did not consider process based alternative assessment practices as a part of AE, which reflects very important misconceptions.

Regarding the of TC about AE course, the TC of both departments consider AE as only taking an exam, determining the level of knowledge of the student and giving a grade to the student in return. For this reason, they do not consider alternative evaluation practices regarding the process as a part of AE. In addition, TC in both departments stated that they would solve their deficiencies regarding the AE course through trial and error when they needed it after they were appointed. In addition, it was obtained that they considered solving multiple choice test questions as the application of the knowledge about the course and the way to learn the concepts as memorization. With these points of view, it is understood that TC ignore the issues of aiming to determine the precondition learning or readiness level of students, evaluating the level of learning and the effectiveness level of teaching service, providing educational, vocational and personal guidance services to students (Turgut, 1990; Tekin, 1993; Baykul, 2001). In this context, it should be evaluated as a very striking result that PTC find the AE inapplicable in their field. In addition, they stated that they will solve their own inadequacies regarding the AE course through trial and error after their appointment, they consider solving multiple choice test questions as the application of the knowledge about the course and the way to learn the concepts as memorization, which also highlights different questions that need to be discussed in terms of the candidates' teaching profession and professional competence.

In conclusion, it was determined that TC' AE competencies were generally at moderate level, and three quarters of the participants did not consider themselves sufficient in term of AE course competency. AE courses should be taught in a hands-on manner in each department with the contents appropriate to the characteristics of that field/branch. Considering that AE is a common and basic course, the knowledge and skills gained in this course should be enriched with special education courses in related fields and the functionality of these courses should be ensured. By ensuring faculty-school harmony and integrity within the framework of the "truths and priorities" of science and educational sciences in the practices of teaching staff and teachers in schools, the workforce of these two institutions should be made stronger. The emphasis should be placed on applied trainings that improve the professional competencies of lecturers and teachers in the field of AE, and mechanisms should be established

to encourage the use of the knowledge and skills gained in these trainings in professional processes. It should be considered as a professional requirement that lecturers and teachers should be a "positive model" for candidates in their schools and exhibit encouraging behaviors in this sense.

More time should be allocated to TC for the preparation and application of measurement tools, statistical analysis, and these subjects should be taught both in practice and school practices should be provided with opportunities to use these competencies. The fact that the lecturers who will teach the AE course should have teaching experience in their field and they should help TC to eliminate the problems that TC have about where to use what they learn.

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An Application Example for The Teaching Fractions with the Developed Digital Fraction Transparency Material

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Abstract
The aim of the current study is to investigate the effects of digital teaching materials on 4th graders' academic achievement on fractions subject and attitudes towards mathematics and computers. The study was planned with a pretest and posttest control group design. The participants of the study were 60 students studying in a public elementary school in Karabağlar district of İzmir province. Through a pilot study, groups were selected to administer an academic achievement test to all fourth classes in the school. Initial analyses suggested A and E classes" achievement scores did not differ significantly; thus, these classes were included in the study. Class A with 32 students was randomly selected as the experimental group. 55% (n = 33) of the participants were male and 45% (n = 27) were female. The experimental group received technology-enhanced presentations, whereas the control group had traditional presentations from the same teacher. Participants had access to interactive digital materials within course hours on the classroom computer. The study took four weeks (16 course hours). Data were collected through fractions achievement test, mathematics attitude scale and computer attitude scale. Results revealed no significant differences between achievement and computer attitudes scores of the groups. However, the mathematics attitudes scores show significant differences between groups.

Keywords: Elementary Education, Fractions, Teaching Material, Digital Fraction Transparency

1. Introduction

Changes made in the education system, changing curricula, changes in national assessment exams and success exams repeated worldwide revealed the importance of mathematics lessons. The Evaluation of Educational Achievement (IEA) makes comparative measurements in science and mathematics education worldwide and creates reports that offer a holistic perspective from these measurements. Trends in International Mathematics and Science Study (TIMMS) exam result reports are one of them. The TIMMS exam, held worldwide, provides detailed information about the students' knowledge and skill levels and levels and the educational programs and outputs of the countries. According to the TIMMS 2016 preliminary report published by the Ministry of National Education (MoNE), Turkey ranks 36th among 49 countries in terms of 4th-grade level math achievement

average. Students with an intermediate level of mathematics proficiency can understand fractions and integers, solve simple figure and table problems, and animate two-dimensional drawings in three dimensions (MoNE, 2016). According to the results, students should be supported in mathematics education to move Turkey to higher levels. It can be said that supporting students on integers and fractions will increase student success even higher.

It is frequently stated in the literature that the subject of fractions is difficult and complex. Birgin and Gürbüz (2009) stated that fraction teaching includes the concepts of part-whole relationship and comparison, but the frequent emphasis on algebraic representation for understanding numbers and concepts leaves behind the meaning of comparison of fractions. As a result, they emphasized that fractions are hard to understand. Orhun (2007) stated that primary school students had difficulties in terms of four operations in fractions, ordering fractions and expressing them visually. In addition, students experience difficulties in learning fractions on the number line by dividing them into whole or parts (Bright, Behr, Post, & Wachsmust, 1988).

According to Tutak (2009), concretization is important in making knowledge permanent and meaningful. Models and shapes should be used when dealing with fractions. The figures and models drawn help solve the problem by concretizing the question and making it easier to understand (Biber, Tuna, & Aktaş, 2013; Kocaoğlu, 2010). The use of visual materials in fraction teaching also contributes to the understanding of fractions, enables students to participate actively in the learning process, increases their motivation and interest, and supports the development of problem solving and critical thinking skills (Dede & Argün, 2003; İnan 2006; Tutak, 2019). In the literature, there are studies on how virtual manipulatives can be used in teaching fraction concepts by primary school teachers (Reimer & Moyer, 2005; Suh, Moyer & Heo, 2005). One of the organizations serving in this field is the National Council of Teachers of Mathematics (NCTM). This council allows primary school teachers to access, explore and develop lessons for free (https://www.nctm.org).

As can be seen, it is important to support the mathematics course content with supplementary materials. Mathematics education also aims to raise individuals who are faced with a problem, think creatively to solve this problem, research, and benefit from all kinds of technological environments they have to reach information (Bulut, 2005). It is important to support the technological competencies of individuals with these characteristics. McNeil and Jarvin (2007) point out in their studies that the child does not come into the world with abstract thinking capacity. Instead, they say they should construct concepts through interactions with concrete objects in their environment. Tools and methods used in fractions also contribute to concretization and visualization.

This study aims to find a solution to the concretization and understanding problem in teaching and learning fractions. Physical fraction transparencies used in the concretization of fractions can be used to convey fraction issues to learners. However, the insufficient number of this material makes it difficult to use in crowded classrooms. It is important to transfer this material to a more durable and easily accessible environment. In the studies conducted, it has been observed that there is a deficiency in transferring such materials to the computer environment on fractions. An easy-to-use digital teaching material that supports students in this field has been designed, and its use in the teaching environment has been examined.

The aim of this study is to examine the effect of computer-aided instruction (CAI) material developed for the acquisition of addition and subtraction in fractions and fractions on primary school 4th-grade students' learning and attitudes towards computers and mathematics. Therefore, answers to the following three questions have been sought.
1. Is there a significant difference between the pre-and post-CAI academic achievements of the experimental and control groups?
2. Is there a significant difference between the pre-and post-CAI attitudes towards computers of the experimental and control groups?
3. Is there a significant difference between the pre-and post-CAI attitudes towards the mathematics of the experimental and control groups?

2. Method

This research has been designed in conformity with the quasi-experimental design with the pretest-posttest control group in order to examine the effect of the computer-aided teaching material for fractions on primary school fourth-grade students' learning, attitudes towards computer and mathematics. In order to examine the effect of the intervention applied to the experimental group in the design, the results obtained from the pretest and posttests are compared (Büyüköztürk, 2013). Due to the nature of educational environments, researchers have to work with predefined classes in most studies (Creswell, 2009). Since working with ready-made classes in this study, too; in other words, since the participants cannot be randomly assigned to the experimental and control groups, the study is qualified as quasi-experimental. Table 1 shows the representation of the study on the experimental design.

Table1: Symbolic representation of the research design

Group	Pretest	Transaction	Posttest
G$_1$	O$_1$	X	O$_3$
Experimental Group	Success test and attitude scales	Use of computer-aided teaching materials	Success test and attitude scales
G$_2$	O$_2$		O$_4$
Control Group	Success test and attitude scales		Success test and attitude scales

In Table 1, the dependent variables of the research are the scores the students got from the fractional achievement test, the computer attitude scale, and the mathematics attitude scale. The independent variable is the presentation style of mathematics teaching. In order to see the effect of the education prepared on the dependent variables of interest, the experimental group was instructed with computer-aided teaching materials; traditional teaching was provided to the control group.

2.1 Study Group

Participants of the study are 60 students studying in a state school in Karabağlar district of İzmir province. In order to determine the participant groups, an academic achievement test was applied to all fourth-grade students in the school. As a result of this application, it was determined that there was no significant difference between achievement test scores of A and E classes. From these groups, A (n = 32) class randomly was the experimental group; Class E (n = 28) was also determined as the control group. 55% (n = 33) of the participants are male and 45% (n = 27) are female students.

2.2 Data Collection Tools

In order to collect data in this study; "Fraction Success test" developed by the researchers within the scope of the study, "Mathematics Attitude Scale" edited by Nazlıçiçek and Erktin (2002) and "Computer Attitude Scale" developed by Aşkar and Orçan (1987) were used.

First, in the development of the Fraction Success test, a table of indications in which 4th-grade attainment and levels are expressed was prepared. Test items were written in accordance with this table of indicators. The achievement test, consisting of 27 questions in total, was evaluated by four experts. The pilot implementation of the achievement test was conducted with a total of 180 5th grade primary school students who had previously learned this subject in a primary school in Izmir Province. With this application, item difficulty and item discrimination indexes of the items in the test were obtained. The questions numbered 2, 3, 5, 15, 17, 18, 26 were excluded from the test, depending on the low item discrimination, the inclusion of other questions about the target in the test, or the expert opinion. In addition, in line with the expert opinion, questions 1, 4, 12, 13 were

corrected and added to the test, and an achievement test of 20 items was obtained. In this final version of the achievement test, the test difficulty value was calculated. The difficulty of the test was found to be 0.55. For the reliability of the test, the Kuder-Richardson 20 (KR20) formula was used. As a result of the KR20 calculation, the value of the 20-item test was calculated as 0.75. According to this result, the test has a near high level of reliability.

2.3 Experimental Application Process

The experimental application process includes the preparations before the experiment and the implementation of the experimental process. These are stated under three titles as digital fraction transparent software, introducing the tool to the mentor and performing the experimental application.

2.4 Digital Fraction Transparency (DFT) Software

The software that will help comprehend the teaching of fractions in mathematics was developed using the flash program. The researcher's knowledge of the use of the program and the program's tool support is effective in choosing this program. Figure 1 shows the image of the "digital fraction transparent" software.
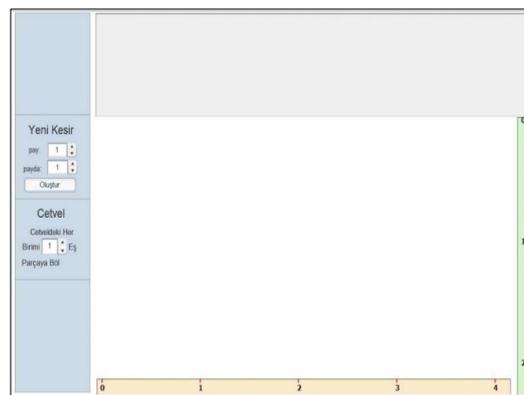
Figure 1: Main screenshot of the digital fraction transparency software

The digital fraction transparency software consists of a single file with a size of 65 KB, which is very small and does not require installation. It can be easily reproduced by copying method and shared conveniently and quickly via removable disks and e-mail. Copying or downloading it to the computer is sufficient to use the material. Theoretically, it works compatible with all browsers with Flash player installed.

As shown in Figure 2, the use of real fraction transparencies printed on transparencies in the classroom is performed by overhead projector devices. Transparencies are presented by the teacher to the whole class at the same time. For it to be used, it is necessary to purchase the material in concrete and provide overhead projector devices that are not currently in use in schools. These are very difficult to obtain, especially in schools in rural areas.
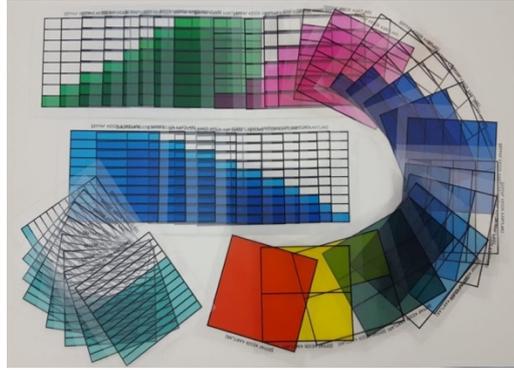
Figure 2: True fraction transparencies

It is very easy to deliver the developed digital fraction transparent software to students with computers and projection devices or interactive boards found in almost all schools in our country and to concretize fraction issues and does not require any additional cost. By using appropriate web infrastructures, it may be possible for students to work with DFT by using Information Technologies Classrooms at schools or even personal computers, tablets and smartphones at home. Thus, individual learning can also be followed by teachers.

DFT was not designed for fraction gains only for primary school 4th-grade students under study. DFT is an effective tool in teaching many fraction gains in the curricula of primary schools. DFT software consists of a single interface, and all operations are performed on this page. There are four main areas in the interface of the software (Figure 3). There is a "New Fraction" area at the top of the blue zone on the left and a "Ruler" area at the bottom. The gray area at the top right is used as the "Question writing area," and the white area at the bottom right is used as the "Free study area." In Figure 3, the usage areas of the software on the interface are indicated.
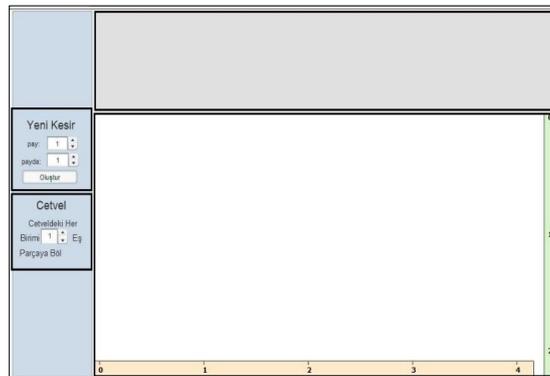
Figure 3: Sections of the digital fraction transparent

The "numerator" and "denominator" values of the fraction transparent to be created are entered separately in the "New Fraction" field, which is used to create digital fraction transparencies, and when the "Create" button is clicked, the fraction transparencies of the desired value are created. Figure 4 shows the creation of simple fractions with DFT.
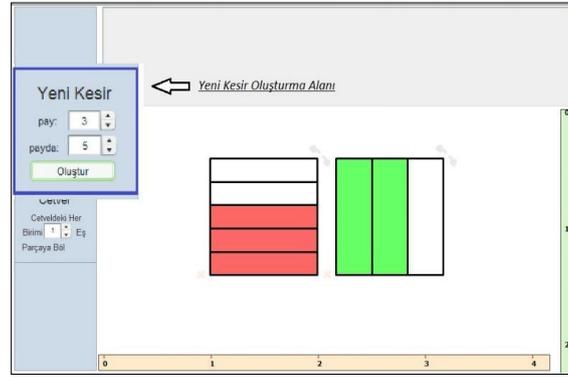
Figure 4: Simple fractions creation using the new fraction creation area

Fraction transparencies can be divided into at least one and at most 20 identical parts. Each of the fraction transparencies created is automatically colored differently. There can be a maximum of 6 fraction transparencies in the free study area. The "X" symbol on the left-bottom corners is used to delete the digital fraction transparent, and the direction arrows in the right-upper corners are used to rotate it (Figure 4). In order to clear all fractions from the work area, the browser page is refreshed, or the "F5" key is pressed on the keyboard. All transparencies can be moved, rotated, overlapped and intersected with each other.

In Figure 5, the answer to the question "Find $\frac{2}{3}$ of the simple fraction $\frac{1}{2}$ by creating fraction transparencies? " is shown.

- User creates pre-requested $\frac{1}{2}$ and $\frac{2}{3}$ fractions
- Rotates the fraction transparent of $\frac{1}{2}$
- Positions two fraction transparencies on top of each other
- The blue region formed as a result of the intersection ($\frac{2}{6}$) is the desired answer.
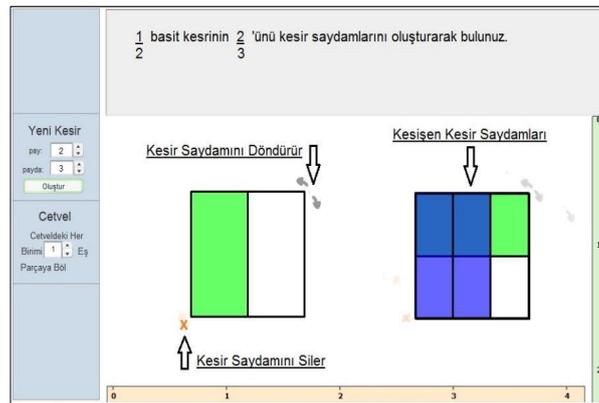
Figure 5: Rotation, intersection movements and deletion of fraction transparencies

If you want to obtain transparencies that are segmented and have no color in any area, the numerator value should be entered as "0". Compound fractions can also be created when fractions with the numerator value greater than the denominator value are created. First of all, the numerator and denominator values should be increased by the numerator value, then the denominator value should be reduced, and the transparent should be created in this way (Figure 6).

Figure 6 shows the use of digital fraction transparencies in the process of comprehending compound fractions. $\frac{7}{4}$ With the compound fraction visual, it is ensured that the compound fraction is larger than a whole number. Uncolored (divided into four equal parts) fraction transparent is placed in the uncompartmented part of the

compound fraction $\frac{7}{4}$. In this way, it also enables to see $\frac{3}{4}$ of the remainder from an integer part of the fraction. With this study, it is possible to switch from compound fractions to mixed fractions.
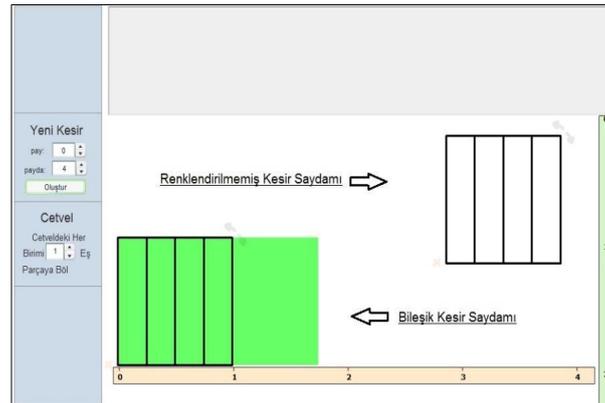
Figure 6: Compound fraction transparent and uncolored fraction transparent

The ruler section is used to divide the ruler tools at the bottom and right sides of the free study area (Figure 3). This tool represents the number line in mathematics. Users control how many equal parts they will divide between each integer on the ruler tool from this field. For example, in Figure 7, the ruler tool is divided into five equal parts.
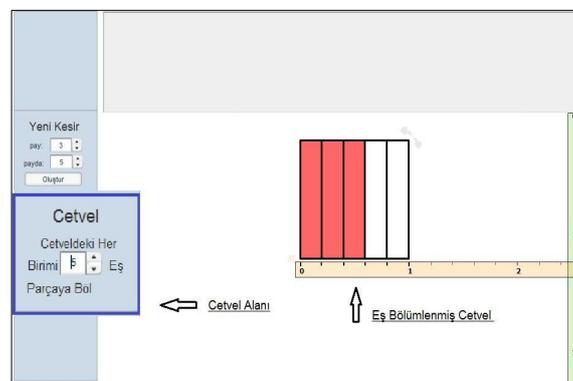
Figure 7: Segmented and moved ruler

Rulers can be used in concretization activities such as showing fractions on a number line, discovering common denominators in fractions, adding and subtracting fractions, discovering compound fractions, and seeing mixed fractions by moving them within the free study area and using them with fraction transparencies. For example, in Figure 8, fractions with denominators 2 and 3 have the common denominator of 6. The question writing area is the area projected onto the whiteboard with the projector or left blank for the teacher to write the questions on the image on the interactive whiteboard (Figure 4).
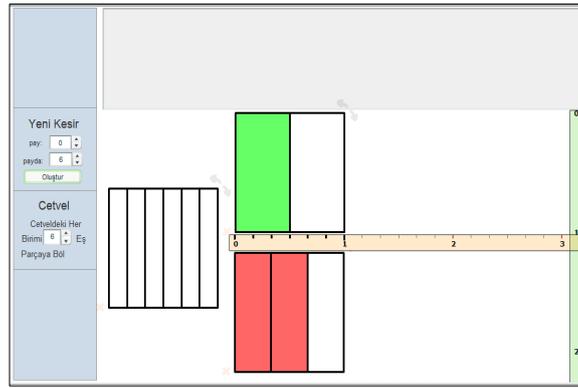
Figure 8: Discovering the common denominator

In this area, the teacher can write questions about the achievement in that study. When the software is used with suitable web infrastructure, appropriate questions from the question bank or question engine to be developed can be transferred to this area according to the user's progress speed and level, and the user can interact with this area. For example, using the question writing area in Figure 9, the student is asked to compose the unit fractions given in a mixed manner and order them in descending order.
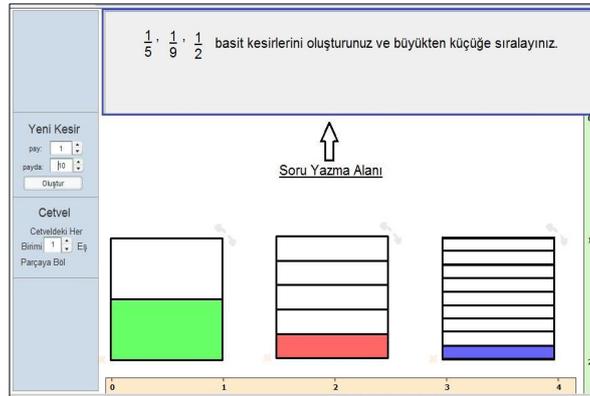
Figure 9: Question posed to the student and answer given using the question writing area

The free working area is the free space where the created fraction transparencies and ruler tools are moved and where the created expressions and questions are answered (Figure 4). There can be a maximum of 6 fraction transparencies in the free study area. This area can detect fraction transparencies, directions, colors, movements, movement and division numbers of rulers created when DFT software is used with a suitable web infrastructure. Thus, the positions of the created fraction transparencies and the existing rulers with respect to each other can be detected and compared between the questions in the question area thanks to the developed algorithm. All actions in the free study area can be saved in the database to the user account. The free study area is shown in Figure 10. The use of the teaching material may differ according to the activity examples of the lesson. Students may be asked to read the fraction transparencies to be created with the DFT software and express the fraction by writing. Informing the teacher about this teaching material to be used during the lesson is another step.
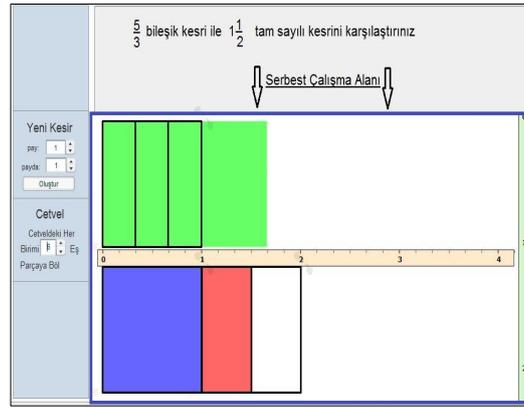
Figure 10: Use of free study area

2.5 Introducing the Tool to the Mentor

After the mentor was informed about turning on the computer, projecting the image with a projection device, and making the program operational, the teaching material started to be explained. The training was given on creating and deleting fraction transparencies, rotating and positioning fraction transparencies, intersecting fraction transparencies, segmenting and positioning the ruler tool, and using fraction transparencies with the ruler tool, respectively. During the training, the teacher was allowed to use the tool and the questions asked about the use of the material were answered.

2.6 Performing the Experimental Application

The experimental process took a total of four weeks. In the first week of the study, each data collection tool was applied as a pretest. At the end of four weeks, each of the data collection tools was applied again as a posttest. The applications of all data collection tools are planned in a way that does not hinder mathematics lessons. DFT software was used by the teacher to support the lesson for a total of 16 lesson hours. With the help of a projection device, the information on the computer was reflected on the whiteboard for the whole class to see. The distribution of the subject of fractions by weeks and the use of the software are shown in Table 2.

Table 2: Achievements regarding the sub-learning domains of fractions, addition and subtraction in fractions.

Learning Domain	Sub-Learning Domain	Course Hours	Achievements
Numbers	Fractions	2	Names fractions whose numerator and denominator are the most two-digit natural number, obtaining from the fraction units.
Numbers	Fractions	2	Displays fractions whose numerator and denominator are with a maximum of two digits on the number line.
Numbers	Fractions	2	Compares the fractions.
Numbers	Fractions	2	Sorts up to four equal denominators in ascending or descending order.
Numbers	Fractions	2	Sorts up to four fractions with equal numerators and different denominators in ascending and descending order.
Numbers	Fractions	2	Determines a specified simple fraction of a plurality.
Numbers	Addition in Fractions	1	Adds up fractions with equal denominators.
Numbers	Subtracting Fractions	1	Subtracts fractions with equal denominators.
Numbers	Addition and Subtraction in Fractions	2	Solves and sets up problems requiring addition and subtraction with fractions.

According to Table 2, it can be stated that there are equal application times for the achievements. The process that starts with the representation of fractions continues with the ordering of fractions and ends with addition and subtraction in the fractions.

2.7 Data Analysis

Various statistical techniques were used in the analysis of the study data. Descriptive statistics were used to provide information about the study group and the scores obtained from the tests. In the process of developing the achievement test, item difficulty and item discrimination indices were calculated in order to evaluate the items. In order to examine the reliability of the final form, the KR-20 coefficient was calculated.

T-Tests were used to answer the research questions. Since the experimental and control groups could not be formed randomly, the control and experimental groups' scores from the dependent variables were compared at the first stage. When no significant difference was observed in this comparison, the achievement scores were calculated by subtracting the pretest scores from the posttest scores, and the differentiation of these scores was examined. Normality tests and variance equivalence tests were carried out to examine the conditions of the research data to meet the prerequisites of these tests. In addition, since more than one test was used to answer a question, Bonferoni correction was applied to avoid Type 1 error when interpreting the results (Huck, 2012).

3. Results

In this part of the research, the results obtained from the appropriate data analysis method of sub-problems are included. Finding from the question "Is there a significant difference between the pre-and post-CAI academic achievements of the experimental and control groups?" Descriptive statistics of the scores the groups got from these tests are reported in Table 3.

Table 3: Descriptive statistics of the scores obtained by the experimental and control groups in the Achievement test.

		$\overline{\mathbf{X}}$	ss	Median	Kurtosis	Skewness
Pretest	Experimental	8,47	3,33	8	-,85	,13
	Control	7,11	3,31	7	2,94	1,20
Posttest	Experimental	14,25	2,86	14,5	-,91	-,19
	Control	12,96	3,64	13	-1,45	-,06

According to Table 3, the posttest scores of the Experimental and Control groups are higher than the pretest scores. The pretest score of the experimental group is 8,47, while the posttest score is 14,25. Similarly, while the pretest score of the control group was 7,11, the posttest score was determined as 12,96. Below, the statistical significance of the observed increases within the groups differentiating between groups is analyzed.

Before these tests, the normal distribution condition required for the tests to be applied was examined. More than one technique was employed to examine the normal distribution prerequisite. First, kurtosis and skewness values of the scores were examined. For this purpose, in line with the recommendations of George and Mallery (2010), it was observed that the scores were within the ± 2 range. As seen in Table 4, most of the coefficients obtained are within this range. It is observed that only the pretest score of the control group is outside this range. Another technique used for testing normality assumptions is the Shapiro Wilk test. This test is used when the number of participants in the groups is below 50 (Akbulut, 2010). Since this test does not give significant results, it can be

said that the pretest and posttest scores of the experimental and control groups meet the normal distribution conditions. Finally, by examining histograms, PP and QQ plots, it was concluded that achievement test scores were normally distributed.

After this point, the differentiation of the pretest scores of the experimental and control groups was examined. When the results of the t-Test for independent samples are analyzed, it is concluded that the Levene test is meaningless; in other words, variance equivalence was achieved between the groups. Besides, it was observed that the pretest scores of the groups did not differ statistically significantly ($t_{(58)}$= 1.58; p> .05).

Then, the achievement scores of the groups were calculated, and the differentiation of these scores was examined. Descriptive statistics regarding the calculated achievement scores are presented in Table 4.

Table 4: Comparison of achievement scores of experimental and control groups

	Group	N	$\overline{X}$	SS	t	SD	p
Achievement scores	Experimental	32	5,78	3,14	,09	58	0,93
	Control	28	5,86	3,63			

In Table 4, the differentiation of achievement scores calculated over the scores obtained from the achievement test was analyzed with the t-Test for independent samples. As a result of the examination, it was seen that the achievement scores did not differ statistically significantly ($t_{(58)}$= - .09; p> .05). Finding from the question "Is there a significant difference between the pre-and post-CAI attitudes towards computers of the experimental and control groups?" Descriptive statistics of the scores the groups got from the computer attitude scale are reported in Table 5.

Table 5: Descriptive statistics of the scores of the experimental and control groups in the computer attitude scale

		$\overline{X}$	ss	Median	Kurtosis	Skewness
Pretest	Experimental	83,39	13,60	81	-,38-	,16
	Control	95,63	15,02	96	-,21	- ,72 -
Posttest	Experimental	82,62	15,34	82	-,62	-,01
	Control	96,60	17,12	99	,87	-,96

According to Table 5, it is seen that the control group's computer attitude score was high at the beginning and end of the application. While the pretest score of the experimental group was 83,39, the posttest score was 82,62. While the pretest score of the control group was 95,63, the posttest score was determined as 96,60. The differentiation of achievement scores of the Experimental and Control groups has been examined below.

Before these tests, the normal distribution condition required for the tests to be applied was examined. First of all, it is seen that all skewness and kurtosis values are in the range of ± 2. This situation indicates that the distribution is close to normal (George & Mallery, 2010). It is seen that the Shapiro-Wilk test results also do not show a significant difference (Akbulut, 2010). Finally, by examining histograms, PP and QQ plots, it was concluded that the scores of the computer attitude scale were normally distributed.

When the results of the t-Test for independent samples are analyzed (Table 6), it is concluded that the Levene test is meaningless; in other words, variance equivalence was achieved between the groups.

Table 6: Comparison of the experimental and control groups' attitude achievement scores towards the computer.

	Group	N	$\overline{X}$	SS	t	SD	p
Achievement scores	Experimental	31	0,77	20,74	0,28	56	0,78
	Control	27	0,96	26,54			

The differentiation of achievement scores calculated based on the computer attitude scale scores was examined using the t-Test for independent samples. As a result of the examination, it was seen that the achievement scores did not differ statistically significantly ($t_{(58)}$= - .09; p> .05). Finding from the question "Is there a significant difference between the pre-and post-CAI attitudes towards the mathematics of the experimental and control groups?" Descriptive statistics of the scores the groups got from the mathematics attitude scale are reported in Table 7.

Table 7: Descriptive statistics of the scores the experimental and control groups got from the Mathematics attitude scale

		$\overline{X}$	ss	Median	Kurtosis	Skewness
Pretest	Experimental	88,71	9,06	91	-,91	-,50
	Control	90,37	5,57	91	-, 1,11	-,02
Posttest	Experimental	86,32	13,84	92	1,71	-1,45
	Control	89,37	7,98	91	,02	,02

As seen in Table 7, the mathematics attitude score of the control group remained high at the beginning and end of the application. A small decrease was observed in the mathematics attitude scale scores of both groups. While the pretest score of the experimental group was 88,71, the posttest score was 86,32. The pretest score of the control group was 90,37, while the posttest score was 89,37. The differentiation of achievement scores obtained from the mathematics attitude scale among groups is examined below.

Before these tests, the normal distribution condition required for the tests to be applied was examined. First of all, it is seen that all skewness and kurtosis values are in the range of ± 2. This situation indicates that the distribution is close to normal (George & Mallery, 2010). It is seen that the Shapiro-Wilk test results also do not show a significant difference (Akbulut, 2010). Finally, by examining histograms, PP and QQ plots, it was concluded that mathematics attitude scale scores show normal distribution.

After this point, the differentiation of the achievement scores of the attitudes towards the mathematics of the experimental and control groups was examined using the t-Test for independent samples (Table 8). According to the results, it was observed that the Levene test is meaningless; in other words, the variance equivalence requirement was met between the groups.

Table 8: Comparison of the mathematics attitude achievement scores of the experimental and control groups

	Group	N	$\overline{X}$	SS	t	SD	p
Achievement scores	Experimental	31	2,93	16,53	2,11	56	0,04
	Control	27	-6,26	16,64			

As a result of the examination, it is seen that the achievement scores differ statistically significantly ($t_{(56)}= 2.11$; $p <0.05$). Accordingly, as a result of the experimental application, a decrease was observed in both groups' attitudes towards mathematics. Besides, it can be said that the decrease observed in the control group is higher than in the experimental group.

4. Conclusion and Discussion

This study was carried out to determine the effect of primary school 4th-grade students' learning the mathematics lesson fractions subject using the teaching material developed within the CAI scope on students' academic achievement, computer and mathematics attitudes. The results obtained as a result of the analysis of the data are expressed in order.

As a result of the t-test analysis performed to answer the question "Is there a significant difference between the pre-and post-CAI academic achievements of the experimental and control groups?" that is the first sub-problem for which an answer was sought in the study, no statistically significant result was found between the experimental and control groups. This finding supports the study of Yiğit and İpek (2015), who stated that dealing with fourth-grade fractions with CAI increased student performance, but there was no statistically significant difference. Uygun (2008) could not find a significant difference between the experimental and control groups in the CAI-supported fraction teaching he conducted with fourth graders. However, this study differs according to the study of Yücel Yumuşak's (2014) experimental study on the subject of fractions with primary school fourth-grade students, which found a significant difference in academic success between control and experimental groups. Similarly, Tutak (2018) stated that students' success would be increased using visual materials in fraction teaching in the fourth grade. Studying the subject of fractions in the fifth grade, Erdağ (2011) determined that cartoon-supported mathematics teaching makes students' knowledge permanent. Lee and Ferrucci (2012) also observed that virtual manipulatives increase success. Yurniwati and Purnamasari (2018), on the other hand, presented various technological applications to increase students' mathematics achievement and achieved success in students' concretizing the subject of fractions.

As a result of the t-test analysis performed to answer the question "Is there a significant difference between the attitudes towards computers of the experimental and control groups before and after the BDI application?" that is the second sub-problem for which an answer was sought in the study, no statistically significant result was found between the experimental and control groups. This finding supports Uygun's (2008) study that although the experimental group's attitude towards computers is high, there is no significant difference between the control group and the fourth-grade students' attitudes towards computers. However, it differs according to the study of Pilli and Aksu (2013) that they found a significant difference between the attitudes of the experimental and control groups towards the CAI application.

As a result of the t-test analysis performed to answer the question "Is there a significant difference between the mathematics attitudes of the experimental and control groups before and after the BDI application?" that is the third sub-problem of the study, for which an answer was sought in the study, no statistically significant result was found between the experimental and control groups. This finding supports Yıldız's (2009) finding that primary school students have high attitudes towards mathematics. Similarly, Tutak (2018) observed a significant difference in the students' mathematics attitudes in favor of the experimental group as a result of the experimental application in which he discussed teaching fractions. Pilli and Aksu also found a significant difference between the groups in the mathematics attitudes of fourth-grade students. However, the finding of this study differs according to Uygun's (2008) study that there is no significant difference in mathematics attitudes of primary school fourth-grade students between the experimental and control groups. When Lee and Chen (2015) evaluated the mathematics attitudes of students using virtual manipulatives, they found that there was no significant difference between the groups.

The most important difference that distinguishes the DFT software developed for this study and used in the study from fraction teaching materials and software in web environments is its ability to concretize almost all the fraction achievements in the MoNE mathematics program and the US's fraction teaching standards (Common

Core, 2019). The most important difference that distinguishes the DFT software from other similar software is that it can concretize fractions, the number line, and dividing the number line into sections simultaneously. At the same time, this software allows you to position fraction transparencies and number lines with each other. In this way, it can reduce students' wrong learning and misconceptions. Besides, its ability to be used as an effective tool for the rapid detection of misconceptions in students can be seen as a feature that distinguishes it from other software. Another difference is that it can be associated with databases in line with the infrastructure possibilities when necessary, creating data repositories where students' movements on this software can be observed and using these data for various studies, and it can be seen as an important advantage.

5. Recommendations

In line with the research findings, suggestions for researchers who want to work in the field of computer-assisted mathematics teaching are as follows:

- Fraction teaching work with DFT was carried out with the 4th-grade students. A similar study can be carried out in other levels of primary education.
- The difficulties in understanding fraction subjects can be investigated with fraction teaching studies supported by qualitative methods from which students' opinions are taken.
- Long-term scientific studies that aim to detect and prevent misconceptions in fraction subjects with DFT can be planned.
- A similar study can be done with the experimental and control group classes in which the same teacher attends mathematics lessons.
- Scientific research can be planned in which digital fraction transparent software is used in teaching fraction subjects to students with individual differences.
- DFT software can be applied to each student in information technology classes with a computer for fraction achievements at various levels, and its effect can be investigated.
- In terms of web-based use, researches, including distant education studies, can be organized. Flipped-face learning studies can be conducted.
- DFT software can be used to convey fraction achievements at individual speeds with appropriate infrastructure, question repository and teaching algorithm.
- In conveying the mathematics teaching program's achievements, more emphasis should be placed on technology-supported applications, and teachers' technology competencies should be supported by professional development activities.

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Examination of Individuals' Level of Fear of COVID-19, Fear of Missing Out (FoMO), and Ruminative Thought Style

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Abstract
In the current study, it was aimed to examine the relationships between individuals' fear of COVID-19, fear of missing out (FoMO), and ruminative thought style levels. The participants consisted of 408 individuals aged between 17-68, of which 110 were male and 298 were female. In this study, The Fear of COVID-19 Scale, Fear of Missing Out Scale, and Ruminative Thought Style Questionnaire were used in order to collect data. Relational survey method was used in the research. In the mediation analysis, it was observed that the ruminative thought style has a mediator role in the relationship between FoMO and fear of COVID-19. According to the findings, women have a higher fear of COVID-19 and ruminative thought style levels than men, besides that married individuals' fear of COVID-19 level is higher than single individuals, but FoMO and ruminative thought levels are lower.

Keywords: Fear of COVID-19, Fear of Missing Out, Ruminative Thought Style

Introduction

The world is currently facing a virus that emerged in Wuhan, China, and threatened public health. Coronavirus, a family of viruses that includes viruses such as the common cold, Severe Acute Respiratory Syndrome (SARS), and Middle East Respiratory Syndrome (MERS) has been temporarily named as 2019-nCoV, then updated to COVID-19. However, coronaviruses are easily transmitted from person to person, and there are several coronavirus subtypes that can be seen in humans, but these subtypes often cause colds in humans. There are also many coronavirus subspecies detected in animals. It is stated that these viruses can transmit from animals to humans and cause severe diseases in humans (Ministry of Health, 2020). It is seen that the studies on the novel coronavirus, which have influenced the world since its emergence, are focused on the field of physical health. However, the effects of coronavirus on psychological health are thought to be too important to be ignored.

Coronavirus that spreads rapidly and becomes a pandemic, caused more stringent precautions to protect people's health and the health of people around them. Especially with the confirmation of the first coronavirus case on March 11 in Turkey, the government like all countries facing this virus has taken the necessary precautions to prevent the spread of coronavirus, including interruption of education and closure to the usage of shopping centers, theatres, gyms, places of worship, and various transportation vehicles. Besides, citizens have entered the voluntary quarantine process and continue their lives by avoiding physical contact, not being in crowded environments, and isolating themselves unless it is mandatory. Therefore, it can be said that coronavirus has important effects on the psychological health of the individual, a psychosocial entity. Several reactions of individuals may depend on the personality traits, experiences, and mood in a situation that creates fear and stress, such as the coronavirus outbreak. In the research conducted by Satici, Gocet-Tekin, Deniz, & Satici, (2020), it was found that the fear of COVID-19 increased the levels of depression, anxiety, and stress in individuals however the life satisfaction level of individuals who frequently think of COVID-19 decreased. Especially in the process of social isolation individuals are away from their social environment, unable to establish a social bond as a result of not meeting with friends, friends, romantic partners or family members. This situation may bring intense use of technology. It can be said that social media, which allows individuals to communicate with other individuals who compose their social network at any time, can be used more particularly in the COVID-19 process. It is stated that the uncontrolled use of social media, which is thought to be a useful source for the socialization of individuals initially, has caused some problems for individuals. One of the aforementioned problem areas is the concept of FoMO composed by coding the first letters of the words Fear of Missing Out (Gil, Chamarro, & Oberst 2015).

FoMO was used for the first time by Morford (2010) and its effect on behaviour was first examined in the James Walter Thompson Intelligence report (JWT Intelligence, 2012). In the study, FoMO is defined as being aware of the short-term positive experiences that occur in the environment where the individual is absent and desiring them with his/her own will, but the negative affect that they encounter when they are deprived, in accordance with the experience of 70% of participants between the ages of 18-34 (Hayran, Anik, & Gürhan-Canli, 2016). In other words, it is the sense of deprivation experienced by the individual against the positive experiences that occur in the environment where she/he is not (Hayran, Anik, & Gürhan-Canli, 2017). However, many researchers have emphasized that FoMO can reflect the anxiety or obsession caused by social media fears. (Przybylski, Murayama, DeHaan, & Gladwell, 2013; Dossey, 2014; Gökler, Aydın, Ünal, & Metintaş, 2016; Eşitti, 2015; Hoşgör, Koç-Tütüncü, Gündüz-Hoşgör, & Tandoğan., 2017). The negative emotions caused by FoMO cause the individual to be jealous or to envy other people's social life and to experience exclusion (Hetz, Dawson, & Cullen, 2015; Reagle, 2015). FoMO causes individuals to feel lonely when they spend time outside of social networks, as well as trying to satisfy their needs of love and care that they think are not enough in their daily lives with social media posts (Dossey, 2014). It can be said that FoMO is a problematic concept with these feelings and behaviours.

In addition to the studies in which there is a relationship between FoMO and social media addiction (Beyens, Frison, & Eggermont, 2016; Oberst, Wegmann, Stodt, Brand, & Chamarro, 2017), there are many studies stating that FoMO is associated with psychological well-being and problematic internet use (Stead and Bibbly, 2017), sleep disorder (Rogers & Barber, 2019), stress (Beyens et al., 2016), depression, anxiety and physical symptoms (Baker, Krieger, & LeRoy, 2016; Elhai, Levine, Dvorak, & Hall, 2016; Kartol & Peker, 2020), high inner and external motivation (Al-Menayes, 2016), self-efficacy (Erdoğan & Şanlı, 2019), life satisfaction (Błachnio & Przepiórka, 2018), nomophobia (Arslan, Tozkoparan, & Kurt, 2019), lack of love and respect and satisfaction with life (Przybylski et al., 2013), impulsivity (Ercengiz, 2020) variables in literature.

Individuals with high FoMO level experience uneasiness and fears such as "Who is sharing what, where, what right now?", 'I wonder if I missed anything?'', '' I wonder if I was left out of the topic discussed?'' and spend a lot of time checking their smartphones frequently (Gökler et al., 2016). In this context, it can be thought that FoMO triggered the occurrence of repetitive thoughts and behaviours in the individual.

Rumination is defined by Nolen-Hoeksema, Wisco and Lyubomirsky (2008) as focusing on the negative emotional state, symptoms, or causes and consequences of this situation in a passive and repetitive manner, instead of solving the individual's problem and trying to change the things that cause own restlessness or distress. It is stated that people with ruminative thoughts can produce some solutions, but they are insufficient to implement these solutions (Lyubomirsky, Tucker, Caldwell, & Berg, 1999). However, ruminative thoughts can also arise towards oneself, others, past, present, future, and completed, incomplete or different situations (Papageorgiou & Wells, 2004). When viewed from this perspective, it is seen that rumination is not only a situation arising from past experiences.

Nolen-Hoeksema conceptualized the rumination associated with depression within the scope of the Response Styles Theory, and it appears that this theory is the most frequently emphasized in the rumination literature. Alloy et al. (2000) conceptualized rumination as a reaction to stress based on Nolen-Hoeksema's Response Styles Theory and Beck's Cognitive Theory. In this model, which is nourished by two theories, rumination is defined as the individual's making negative inferences after the stressful life event and bringing these inferences to the mind continuously (Alloy et al., 2000). In other words, while rumination arises as a response to depressive states in the response styles theory, it occurs before the onset of depression in the theory of rumination as a response to the stress (Eker, 2016).

When the studies on ruminative thought style are examined, it is seen that there are studies that determine the relationship between ruminative thought style and peer bullying and depressive symptoms (Treynor, Gonzalez, & Nolen-Hoeksema, 2003; Erdur-Baker, 2009), worry (Segerstrom, Tsao, Alden, & Craske, 2000), anxiety and depression (Yılmaz, 2014), and eating disorders (Nolen-Hoeksema, Stice, Wade, & Bohon, 2007). Ahorsu et al. (2020) also emphasized in their research that high fear of COVID-19 level may cause irrational and ambiguous thoughts. In this context, the relationship between fear of COVID-19, ruminative thought style, and FoMO was tried to be examined in this study.

Method

Relational survey method was used in the research.

Participants

The study group consisted of 408 individuals aged between 17-68 ($M = 31.84$), of which 110 were male and 298 were female. The data collection process was carried out online. Of the participants 228 are single, 180 are married, 95 have high school and lower education level, and 313 have undergraduate and higher education levels.

Measures

The Fear of COVID-19 Scale

In the study, data related to the fear of COVID-19 were collected with The Fear of COVID-19 Scale, developed by Ahorsu et al. (2020) and adapted to Turkish by Satici et al. (2020). The scale is a 5-point Likert-type scale consisting of 7 items and one dimension. The confirmatory factor analysis conducted for the construct validity of the scale showed that the Turkish form of the measure had acceptable fit indices [$\chi 2$ (13, N = 1304) = 299.47, p < .05; SRMR = .061; GFI = .936; NFI = .912; IFI = .915; CFI = .915]. The concurrent validity of the scale was tried to be determined by examining the correlations between the scores obtained from depression (r= .38), anxiety (r= .55), and stress (r= .47) scale so it is seen that the scale has concurrent validity. As a result of the analysis conducted to determine the reliability of the scale in the adaptation study to Turkish, it was concluded that the internal consistency coefficient was .847.

Fear of Missing Out Scale (FoMO)

In the study, data related to fear of missing out (FoMO) was collected by Fear of Missing out Scale, developed by Przybylski et al. (2013) and adapted to Turkish by Gökler et al. (2016). The scale is a 5-point Likert-type scale consisting of 10 items and one dimension. As a result of the factor analysis conducted for the construct validity of the scale, it was observed that the Turkish form of the scale had a one-dimensional structure and item factor loadings ranging between 0.36 and 0.77. Lastly, as a result of the analyses conducted to determine the reliability of the scale in the adaptation study to Turkish, it was concluded that the internal consistency coefficient was .81 and the test-retest reliability coefficient was .81.

Ruminative Thought Style Questionnaire

In the study, data related to ruminative thought was collected with Ruminative Thought Style Questionnaire developed by Brinker and Dozois (2009) and adapted to Turkish by Karatepe, Yavuz, and Turkcan (2013). The questionnaire is a 7-point Likert-type scale consisting of 20 items and one dimension. As a result of the factor analysis conducted for the construct validity of the scale, it was seen that the Turkish form of the scale has a one-dimensional structure that explains 63.43% of the total variance. The scale's item factor loadings ranging between .44 to .72. Lastly, as a result of the analyses conducted to determine the reliability of the scale in the Turkish adaptation study, it was concluded that the internal consistency coefficient was .91 and the test-retest reliability coefficient was .84.

Data Analysis

In this study, Pearson correlation, regression, and independent samples t-test were used to analysis the data. Firstly, the data were examined in terms of normal distribution. Then, the correlation between variables was examined and a mediation analysis was conducted. The findings of the normal distribution are presented in Table 1 and Figure 1.

Table 1: Findings Regarding Normal Distribution

Variable	Skewness	Kurtosis
Fear of COVID-19	.574	.101
FoMO	.596	-.029
Ruminative thought style	-.268	-.483
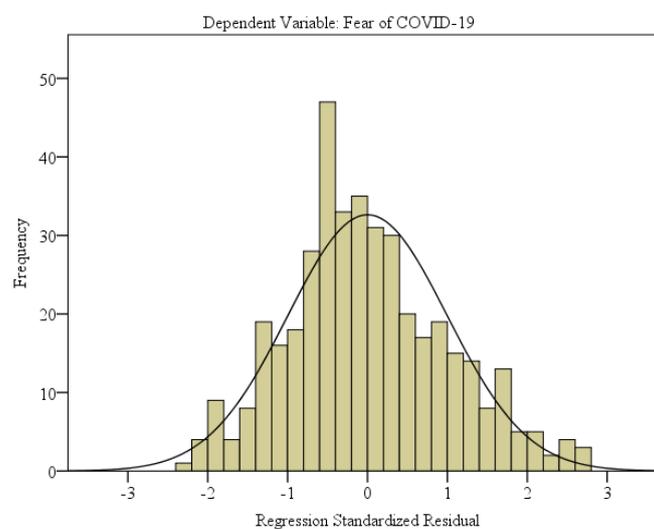
Figure 1: Normal distribution graph

According to Tabachnick and Fidell (2015), the skewness and kurtosis values between +1 and -1 displayed that the data has a normal distribution. In this context, when Table 1 and Figure 1 are examined, it can be said that the research data has a normal distribution.

Results

In the study, the relationships between fear of COVID-19, FoMO, and ruminative thought style were examined by correlation analysis, and the findings are presented in Table 2.

Table 2: Descriptive statistics and correlations among study variables

	1	2	3
Fear of COVID-19	1		
FoMO	.130**	1	
Ruminative thought style	.290**	.456**	1
$\bar{x}$	17.18	22.13	88.78
SS	5.93	6.11	25.55

$** = p < 0.01$

When Table 2 is examined, it is seen that fear of COVID-19 positively related with FoMO ($r = .130$), and ruminative thought style ($r = .290$).

Mediator Role of the Ruminative Thought Style

In the study, it was investigated whether individuals' who experienced the COVID-19 process the FoMO predicted fear of COVID-19 in order to examine the mediator role of ruminative thought style in the relationship between FoMO and fear of COVID-19. The result is presented in Table 3.

Table 3: Regression Coefficients, Standard Errors and Significance Tests for the Regression Model

Predictor	β	SE	p	F	R	R^2
Constant	14.38	1.09	<.001	6.97	.13	.02
FoMO	.13	.04	<.05			

As seen in Table 3, the analysis demonstrated that FoMO significantly predicted fear of COVID-19 ($\beta = .13$, 95% CI: .03 – .22; $p < .05$).

Table 4: Mediational Model Coefficients

Predictors	Consequent					
	Ruminative Thought Style			Fear of COVID-19		
	B	SE	p	β	SE	p
FoMO	a .46	.18	<.001	c' -.003	.05	>.05
Ruminative Thought Style	------	------	------	b .07	.01	<.001
Constant	i_1 46.63	4.23	<.001	i_2 11.23	1.21	<.001
	R= .46, R^2 = .21			R= .29, R^2 = .08		
	F(1, 406) = 106.38, p=.000			F(2, 405) = 18.57, p = .000		

As seen in Table 4, the result of the regression-based mediation analysis demonstrated that FoMO significantly predicted ruminative thought style ($\beta = .46$, 95% CI: 1.54 – 2.26; $p < .001$), but it did not significantly predict fear of COVID-19 ($\beta = -.003$, 95% CI: -.10– .10; $p > .05$). Ruminative thought style significantly predicted fear of COVID-19 ($\beta = .07$, 95% CI: .04 – .09; $p < .001$). When the ruminative thought style was added to the mediation model, the core impact of FoMO on fear of COVID-19 decreased (from .13 to -.003). Furthermore, the total effect of FoMO on fear of COVID-19 was .126 ($p<.001$), direct effect of FoMO on fear of COVID-19 was -.002 ($p>.05$), and indirect effect of FoMO on fear of COVID-19 was .128 ($p<.001$).

Findings Regarding Gender

In the study, whether the individuals' levels of FoMO, ruminative thought, and fear of COVID-19 vary significantly in terms of gender was analyzed by independent samples t-test. The results are displayed in Table 5.

Table 5: T-test Result Regarding the Levels of FoMO, Ruminative Thought Style and Fear of COVID-19 in terms of Gender

	Levene's Test		T-Test					95% Confidence Interval	
	F	p	t	df	p	Mean Difference	S.E.	Lower	Upper
Fear of COVID-19	2.817	.094	5.435	406	.000	3.47773	.63983	2.21995	4.73551
FoMO	.001	.981	-.150	406	.881	-.10268	.68294	-1.44522	1.23985
Ruminative Thought Style	.061	.805	2.650	406	.008	7.49866	2.83016	1.93505	13.06226

As seen in Table 5, the levels of ruminative thought style (Woman $\bar{x}$ = 90.80, SD = 25.20; Man $\bar{x}$ = 83.30, SD = 25.81) and fear of COVID-19 (Woman $\bar{x}$ = 18.11, SD = 5.94; Man $\bar{x}$ = 10.64, SD = 5.13) differ significantly (p < .05) by gender, but the level of FoMO (Woman $\bar{x}$ = 22.09, SD = 6.07; Man $\bar{x}$ = 22.20, SD = 6.25) doesn't differ significantly by gender (p > .05) When the results obtained are evaluated in general, it can be said that the levels of COVID-19 fear and ruminative thinking style of women are higher than men.

Findings Regarding Marital Status

In the study, whether the individuals' levels of FoMO, ruminative thought, and fear of COVID-19 vary significantly in terms of marital status was analyzed by independent samples t-test. The results are displayed in Table 6.

Table 6: T-Test Result Regarding the Levels of FoMO, Ruminative Thought Style and Fear of COVID-19 in terms of Marital Status

	Levene's Test		T-Test					95% Confidence Interval	
	F	p	t	df	p	Mean Difference	S.E.	Lower	Upper
Fear of COVID-19	.115	.735	2.114	406	.035	1.24503	.58903	.08710	2.4029
FoMO	5.373	.021	-4.533	406	.000	-2.69912	.59549	-3.8697	-1.5285
Ruminative Thought Style	6.040	.014	-2.397	406	.017	-6.07281	2.53328	-11.0528	-1.0928

When Table 6 is examined, it is seen that levels of FoMO (Married $\bar{x}$ = 20.61, SD = 5.52; Single $\bar{x}$ = 23.32, SD = 6.30), ruminative thought style (Married $\bar{x}$ = 85.38, SD = 27.78; Single $\bar{x}$ = 91.46, SD = 23.37), and fear of COVID-19 (Married $\bar{x}$ = 17.87, SD = 6.12; Single $\bar{x}$ = 16.63, SD = 5.73) significantly differ in terms of marital status (p < .05). When the results reached are evaluated generally, it is concluded that married individuals have a higher fear of COVID-19 than single individuals, while FoMO and ruminative thought levels are lower.

Discussion

In this research, it was seen that the fear of COVID-19 correlated positively with the fear of missing out, and ruminative thought style. When the literature was examined, it was reached no research about the relationship between the fear of COVID-19 and the FoMO. During the pandemic process, it can be said that individuals use social media more actively to learn developments about the pandemic because of statements made via social media by public institutions about the daily number of cases and the precautions which are taken. Also, missing these developments can cause individuals to experience a feeling of uncertainty. For this reason, a relationship between the fear of COVID-19 and the FoMO may have been found in this study. On the other hand, in the study, it was seen that there is a positive relationship between the fear of COVID-19 and ruminative thought style. Similar to this finding of the study, a positive relationship was determined between the fear of COVID-19 and rumination in another study (Satici, Saricali, Satici, & Griffiths, 2020). Focusing on the negative mood in a repetitive manner, which is the characteristics of the ruminative thought style (Nolen-Hoeksama et al., 2008), may have led to increased fear of COVID-19 in individuals who think this way.

As a result of the mediation test conducted in the study, it was observed that the ruminative thought style had a mediator role in the relationship between FoMO and the fear of COVID-19. When the effect of FoMO on the individuals' life was looked, it was seen that it reflected the state of anxiety and obsession (Dossey, 2014; Eşitti, 2015; Gökler et al., 2016; Hoşgör, et al., 2017; Przybylski et al., 2013), made the individual feel excluded and envy others' social life (Hetz et al., 2015; Reagle, 2015), has influenced psychological well-being negatively (Stead & Bibbly, 2017), caused sleep disturbance (Rogers & Barber, 2019), stress (Beyens et al., 2016), depression, anxiety, and physical symptoms (Baker et al., 2016; Elhai et al., 2016; Kartol & Peker, 2020). In this context, it can be stated that FoMO influences the life and functionality of individuals by causing negative emotions and some behavioural problems. On the other hand, when rumination was looked, it is stated that individual constantly focuses on the negative emotional state, symptoms, or causes and consequences of this situation passively and repetitively (Nolen-Hoeksema et al., 2008). Also, it was found that the people made negative inferences after the stressful life event and constantly, brought these inferences to their minds (Alloy et al., 2000). In addition, the ruminative thought style appears to be associated with worry, anxiety, and depression (Segerstrom et al., 2000; Yılmaz, 2014). Consequently, the ruminative thought style is a vicious cycle that occurs when the individuals repetitively bring back their feelings to their minds after stressful life events. Since individuals with ruminative thought style, think and feel this fear repeatedly in their minds, it can be said that the ruminative thought style can be a stronger variable than FoMO in predicting COVID-19 fear. Therefore, ruminative thought may have a mediator role in the relationship between the FoMO and the fear of COVID-19.

In this study, it was concluded that the fear of COVID-19 differs significantly in terms of gender and women have a higher fear of COVID-19 compared to men. A similar finding was observed in the study conducted by Reznik et al. (2020), and it was determined that women's fear of COVID-19 was higher than men. In another study conducted by Gerhold (2020), it was determined that women are more concerned about COVID-19 than men. This might be in consequence of the possibility that men become insensitive due to going out of the house more than women during the pandemic process.

In another finding of the study, it was concluded that the level of ruminative thought style differed significantly in terms of gender, and women's ruminative thought style levels were higher than men. Similarly, in the meta-analysis study conducted by Johnson and Whisman (2013), it was observed that women had higher levels of ruminative thought style compared to men. McBride and Bagby (2006) indicate that rumination decreases women's defences against negative emotional states. In this regard, it can be stated that women visualize and think more about the negative situations brought about by the pandemic process compared to men.

According to this research result, it was founded that the level of sugar does not differ significantly in terms of gender. Furthermore, in the research of Tomczyk and Selmanagic-Lizde (2018), it was determined that the FoMO level does not indicate a significant difference according to gender. The reason for this situation might be that the pandemic process influences the whole society, therefore the FoMO on current developments is similar in both women and men.

As a result of the present study, it was observed that the levels of FoMO and ruminative thought differed significantly in terms of marital status. When the results obtained were evaluated in general, it was concluded that while the fear of COVID-19 was higher in married individuals compared to single individuals, the levels of FoMO and ruminative thought were lower. When the literature was examined, no research was found in which the fear of COVID-19 was investigated in terms of marital status. However, married individuals may be afraid of transmitting the virus to their spouses and children due to they are mostly involved in business life and have to go out of the house. So, it might be concluded that married individuals have a higher fear of COVID-19 than single individuals. Besides, in the literature, when studies reviewed in which examined FoMO in terms of marital status, it was observed that FoMO does not differ (Özcan & Koç, 2019; Qutishat & Sharour, 2019). In the present study, it was seen that the FoMO levels of married individuals are lower than single individuals. This might be because the other two studies were conducted in 2019 and the current study in 2020 during the pandemic process. Moreover, the reason why married people's ruminative thought levels are lower than singles might be that they are in a supportive environment where they can share their negative feelings and experiences at any time by getting more psychosocial support than singles.

In conclusion, according to the results of this research, it was determined that the ruminative thought style is a stronger variable than FoMO in predicting the fear of COVID-19. In this regard, it can be stated that one of the important variables that should be considered to protect the mental health of individuals, is the ruminative thinking style, in the pandemic process which is ongoing and is not known when it will end. Individual and group psychological counselling services can be provided to individuals with ruminative thought styles in order to reduce the impact of the pandemic on individuals' mental health. Also, it was found that women's fear of COVID-19 was higher than men's. In this regard, the reasons why this fear is higher in women compared to men can be investigated as well as special preventive and protective mental health services can be provided to women.

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Higher Education Color Design Based on Organizational Vision

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Abstract

The vision of higher education organizations is needed to show the goals and how the higher education organizations work. With a vision, the activities of organizational members can be moved, directed and controlled to achieve organizational goals. In addition to being disseminated to members of the organization, the vision must also be introduced to stakeholders and the wider community as a way to create an institutional branding. One of the ways that a vision can be remembered easily is to use color symbols of the institution strategic elements. This article discusses how to design color concepts based on organizational vision and apply them to architectural elements of buildings. Vision always changes over time. On the other hand, buildings have a relatively longer life. The architect's task is to align the design age of higher education architecture so that it is always in line with its vision. Research location at Unhas Tamalanrea Campus Makassar with consideration of the level of organizational complexity. The research method uses a constructive paradigm. Data collection was carried out using the review of institutional documents, in-depth interviews, FGD, and transactional dialogue with the academic community. This research is conducted since the preparation of the Unhas Strategic Plan's 2006-2010, 2011-2015, and 2016-2020. The results of the discussion are in the form of a concept recommendation for the vision color of the institution.

Keywords: Vision, Color, Higher Education

1. Introduction

Organizational vision is a journey to create a future from a montage of facts, hopes, dreams, dangers and opportunities. A key characteristic of high-performing organizations and teams is that they have a clear picture of what they want to create together. They share with the same passion, purpose, a set of values. Vision, mission, and values are at the core of who they are. These key elements are the adhesive that keeps people, teams and organizations responsive and innovative in new situations(Scott, Jaffe & Tobe 1993:3-4).

The vision, planning and organizational goals statements can improve organizational performance. An attractive vision of the future has a great power to move the organizational wheels by harnessing the energy generated from clarity of direction and focus. Organizations that are driven by their essence have a greater capacity to deal

with the changes that occur because of the clarity of the main purpose. Organizations attached to their essence will be stronger and have more commitment from employees and can get more done in a changing environment.

The organizational vision is needed to: (1) Uniting people around the same dream; (2) Coordinating the work of different people; (3) Helping everyone make decisions; (4) Build a foundation for business planning; (5) Challenging current circumstances that are comfortable or inadequate; (6) Make inappropriate behavior more visible. The organizational vision must be socialized factually and symbolically to all organizational members to build their identity and be able to align their activities to achieve organizational goals. The vision must also be introduced to stakeholders and the public so that they know and understand the purpose of the organization's existence.

One of the ways to introduce the organization's vision, among others, is done symbolically through the media of organizational physical facilities by using color. The goal is for people to immediately connect and realize the vision of the organization. The visual element of color was chosen because color is one of the variables that can improve human memory performance (Dzulkifli & Mustafar 2013). Through visual elements, the identity as a brand of an organization can be expressed (Phillips, McQuarrie & Griffin 2014). Research shows that people make subconscious perceptions of a person, environment, or product within 90 seconds of first seeing them and that between 62% and 90% of them are through color. In terms of product marketing, color can increase product recognition by up to 80% (Morton 2021).

To support member awareness of vision through facility colors, a vision color design concept is needed that can symbolically be the mover, driver, and controller goals of the organization's vision. This article discusses how the process of generating the concept of color composition based on organizational vision is carried out in higher education. Hasanuddin University (Unhas) Tamalanrea Campus was chosen as the research location with the assumption that the site and building conditions which are very wide and varied require a sharp and clear analysis. This concept can be used as the basis for the architectural arrangement policies of buildings in Unhas and other higher education institutions.

2. Literature Review

2.1. University Vision

A vision is a cognitive image of the future that is positive enough to motivate and elaborate future planning and goals. Theoretically, the organizational vision is formed by the leaders where the members of the organization live and work. The more oriented a leader is towards the future, the higher the leader's ability to form a vision (Thoms 2004:114; Adler & Gundersen 2008:158). The characteristics and content of the vision shared among all staff and customers are positive and have a direct effect on their satisfaction. The vision will serve as a guide for their daily activities, motivation, and empowerment (Kantabutra & Avery 2010). Vision must be fought for and waited for. Vision keeps the activities of all organizational members focused on what can be done and ensured that every decision is made for the business as a continuous effort.

The organizational vision, mission, and values statements are actually part of the branding process which aims to market an institution. With the reason that a university is highlighted as a non-profit institution, branding is only stated on the vision, mission and values, and is not continued for the purpose of creating the university brand itself. Branding is considered only suitable for profit-seeking-oriented institutions. However, with the tendency of changes in higher education management, the creation of a university brand is starting to be considered as something that must be done for the following reasons: (1) Competition between universities is getting tighter in attracting new students; (2) Limitation of financial support from the government; (3) Independence of university policies; and (4) The obligation to raise funds by increasing the number of students.

The higher education branding will create a student identity that is attached to the identity of the university. This will lead to mutual interdependence between the parties of the exchange between students and the university. When students identify that the university meets their own needs, then they may retaliate by promoting the

university to others (Balaji, et al. 2016). This brand is displayed visually in all forms of university promotion such as on the website, logo, and physical facilities. These brands must be designed to connect with each other, so that it makes it easier for the image to be mentally embedded in all members of the organization and society.

More than any other information, color can influence consumer opinion about a product or service. Therefore, color is very important to introduce and give the image of an organization to consumers (Cunningham 2017). Branding involves consumers' emotions as the main determinant of their behavior. In terms of the university branding, they are the emotions of prospective students, current students and alumni as well as university lecturers and staff. These emotions are directed by the color of the university vision. Because color effects are unique and influenced by gender, cultural context, personal experience, and neurological variations, the color design must represent the individual customer.

2.2. Memory Color

Jonathan Flombaum, an expert in Psychology and Brain Sciences who states that the human brain is programmed for information based on previous experience. The human brain tends to think that things that have been seen before are more likely to happen. He gave an example that if someone is asked to imagine being in a strawberry garden and is asked to choose a strawberry color code between red and purple, then he/she chooses the color code red. This is because the straw plant is not purple (Allred & Flombaum 2014; Sugarman 2015).

The distinctive color of an object affects how humans perceive the actual color of this object. This color is remembered through previous experience when viewing an object. Memory color affects several aspects of color perception and appearance subjectively for those who see it. Therefore, the color of an object cannot be understood in isolation from the object itself. Perceptual color and memory color cannot be considered independently, but must be considered together (Olkkonen & Alfred 2014; Witzel & Hansen 2015). Therefore, to record a person's memory properly about an institution, a color is needed that can be the memory color or canonical color of the institution.

2.3. Symbol Color

Color is a visual experience that exerts influence on human emotions. Color is also the language of expression that is used as a communication tool to convey messages from its users. The meaning of color is inspired by what humans see in the environment and the emotions it generates. Hutchings (2002: 2007) states that color is a strong stimulus and motivator that can be used in various ways to control actions, organize and make one's life pleasant or miserable. When associated with nature, red reminds people of fire and blood, blue in a clear sky or cool air, green in plants, fertility or ecology, and yellow in the sun. This psychological influence then becomes a symbol and tradition for the user community.

Symbols are needed by a society to realize virtual things as reality. Ideas and concepts that are born from a virtual thought process are treated and manifested in the form of symbols. The linkage system of dynamic symbols can make individuals feel harmoniously connected to themselves, the community and the cosmos (Tresidder 2006:6). Symbols become traditions that deliver a person or group into ideas or concepts of the past, present or future. Symbols are drivers, directives, and controllers to achieve a goal.

2.4. Harmony

Harmony is the equilibrium balance of the various proportions of each part in a composition. Harmony comes from the Greek word 'harmonia' which means harmony, togetherness and / or agreement, which is harmonious and pleasing feelings. The idea of harmony is actually very old and closely related to nature. Everything that is natural is truly harmonious. In the Western world, the concept of harmony of beauty was developed by Pythagoras (560-480 BCS) for music through mathematics using scales and numbers, as written by Aristotle in *Metaphysics* (Kuehni 2005:161).

Harmony expresses a matter of taste, and when someone feels something they think is beautiful, it's hard to argue with it. Thus, all theories about harmony only aim to help or make it easier for us to make an aesthetic composition, complete with all its shortcomings. It must be remembered that the view of harmony is always influenced by the conditions of each individual regarding their cultural and social background, age, gender, time and place, as well as their visual perceptions. Whatever the weaknesses of various theories, something that is considered beautiful will always open our hearts to forgive any shortcomings that may occur.

Color harmonization of an object can occur naturally, but can also be planned through special skills based on knowledge of the character and behavior of colors. However, experience shows that the theory of color harmonization is often biased and misleading, and therefore, it cannot be used in all situations. Scholars generally argue that the harmony of beauty is universal. Someone who has an adequate appreciation of the beauty of music will also have the same appreciation of the beauty of other arts such as painting, writing, dance or stage art. He will have a sensation of the beautiful harmony of the various works of art.

Burchett in Color Harmony states that when two or more colors are seen together to produce a satisfying affective response, they are in harmony (Burchett 2002:28-31). For Goethe, the harmonization of colors followed the universal law of 'light-dark.' Active colors like yellow, orange, and red when paired with black or dark colors are advantageous because they get brighter. The passive colors purple, blue, and green are advantageous when paired with light colors (Kuehni 2005:166). He considers the colors close together as devoid of character. Goethe proposed the concept of positivity-negativity. Positive colors become 'warm colors' and 'negative colors' are cool colors that create a certain atmosphere that is strong, soft and radiant. This harmony is known as the contrast harmony which is dominant in color composition.

Understanding contrast means comparing our identification of the difference in extreme effects between two things such as day and night, long and short, large to small or broad to narrow. In terms of color contrast, we will compare the effect between one color and another. The color contrast will have a strong-weak or light-dark effect on our eyes. Contrast produces a pounding of reaction that connects the tone of one color to another, without which the pounding would not be felt.

In 1919 Itten built a model of colored balls and stars. Itten places three basic colors of red-blue-yellow on the triangle. Yellow is at the top of the triangle because yellow is the brightest color visually in sunlight. From this basic color triangle, Itten shows that mixing two basic colors produces three secondary colors. Mixing primary and secondary colors produces twelve tertiary colors that are in their color circle. The Itten color mixing system is most widely used in the understanding of color mixing.

Itten compiled various theories of the characteristics and influence of color from previous experts such as Goethe, Chevreul, and others. He concluded that in contrast theory there are seven unique color contrasts in terms of character and artistic values that affect colors visually, expressively, and symbolically. These contrasting colors consist of hue contrast, light-dark contrast, cool-warm contrast, complementary contrast, simultaneous contrast, saturation contrast, and extension contrast. This contrast color theory later became the basic rule in color design (Itten & Birren 1970:33-63).

2.5. Visual Perception

The visual perception of color in a small area is very different from that in a large area. Dark colors have the potential to shrink the space, on the other hand, light colors give a feeling of space. Dark colors will recede to the back so that the field feels distant, on the contrary, light colors will stick out to the front, giving a sense of closeness (See Harmony). From a long distance view, colors with small proportions can be lost when paired with colors with large proportions. This is because our eyes have a limited ability to see tiny dots.

In 1810, Goethe created a color system that was very different from that of Newton. If Newton did the study of color from a scientific standpoint where color is produced by refraction, Goethe did it from the point of human

perception of color. He was looking for how to use color artistically. For Goethe, light did not stand alone. Color emerges from eye acceptance due to color perception. The properties inherent in color relate to color likeness, color contrast, and so on.

For Goethe, there was a truth that could not be reached by Newton's theory. Goethe offers to fill that gap by using a phenomenological analysis of the human experience of color. Goethe explores the psychological impact of color on mood and emotions about color. His doctrine of color focuses more on using language to describe the effect color produces when our brains interpret colors and how color combinations create certain feelings and atmospheres in the viewer. Goethe's theory was human-oriented and based more on sensations than on science. Humans naturally find examples in nature to represent that color and make sense of it and use it. Certain colors can be felt and create emotions and atmosphere (Eastlake 1840).

In 1969, Birren developed a color triangle model through a color harmony approach based on a single hue and mixing colors. Birren believes that the influence of color is more than just perception. Color is more than just a basic influence on works of art, psychology, and human experience in the workplace. He also believes color is the main means of expression, communication and self-identification. For Birren, expression must come from within, from a consciousness that informs insight (Birren 1961).

2.6. Unity and Diversity

When light hits an object of any color, it simply absorbs the wavelengths that are exactly the same as its atomic structure and reflects the rest to the observer. When light hits the human eye, the wavelengths do so in different ways, affecting our perception. The hypothalamus is the part of the brain that regulates our hormones and the endocrine system. When light hitting the retina is converted into electrical impulses which are then sent to the hypothalamus for interpretation (Kurt & Osueke 2014).

A color does not appear alone, but appears together with other colors. Besides that, color is also just one element in the design that comes along with other design elements into an aesthetic unity. All elements will always be connected and influence each other. Therefore, in determining the color composition, the whole element must be considered.

The large role of color recorded in human memory is one of the reasons why the color of a complex facility is not designed sectorally but must be carried out in a total and integrated manner. Thus, the colors are coded and the signages on the wayfinding system will easily guide those who are first into the complicated facility, from the moment they are at the entrance of the area to the exit to leave. They can immediately determine the orientation and find the direction in which they are going.

– *Communication*. Every object in an environment should have a means of communication with one another in order to produce a harmoniously arranged composition of designs. Having a unique color for each object to highlight itself can still be done by considering the color of other objects around it.
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Unity vs competition. For a large number of objects, for example, a multiple mass system or a multi-story building, it is often necessary to have a color difference which serves to indicate a certain location by using a 'color code' via the wayfinding system. Using color diversity does not mean that all units are left blindly choosing their own color. Unity of composition is still a fixed price for aesthetic, therefore, before determining the differences in location colors, first determine the dominant color or the main color that is the color of the institution. Institutional colors can also be placed as accent colors only, for example, for the reason that these colors have a high enough intensity so that they are too vulgar when used in large proportions.

3.   Research Methods

This study is a qualitative architectural design based on a constructive paradigm with the consideration that architects have their own reality about the meaning of color in higher education. Likewise, with the community at the research location. Reality that is different from each other will be constructed together to get a reality that can be understood together. Data collection and analysis are carried out, among others, by: (1) Reviewing documents related to university strategic planning; (2) The architect describes the subjective reality to the higher education community who has a subjective reality about the meaning of color, using transactional dialogue through focus group discussions (FGD), with participants consisting of university officials, academic senators, and academicians. The data from the review of strategic plan documents and FGDs were compared with literature studies to get the reality about the appropriate color composition of the design for the institution. The number of participants was 190 people. This research is a series of studies conducted since the strategic plan 2006-2010, 2011-2015, and 2016-2020.

4.   Results and Discussion

4.1. Unhas' Vision

From the beginning, Unhas' vision was echoed by the Rector Amiruddin who in 1974-1975 moved the campus from Baraya to Tamalanrea. With the concept of university unity embodied in the structure of the building, a solid Unhasness was created to eliminate walls and faculty egoism. Amiruddin campaigned for the Unhas spirit by dismantling the faculty physical barriers. The faculty ego mindset was eliminated by prioritizing Unhas, then faculties and departments. He wanted that when outsiders asked students, students would no longer mention this and that faculty, but Unhas students (Halide 2014:156; Buyung 2014:225).

In 1975, Unhas established 'marine' as the Principal Scientific Pattern for the development of Science and Arts in the Unhas environment. At that time, awareness of the role of the sea as a regulator of natural processes that occur above the earth's surface was one of the basic considerations. The geographical position of Unhas which is in an area with people who have a maritime cultural background that has reached its golden age. Therefore, Unhas' position itself as a center for the development of a maritime culture characterized by independence in the context of awareness of universal interconnection. In the Strategic Plan' 2006-2010, the vision changed to make Unhas a Maritime Cultural Center. In the Strategic Plan' 2011-2015 and 2016-2020, the Unhas' vision has already changed again to make Unhas a center of excellence in human development, science, technology, arts, and culture based on the Indonesian maritime continent.

The selection of the maritime continent as the Unhas' vision also contains a meaning that is universal and its contents. Unhas will pay attention to the development of science and technology related to various aspects of life, both in terms of software and hardware from the maritime field. Unhas will develop a maritime culture through the exploration and development of maritime values that have brought this nation to be reckoned with at the global level several centuries ago.

Through its maritime vision, Unhas informs its environment, re-actualizes the values, namely: (1) Integrity which represents honesty, responsibility, and steadfastness in its stance, (2) Innovative which is a combination and creative of quality orientation, independence and pioneering, (3) Catalytic which represents courage, determination, dedicative and competitive, and (4) Wise which represents decency, fairness and civilization, holistic and assimilative, which distinguishes it from other cultures.

The characteristics of the maritime world that are borderless and cover the entire surface of the earth, air and sea will make science and technology development no longer carried out within the framework of compartmentalized disciplines as has been practiced so far. These values and insights will become the starting point for the new embodiment of maritime culture in accordance with the spirit of the times. Within such a cultural framework, Unhas will invites all parties to jointly build and develop science, technology and art

(Lembaga Penelitian dan Pengabdian Masyarakat Universitas Hasanuddin, 2020). From the description, it is clear that Unhas' vision is always related to the sea and the ocean.

Visually, the sea is always connected with blue color. Research on how people perceive color shows that 13.22% (highest) of respondents associate blue with water, seas and oceans (Cassandra 2019). The relatively short wavelength of the blue color makes it a soothing color for the eye. Cool colors create serenity (Slibirite & Skeryte 2014). Symbolically, the color blue is always connected with positive things such as honesty, sincerity, loyalty, justice, intelligence, stability and trust, hope, protection, productivity, and something rare.

Table 1: The wavelength and frequency of visible light

Colors	Wavelength Interval	Frequency Interval
red	650-740 nm	405-464 thz
orange	585-650 nm	464-512 thz
yellow	575-585 nm	512-520 thz
green	495-575 nm	520-606 thz
blue	445-495 nm	606-674 thz
indigo	425-445 nm	674-707 thz
violet	400-425 nm	707-750 thz

With its eye-shading character, blue can be used as a relatively wide area of color without causing problems for the user. With high frequency, this color can confuse the user's mind. Likewise, with blue-purple colors (See Table 1). Therefore, shade blue and blue-purple are not recommended for use in relatively wide areas, but are only suitable as accent colors in a composition. Blue mixed with black or blue mixed with gray tends to create a gloomy, sad, cold, impersonal atmosphere, and unfriendly. On the other hand, blue mixed with white displays softness.

4.2. Identity Color

Unhas has a red identity color which symbolically represents the courage and passion of its citizens to act. Symbolically, the color red is associated with positive things such as passion and love, power, success and luck, ambition, motivation and self-confidence. On the other hand, red also represents negative things such as anger, sacrifice and sin, evil, danger, blood and communism. With the longest wave, the red color is most quickly caught by the human eye (Table 1). That is why red is a stimulant color that must be used with caution as it increases aggressiveness and dominance.

Red is one of the colors that grabs the attention very strongly compared to the other colors. This color has the longest wavelength of all visible colors. Therefore, red with high saturation is very often used in applied contexts such as advertising or design because it is exciting (Valdez & Mehrabian 1994:406; Kuhbandner, et al. 2015). However, challenging red color has also been shown to damage performance (Shie, Zhang & Jiang 2015) Therefore, although red is the color of Unhas identity, it is not recommended to use it in fields with wide dimensions but is still displayed as something important.

Initially, the use of red as a clothing color was only on student jackets. During the time of Rector Idrus Paturusi, red became a popular color for clothes on Dies Natalis and coats of university elites in both the rectorate and work units. Currently, the red color is used as the background color for meetings at the university, faculty, study program, and extra-curricular institutions. In the Faculty of Medicine, it can be seen that almost all the outer walls of the building are colored red with high saturation. This is quite surprising because the excessive red color has the potential as a stimulant that has a negative impact on human emotions. Experiments on the effect of red

have also been carried out by placing patients in a room with walls, ceilings, windowsill and red light. As a result, they started getting cranky and punching each other just as their nurse did (Kargere 1979: 4-6).

4.3. Wayfinding

Although subjective, the sensation of place greatly influences the quality of the design. The sensation of a place is very much determined by the identity of the place. How a design can affect a person's perception of being part of his/her environment, making his/her feel he/she is in this place and not somewhere else. For new visitors to a relatively large area, a wayfinding system is needed that can guide and direct someone when entering and leaving the area. The wayfinding system takes one's decision on where to go. Users need directions on the right path so they don't get lost to the intended direction and make it easier to return to the original direction of arrival.

This study shows that the Unhas' wayfinding is only equipped with signages in the form of symbols and standard partial command sentences that are only installed in certain places which are assumed to be strategic. This system also does not use color as part of a comprehensive wayfinding design. In an area or a relatively large area, the use of color codes is needed to make it easier for users to identify environments, zones, buildings, and determine orientation. Therefore, this research will also be used to construct a color coding system that can be used as a color code for the Unhas wayfinding system. The design of the color coding system uses highly saturated colors to avoid differences in color perception. The color of the sign should use a color with a light-dark contrast so that there is a clear difference between the figure and the background.

4.4. Color Schematic

Learning activities in higher education are adult learning activities. This learning activity requires a lot of reflections to get enlightened in the learning process. Therefore, before designing the color of a higher education institution, we must first know about the initial idea of the universal existence of higher education.

The forerunner of higher education was '*academia*,' a school of philosophy founded by Plato in 385 BC outside the city of Athens. Akademia is an olive grove and gymnasium dedicated to Akademos, the place where Plato and his students serve as a center of learning. The academia was then cultivated by Plato's friends and students. Furthermore, academia, academician or academy is then used as a term for students and scholars who are involved in higher education and research (Wikipedia 2021).

For ordinary people, higher education is one of the institutions of truth among other truth institutions such as religion, rulers, and arts. They place the institution of truth as something sacred, honorable, and dignified, a place where the truth is reluctant to be questioned because it is believed that its existence is there. As an institution of truth, higher education is a platform for academic freedom which is expected not to be co-opted by economic, power, and political interests. The process of learning, research, and community service are carried out solely for the development of knowledge in order to improve the quality of human civilization, and it is hoped that it will avoid short-term interests that have the potential to destroy human existence.

The color design of a university requires meditative or passive colors that can lead the academic community to have a broad and far-reaching vision, conduct continuous truth-seeking, have a desire to share knowledge and be accustomed to accepting differences of opinion and new things. Colors that can be used include green, blue, indigo and purple shades. Eye-catching colors such as electric colors which, due to their required function, are only allowed to be present in a minimal proportion because they have the potential to make it difficult to have a space of serenity.

Referring to color harmony, color design based on organizational vision can be arranged by determining the colors that will be combined with one another. The color scheme is designed in an integrated manner covering applications for building architecture, jackets, toga/gown, wayfinding systems, websites, print and promotional media. Thus, expression as the color of vision will easily stick mentally for the Unhas members and the community.

It is known that there are two main colors that characterize the Unhas color, namely blue as the color of the organization's vision and red as the color of identity (Figure 1). These two primary colors of RGB primary colors are strong, dynamic, and expressive. When these two colors are paired, it is a hue-contrast combination using the primary color. This combination is thought to be full of energy which jolts our eyes. The advantage of hue-contrast combinations is that they can easily be paired with neutral whites, blacks, and / or grays.
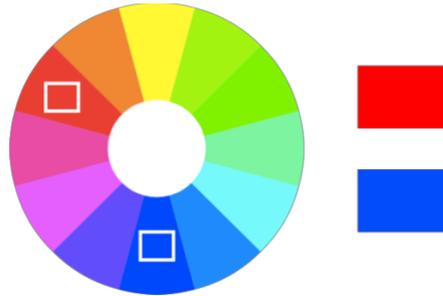
Figure 1: Blue as the color of the organization's vision and red as the color of identity

Figure 2: Color schematic with a contrast and blue primary color

Figure 3: Color schematic with a contrast and blue-cyan tertiary color

Although red is the color of Unhas identity, this color is avoided as the dominant color in spaces that require tranquility such as lecture halls, libraries, meeting rooms, seminar rooms, or laboratories. Since red is an institutional color, it should be presented as an accent color that will still stand out but do not have a major impact on the descent of the calm required. The blue color is displayed in two different conditions. The blue primary color is not recommended for outdoor use because although blue is a soothing color, blue in the sun creates a glare. For outdoor use, blue-cyan tertiary colors can make the eyes more comfortable (Figure 2-3).

This color schematic can be juxtaposed with the colors of the faculties, for example, in the exterior, interior, the wayfinding system, website design, and university toga/gowns. In Figure 4, shows an example of applying color schematics to the Unhas wayfinding system.

In the process of finding the color vision of an institution, experiments have been carried out by making several color schematics which are applied to the exterior and interior of buildings, websites and printed materials related to the promotion of the institution. The red color was tried to be an accent color in the Lecture Theater Building on the grounds that users would know quickly the location of the main entrance of the building. The trend quickly used red on all the building doors, so that the red color was no longer as an accent but became a common color in the building.

Figure 4: Color Schematic in Wayfinding System.[1]

The red color also dominates the exterior and interior, such as in the Faculty of Medicine and Research Institutions. Its conspicuous presence symbolically seems as if this is an institution related to fire fighting activities or one of Indonesia's parties, namely PDIP. The vulgar use of red was also present on the university website in 2012. In 2020 the website was dominated by green to display visual perceptions as green university. The philosophy of the green university originating from green architecture is the concept of environmentally friendly energy management.

The appearance of the university website also does not appear to have been passed down hierarchically to the work unit website as reflected in the display of the Faculty of Engineering website. Although both use red visual elements, there are differences in the position of the color in the composition. On university websites, red is the main color, while at work units it is the accent color. The appearance of different websites will make it difficult for the public to easily remember the image of Unhas. This also shows that the color code has not been considered important in the efforts to create Unhas branding (Figure 5-7).

Since 2010, the promulgation of the Unhas' vision has been the result of a think-tank thought at the rectorate level. The Rector as the highest leader of Unhas was not directly involved in making the vision statement. The vision statement has not yet reached the branding creation process because it is only intended to support the concept of a strategic plan. Therefore, the perception of vision is built by each work unit and is still partial and does not become a unity. This condition causes the process of creating the Unhas image to be unfocused, which appears on the color display. The color concept presented by the university is very diverse without red thread, so that it has the potential to cause image noise.

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[1] The terms in the images are in the context of the research location using the Indonesian.

Ideally, the concept of institutional color is designed in an integrated manner and involves the entire concept of the institution's visual image. This concept must also be a guide to be implemented consistently by all work units so that there is no different interpretation. Thus, the public's imagination of the institution will be easily formed.

Figure 5. Unhas' website in 2020.

Figure 6. Unhas' website in 2020.

Figure 7: Faculty of Engineering's website in 2021.

5. Conclusion

The success of institutional color vision is determined by the clarity of the organization's vision. In order for an organizational vision to be a driving force for activities towards organizational goals, this vision must be clearly and consistently formulated and articulated in the implementation of institutional activities. In the case of Unhas, the vision created by the think-tank without the direct involvement of the rector will find it difficult to move citizens in the same direction. This condition appears visually in the image of the university.

For the purpose of creating an image that is easily recorded in people's memory, Unhas needs the creation of branding through institutional colors that match the vision and identity of Unhas. For visions related to maritime, it is symbolically represented by the blue color paired with the identity color, namely red. The concept of color composition pays attention to the characteristics of each color that will be seen side by side. The result is that the blue color will be displayed with a different saturation for the light-related conditions. The red will appear as an accent color with non-dominant proportions. For the appearance of the blue wayfinding system, it appears with a light-dark concept so that there is a real difference between the figure and the background.

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The Effect of an Anxiety-Coping Program for Children Based on Cognitive Behavioral Therapy on 4th Graders' Anxiety Levels[*]

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Abstract

The purpose of this study was to investigate the effects of an anxiety-coping program for children based on cognitive behavioral therapy on children's anxiety levels. The study was conducted with 12 students in the fourth grade of primary school. Screen for Child Anxiety Related Disorders (SCARED) was during the study for data collection. Students in the experimental group participated in a Cognitive Behavioral Therapy based anxiety coping program consisting of eight sessions. No study was conducted with the students in the control group. A mixed design of 2x3 was used in the study. Follow-up measurement was performed six months after the study was completed. In the analysis of the data, Mann Whitney U test and Friedman test were used. As a result of the analysis, a significant decrease was observed in the general anxiety, general anxiety disorder, separation anxiety and social anxiety levels of the participants in the experiment group after the intervention which continued during the follow-up period. Furthermore there was no statistically significant decrease in panic disorder/somatic symptoms and school phobia levels of the participants in the experimental group. The findings indicated that the anxiety-coping program for children based on cognitive behavioral therapy is effective in terms of decreasing the anxiety levels of children.

Keywords: Anxiety, Children, Cognitive Behavioral Therapy, Group Counseling

1. Introduction

Even though anxiety and fears are a normal part of growth in children's development, children's lives are negatively affected as the anxiety intensity increases. According to Essau (2007), in order for an anxiety to be a

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treatment-requiring disorder, a) its duration and severity should not correspond to the actual danger of the situation, b) it should develop in "harmless" situations without danger, c) it should be chronic (long term) and finally, d) it must cause impairment in psychological, academic and social functionality.

Researchers indicate the age of onset of childhood anxiety disorders as 11 (Davis et al. 2011) with lifetime prevalence varying between 2.5-20% (Costello et al. 2005; Newman et al. 1996; Rapee et al. 2009). Changes can be observed in five different areas in children with high levels of anxiety. These are: physical (excessive sweating, palpitations, difficulty in breathing, abdominal pain, etc.), emotional (panic, anxiety, sadness, fear, etc.), behavioral (avoidance, finger sucking, nail eating, insomnia, etc.), cognitive (failure expectations, catasthrophic thoughts, etc.) and interpersonal relationships (not being able to read aloud, fear of negative evaluation, not being able to join a group or social environment, etc.) (Friedberg and McClure, 2002; Kashani and Orvaschel, 1990; Beidel and Turner, 1998). Anxiety has adverse impacts on the child in the aforementioned areas; while on the other hand, it can also have a devastating effect on the child's family. Keller et al. (1992) stated that anxiety tends to be chronic with spontaneous reduction seldomly observed in very few cases.

Cognitive Behavioral Therapy is one of the most commonly used approaches in the treatment of childhood anxiety disorders. It was observed when previous studies on the problems faced by children and adolescents were examined that cognitive behavioral interventions make up one of the most effective methods of psychological treatment (Weisz et al. 2017). Weisz et al. (2017) conducted a meta-analysis study on the psychological interventions performed for children and adolescents during the last 50 years and concluded that cognitive behavioral therapy has a highly effective treatment approach on many problems such as attention deficit and hyperactivity disorder, depression, conduct disorder and anxiety disorder. Treatments with the highest effect size among these problems were reported to be interventions for anxiety disorder. In another systematic review study conducted by Neil and Christensen (2009) examined school-based prevention and early intervention programs aimed at reducing anxiety in children and adolescents indicating that 78% of these programs were based on cognitive behavioral therapy and that 71% of these studies were successful in reducing anxiety symptoms.

Dysfunctional cognitions play an important role in the occurrence of childhood anxiety in accordance with the cognitive behavioral therapy (Beck, Emery and Greenberg, 1985; Vasey and MacLeod, 2001). In particular, self expressions, cognitive errors and cognitive schemas affect anxiety disorders in children and adolescents (Alfano, Beidel and Turner, 2002). Kendall and Ronan (1990) suggested that danger and threat-related schemas are much more active in children with high anxiety level. In addition, it is stated that these children have insufficient skills to cope with anxiety or cannot use their existing skills adequately; while on the other hand they have biased or distorted cognitive processes (Pilecki and McKay, 2011).

It can be observed when the related literature is examined that many controlled efficacy studies have been carried out for childhood anxiety disorders based on cognitive behavioral therapy (Barrett, 1998; Silverman et al., 1999; Mendlovitz et al., 1999; Flannery-Schroeder and Kendall, 2000; Short, Barrett and Fox, 2001; Muris, Meesters and van Melick, 2002; Manassis et al., 2002; Lumpkin et al., 2002; Mifsud and Rapee, 2005; Liber vd. 2008; Hudson et al., 2009; Lau, Chan, Li and Au, 2010; Bilek and Ehrenreich-May, 2012; Ishikawa et al., 2012; Wergeland et al., 2014) and according to the results of these studies, Cognitive Behavioral therapy has an effect on reducing childhood anxiety disorders.

Kendall (1994) conducted the first controlled efficacy study by developing "Coping Cat," the first therapy handbook based on cognitive behavioral therapy for the treatment of childhood anxiety disorders, followed by other therapy guidelines (Kendall, 1994; Barrett, Dadds and Rapee, 1996; Beidel, Turner and Morris, 2000; Barrett, Lowry-Webster and Turner, 2000; Ehrenreich-May and Bilek, 2009).

It is observed in Turkish literature that cognitive behavioral anxiety coping programs are not common for children who are not in the clinical group and school settings. An anxiety coping program in an individual format was developed in a previous study (Sorias, Bildik and Tekinsav-Sütcü, 2013). Furthermore it is seen that there is only one study with an anxiety coping program in group format (Cool Kids) which has been translated

into Turkish and applied. The results of the study point out that CBT Cool Kids program is effective in reducing the anxiety symptoms of children (Kapçı et al., 2012).

Hence, it is very important to develop and test the effectiveness of cognitive behavioral group programs specific to the Turkish culture. The aim of the study was to develop and test the effectiveness of an anxiety coping program based on Cognitive Behavioral Therapy for childhood anxiety.

2. Method

Research Design

This was a quasi-experimental study conducted for examining the effects on the anxiety levels of children of an anxiety-coping program for children based on cognitive behavioral therapy. A mixed design of 2x3 (experimental and control*pre-test, post-test and 6-month follow-up) was used in the study(Neuman, 2014). The design of the study is shown in Table 1.

Table 1: Research Design

Groups	Pre-test	Procedure	Post-test	Follow-up
Experimental	SCARED	Anxiety-Coping Program for Children Based On Cognitive Behavioral Therapy	SCARED	SCARED
Control	SCARED	-	SCARED	SCARED

Note. SCARED: The Screen For Child Anxiety Related Emotional Disorders

According to this design, the research has one independent and one dependent variable. The independent variable of the study was the anxiety-coping program for children based on cognitive-behavioral therapy. The dependent variable was the anxiety levels of children. SCARED was applied as a pre-test to experimental and control groups before the implementation of the anxiety coping programme. The anxiety-coping program for children based on cognitive-behavioral therapy, consisting of a total of eight sessions, was applied during the study to the participants in the experimental group for a period of 4 weeks with two sessions per week. No studies have been conducted with the participants in the control group. SCARED was applied as a post-test to both the experimental and control groups one week after implementation and as a follow-up 6 months after implementation. In addition, written feedback was received from the parents on the effects of the program on their children's anxiety after the program was completed.

Participants

The participants of the study were selected from students continuing their fourth grade education at a primary school in Gaziantep. Participants were selected from the students attending the fourth grade of the primary school and meeting the conditions stated below:

- To have a SCARED score above the standard deviation of the mean group score
- Not having undergone any psychological treatment in the past or not being involved in any psychological treatment currently.
- Not currently using any psychiatric drugs.
- Volunteering to participate in the study.
- To have the written permission of the student's parents to participate in the study.

Informed consent form was obtained from all participants' parents.

Forming the Experiment and Control Groups

Screen for Child Anxiety Related Emotional Disorders (SCARED) was applied on 120 fourth grade students at a primary school in Gaziantep in order to form the experiment and control groups of the study. These 120 students were then asked to draw pictures of the subjects they feared and worried about. 20 students who scored on a standard deviation (SD= 11.80173) and two standard deviations (SD = 23.60346) on the mean obtained by the group applied by the measurement tool (SCARED) were determined. The pictures previously drawn by the students with high anxiety scores were examined to receive expert opinion based on the following criteria: a) whether there is a concrete anxiety object in the picture, b) the intensity of the anxiety drawn in the picture, c) the size of shapes and the colors used, and d) the content of the picture. A total of 4 boys and 6 girls were assigned to the experiment group, while 7 girls and 3 boys were assigned to the control group.

Afterwards, the parents of the students in the experiment group were informed by the school psychological counselor and their written permission was obtained. Parents of two students from both the experiment and control groups did not allow their children to participate in the study. Thus, in the last case, post-test measurements were completed with 8 students in the experiment group and with 8 students in the control group. As the students graduated from the fourth grade, they changed their schools and could not be reached, thus leading to a loss of subjects during follow-up measurements; and the study was completed with six students in each of the experiment and control groups making up a total of 12 students.

Measures

The Screen for Child Anxiety Related Emotional Disorders

The Screen for Child Anxiety Related Emotional Disorders(SCARED) was developed by Birmaher et al. (1997) to determine childhood anxiety disorders. The scale is comprised of a total of 41 items (Birmaher et al., 1997).

The items in the scale were prepared by considering the criteria of childhood anxiety disorders in DSM-IV. SCARED consists of 41 items and 5 sub-dimensions. These sub-dimensions are: 1- Somatic symptoms / panic disorder (13 items), 2- Generalized anxiety disorder (9 items), 3- Separation anxiety disorder (8 items), 4- Social phobia (7 items) and 5- School phobia (4 items). The first four of these five factors address the symptoms of childhood anxiety disorders in DSM-IV. School phobia, which is the last sub-dimension, is not a category in DSM-IV, but it is included as a sub-dimension because it is frequently observed either together with other anxiety disorders or separately (Birmaher et al., 1997).

Each scale item was given a score ranging between 0-2 points. If the "not correct or rarely correct" option is marked for an item in the scale, it is rated as 0 point, if the "slightly or sometimes correct" option is marked, it is rated as 1 point, and if the "true or often true" option is marked, it is rated as 2 points. A separate score can be obtained for each subscale, as well as a total score. The highest score that can be obtained from the scale is 82 and the lowest score is 0. High scores from the scale indicate a high general anxiety level for the child (Birmaher et al., 1997).

Parental Feedback Form

In order to collect data in the qualitative dimension of the research, the parents were asked three open-ended questions developed by the researcher. These questions are given below:

1- Have you observed any changes in your child's fears? Can you explain the changes you have observed by example?
2- Have you observed any change in your child's coping behavior? Can you explain the behavioral changes you have observed by example?
3- What are the other effects of the program that you observed on your child?

Procedure

The "Anxiety-Coping Program for Children Based On Cognitive-Behavioral Therapy" developed by the researcher and consisting of 8 sessions was applied to the experiment group during the present study in two sessions per week. The program is introduced below.

The Development of the Anxiety-Coping Program for Children Based On Cognitive-Behavioral Therapy

While preparing The Anxiety-Coping Program For Children Based On Cognitive-Behavioral Therapy within the scope of this study, some therapy books and workbooks were used such as "Fear Hunter" (Sorias, Bildik, Tekinsav-Sütcü and Aydın, 2013), "Starving the anxiety gremlin for children aged 5-9: A cognitive behavioral therapy workbook on anxiety management" (Collins-Donnelly, 2013), "A Clinician's Guide to Think Good-Feel Good: Using CBT with Children and Young People" (Stallard, 2017), "CBT strategies for anxious and depressed children and adolescents: A clinician's toolkit" (Bunge, Mandil, Consoli and Gomar, 2017) and "101 Healing Stories for Kids and Teens: Using Metaphors in Therapy" (Burns, 2016). The content of the program is based on cognitive behavioral therapy techniques such as relaxation techniques, psycho-education, cognitive restructuring, self-rewarding, role play, problem solving.

Since the group to be studied was comprised of primary school students, the number of sessions of the study was limited and care was taken not to exceed 60 minutes for each session. Moreover, since the study group consisted of children, attention was given to make the sessions as enjoyable as possible by making use of activities such as warm-up games, cartoons, painting activities, drawing pictures, and reading stories. Fun games were played with the children at the beginning and end of each session.

The program was primarily examined by three specialists who have been trained in Cognitive Behavioral Therapy with previous studies performed, with at least PhD education, who are working as lecturers in Psychological Counseling and Guidance. Necessary arrangements were made on the program taking into consideration the feedback received from the experts.

Implementation of the Program

The required permissions to make video recording of the group sessions were obtained from the families before the group program was implemented. Information was provided to the parents and their feedback was taken on the purpose and content of the program. While the sessions were conducted by a school psychological counselor experienced in working with children, the researcher was also involved in the process as a co-therapist. The school counselor and the researcher were getting CBT training. Each session was monitored, evaluated and feedback was given by the supervisor who is also a CBT therapist. Preparations were made in line with the feedback received.

Program Content

The program developed by the researcher was prepared based on Cognitive Behavioral Therapy. The overall aim of this program was to reduce the anxiety levels of children between the ages of 9 and 12. The overall sessions and objectives of the program are presented below.
The Objectives of the Sessions
Session 1:
- To have knowledge about the group process and the aims of the group.
- Creating rules to be followed in the group.
- Realizing that there are different emotions.

Session 2:
- To learn what anxiety is.
- To realize what are the physical symptoms of anxiety.

Session 3:
- Realize that each individual's anxiety is unique.
- To learn what kind of behaviors can be done when worried.
- Learning to relax physically and mentally when worried.

Session 4:
- To distinguish positive and negative thoughts about anxiety.
- To be able to realize the negative thoughts that cause anxiety in mind.

Session 5:
- To learn behavioral coping skills with anxiety

Session 6:
- To learn how to Struggle with anxiety-causing thoughts.

Session 7:
- To be able to develop alternative thoughts against thoughts that cause anxiety.

Session 8:
- To be able to evaluate the group process.

Data Analysis

In order to determine the statistical methods to be used in the analysis of the data obtained in the study, it was investigated whether the pre-test scores of the students in the experimental and control groups met the basic assumptions of the parametric tests.

Normal distribution of data is one of the basic assumptions of parametric tests. The Shapiro-Wilks values and skewness and kurtosis coefficients of the subgroup of the experimental and control groups from the SCARED pre-test measurements were examined in order to test whether this assumption was met or not. The values obtained are given in Table 2.

Table 2: Normality tests of pre-test scores of experiment and control groups

Scale	Group	$\overline{X}$	SD	Shapiro Wilks	Skewness	Kurtosis
SCARED	Experimental	49,81	7,53	,074	,595	-1,309
	Control	46,91	4,46	,035	1,127	,048

Note. SCARED: The Screen For Child Anxiety Related Emotional Disorders

It can be observed when Table 2 is examined that the Shapiro-Wilks value of the experimental group's pretest score is greater than .05, but when the skewness and kurtosis coefficients are examined, it is observed that the kurtosis coefficient is not in the range of -1 to +1; the experimental group appears to be more flattened than normal. It is observed when the value of Shapiro-Wilks related to the pre-tests of the control group is examined that it is smaller than .05 indicating that it does not dissipate normally. Again, the skewness coefficient is not in the range of -1 to +1 and the control group is more skewed than normal (Hair, Black, Babin, Anderson & Tatham, 2013).

Nonparametric tests are recommended when the number of subjects in each study group is less than 15 especially for social sciences related experimental and quasi-experimental studies (Field, 2013).

Hence, Mann-Whitney U test, which is the non-parametric equivalent of the t-test for Independent Samples, was used to examine whether there is a significant difference between the groups according to the mean scores received by the experimental and control groups from the pretest, posttest and follow-up measurements.

Friedman test, which is the non-parametric equivalent of the one-way ANOVA with repeated measurements was used to examine whether there is a significant difference between the mean scores of the experimental and control groups before and after the procedure, that is within the group (pre-test, post-test, follow-up measures). The Wilcoxon Signed Rank Test was used to reveal the difference between the measurements.

3. Results

The mean and standard deviation values of the scores of SCARED obtained by the participants in the experimental and control groups from the pretest, posttest and follow-up measurement were calculated. The findings are given in Table 3. Table 3 presents the mean values and standard deviations of the scores of the experiment and control groups obtained from SCARED during each stage of the study.

Table 3: Means and Standard deviations of experimental and control groups on the SCARED

Scale	Pre-test			Post-test			Follow-up		
	n	$\bar{X}$	SD	n	$\bar{X}$	SD	n	$\bar{X}$	SD
SCARED									
Experimental	8	49,81	7,53	8	32,95	12,38	6	23,33	14,12
Control	8	46,91	4,46	8	40,46	7,58	6	38,17	9,81
Panic/Somatic									
Experimental	8	15,68	4,39	8	9,57	6,12	6	5,33	5,61
Control	8	14,24	4,03	8	11,71	4,13	6	11,33	7,17
GAD									
Experimental	8	11,19	3,5	8	7,13	4,49	6	4,83	3,66
Control	8	8,29	2,53	8	7,88	4,12	6	7,83	3,06
Separation Anxiety									
Experimental	8	10,38	2,72	8	7	3,12	6	6,17	5,64
Control	8	11,5	2,93	8	10,25	1,91	6	8,67	4,41
Social Phobia									
Experimental	8	11,19	2,78	8	7,75	1,49	6	7,83	3,06
Control	8	10,87	2,30	8	9	1,31	6	9,67	1,63
School Phobia									
Experimental	8	1,38	1,06	8	1,5	1,41	6	0,17	0,41
Control	8	2	1,1	8	1,63	0,52	6	1,5	1,38

Note. SCARED: The Screen For Child Anxiety Related Emotional Disorders

Mann-Whitney U test was used to test the significance of the difference between the averages of the scores obtained by the experimental and control groups from the pretest, posttest and follow-up measurements. A statistically significant difference was not observed between the pre-test mean scores of the experimental and control groups of SCARED [$U_{(16)} = 27.5$, p> 0.05], the post-test mean scores [$U_{(16)} = 21$, p> 0.05] and follow-up measurement mean scores [$U_{(12)} = 6$, p> 0.05] based on the Mann-Whitney U test results.

Friedman test was used to investigate whether there is a significant difference between the mean SCARED scores of the experiment and control groups obtained from the pre-test, post-test and follow-up measurements. Wilcoxon Signed Ranks test was used to determine reason for the difference in case of a difference between the measurements.

According to the Friedman test results there is a statistically significant difference between mean scores of pre-test, post-test and follow-up measurement in the experiment group ($\chi^2 = 8,33$, p<0,05).A statistically significant

difference was observed between the pre-test and post-test (z = -2,100, p <0.05), pre-test and follow-up measurement (z = -2.201, p <0.05) mean scores based on the Wilcoxon Signed Ranks test results, while there was no significant difference between the post-test and follow-up measurement mean scores (z = -1,261, p> 0.05). In accordance with these results, it can be seen that the post-test and follow-up measurement mean scores are significantly lower than the pre-test mean scores.

A similar pattern was observed with the Friedman test results of the control group. A statistically significant difference was observed between the mean scores of pre-test, post-test and follow-up measurement in the control group (χ^2 = 8,44, p<0,05). In accordance with the results of Wilcoxon Signed Ranks, a significant difference was determined between the pre-test and post-test (z = -2,240, p <0.05), pre-test and follow-up measurement (z = -2.023, p <0.05) mean scores while there was no significant difference between the post-test and follow-up measurement mean scores (z = -0,105, p> 0.05). Accordingly, it can be seen that the post-test and follow-up measurement mean scores are significantly lower compared with the pre-test mean scores.

Furthermore, Mann-Whitney U test was conducted on the pre-test, post-test and follow-up measurements of the scores obtained by the experiment and control groups from all sub-dimensions of SCARED. According to the results of Mann-Whitney U test, there was no significant difference between the mean scores obtained by the experimental and control groups from all sub-dimensions (Panic/Somatic, Generalized Anxiety Disorder, Social Phobia, School Phobia), except for Separation Anxiety, from pre-test, post-test and follow-up measurements. There was only a significant difference between the posttest mean scores of the separation anxiety [$U_{(16)}$ = 12, p <0.05] in favor of experimental group.

Friedman test was performed to determine whether there is a difference between the mean scores of the experimental group from all sub-dimensions from the pretest, posttest and follow-up measurements. It was observed based on the results that there is a significant difference between the mean scores obtained from the sub-dimensions of pretest, posttest and follow-up measurement of Generalized Anxiety Disorder (χ^2 = 7600, p <0.05), Separation Anxiety (χ^2 = 8.435, p <0.05) and Social Phobia (χ^2 = 10.182, p <0.05). It is stated that this observed difference is due to the difference between the pre-test-post-test and pre-test-follow-up measurement mean scores. There was no statistically significant difference between the mean scores of the experiment group from the sub-dimensions of Panic Disorder-Somatic Symptoms (χ^2 = 4.957, p> 0.05) and School Phobia (χ^2 = 4,500, p> 0.05).

Friedman test was repeated to determine whether there is a difference between the mean scores of the control group from all sub-dimensions from the pretest, posttest and follow-up measurements. According to the results there was no statistically significant difference among the mean scores of the control group from the sub-dimensions of Panic Disorder-Somatic Symptoms (χ^2 = 4,261, p>0,05), Generalized Anxiety Disorder (χ^2 = 1,091, p>0,05), Separation Anxiety (χ^2 = 4,957, p>0,05), Social Phobia (χ^2 = 2,211, p>0,05) ve School Phobia (χ^2 = 1,059, p>0,05).

Moreover the feedback form was sent to the parents of the students in the experimental group and they were asked to provide feedback on their children's situation after joining the program. Seven of the parents filled the feedback form and no feedback was received from one parent. Parents were coded as P1, P2 in the content analysis.

Majority of the parents responded to question 1 (Have you observed any changes in your child's fears? Can you explain the changes you observed with the example?) by stating that they have observed a decrease in their child's fears at the end of the program. This decrease also supports the quantitative findings. For example, a parent (P1) stated that the fears of his child decreased and also adding that the child clearly overcame the fear of being alone. Table 4 presents detailed information on the codes related with the changes in the fears of children. According to Table 4, five codes emerged in the category of "reduction in fears" under the theme of "change" within the scope of question 1.

Table 4: Qualitative content analysis results of the answers given to the first question

Change (Theme)
Decrease in fears (Category)
Decrease in fear of being alone (P1, P5)
Decrease in fear of height (P4)
Decrease in fear of getting on the elevator (P2)
Decrease in fear of specific animals (P6, P7)
Decrease in fear of darkness (P7)

It was observed when the responses to the 2nd question (Did you observe any changes in your child's behaviors to cope with his fears? Can you explain the behavioral changes you observed?) were examined that one parent (P1) stated his child didn't prefer to talk about his fears at the end of the process but on the other hand had a lot of fun while talking about the program and said that he was happy in this process. Another parent (P7) stated that her child can sleep in the dark without using a night light while sleeping at night. Detailed information about the codes that emerge about the change in children's coping behaviors is presented in Table 5. According to Table 5, four codes have emerged in the category of "behavior change" under the theme of "coping with fear" within the scope of question 2.

Table 5: Qualitative content analysis results of the answers given to the second question

Coping with fear (Theme)
Behavior changes (Category)
Doing breathing exercises for the fear of height (P4)
Accepting sleep alone (P5)
Trying to reduce insect fear by observing insects (P6, P7)
Getting used to sleeping in the dark without using a night light (P7)

Based on the responses to the 3rd question (What are the other effects of the program you observed on your child?), it was observed that a parent (P5) stated that after the implementation of the program her child's self-confidence was fulfilled and he felt a little older. Another parent (P4) stated that her child was able to calm himself by transferring the skills acquired during the program to other areas of life. Another parent (P1) stated that his child was able to express himself more comfortably after the application of the program and that he defended his rights by stating what he does not like or what he wants as an individual without hesitation. The codes that emerged regarding the other effects of the program on children are presented in Table 6. According to Table 6, no theme was found within the scope of question 1; Six codes emerged in the category of "other effects of the program."

Table 6: Qualitative content analysis results of the answers given to the third question

The other effects of the program (Category)
Transferring learned skills to other areas of life (P4)
To gain the ability to calm yourself in anxious situations (P4, P6)
Self-confidence development (P5)
Learning to collaborate with peers (P5)
Development of positive emotions (P1, P6)
Improved self-expression ability (P1)

Qualitative content analysis was applied on the data obtained from these parental feedback forms. The most common fears in the pictures drawn by the children prior to the application were fear of animals such as spiders, snakes, fear of darkness, fear of being alone and fear of heights.

4. Discussion

The present study examined the effectiveness of a group program based on cognitive behavioral therapy aimed at reducing anxiety symptoms in fourth grade students of primary school with high level of anxiety symptoms. The general anxiety levels of the students participating in the Anxiety- Coping Program for Children Based on Cognitive Behavioral Therapy were observed to decrease which also continued during the six-month follow-up period.

Moreover, it was observed that the decrease in the anxiety levels of the students in the experimental group participating in the program decreased significantly compared with that of the students in the control group who did not participate in such a program. A statistically significant difference was observed between the groups in terms of general anxiety level and all sub-dimensions. There was a statistically significant decrease in the general anxiety levels of the students in the control group. It is thought that there may be several reasons for this decrease in the scores of the control group. The first reason may be that the date of the pre-test measurement in the research coincided with one week before the students' exam week. It is thought that the general anxiety levels of students may have increased due to the upcoming exams. As post-test measurements taken after the application coincide with the school report week, it is predicted that the students may distance themselves from the school and exam stress leading to reduced anxiety. On the other hand, no intervention was made to the control group. During the follow-up period, these children may have experienced life events that may lower their anxiety levels such as seeking help from a mental health professional about their anxiety outside the control of the researcher. It is thought that such situations may lead to a decrease in anxiety levels of the students in the control group.

Even though there was no significant difference between the total anxiety scores and subscale scores of both groups in SCARED, it was observed when the means of the scores of the two groups were examined that the scores of the students in the experimental group decreased more than those of the students in the control group. This decrease in anxiety levels observed in the experimental group compared with the control group may have resulted from the intervention. In addition, it was concluded when the scores of the experimental group on the general anxiety level, Generalized Anxiety Disorder, Separation Anxiety and Social Anxiety levels were examined that there are significant differences between pre-test, post-test and follow-up measurements. It was observed when an analysis was performed for determining the measurements with this significant difference that there is a difference between the general anxiety, separation anxiety and social anxiety levels between the pre-test and post-test; pre-test and follow-up measurements; while it was concluded for Generalized Anxiety Disorder that there is a difference between only the pre-test and follow-up measurements. In this case, it can be figured out that the post-test and follow-up measurement scores of the experimental group are significantly lower than the pre-test scores. Accordingly, it can be stated that the Anxiety- Coping Program for Children Based on Cognitive Behavioral Therapy developed within the scope of the present study is effective in reducing the general anxiety levels, generalized anxiety disorder, separation anxiety and social anxiety levels of children. These findings are consistent with studies demonstrating that group CBT is effective in reducing childhood anxiety symptoms (Dadds, et al., 1997; Silverman et al., 1999; Flannery-Schroeder and Kendall, 2000; Short, Barrett and Fox, 2001; Muris, Meesters and van Melick, 2002; Barrington, Prior, Richardson and Allen, 2005; Chiu et al., 2013; Gallagher et al., 2004; Manassis et al., 2002; Mifsud and Rapee, 2005; Nauta vd. 2003; Hudson et al., 2009; Lau, Chan, Li and Au, 2010; Bilek and Ehrenreich-May, 2012; Kapçı et al., 2012; Wergeland et al., 2014; Gedik, Gökkaya and Tekinsav Sütcü, 2018).

No significant difference was found between the pretest, posttest and follow-up measurements in the Panic Disorder / Somatic Symptoms and School Phobia sub-dimensions of the experimental group. There may be several possible causes for this. This may be due to the content of the anxiety of the children involved in the study, usually separation anxiety such as loss of mother or anxiety about specific phobias such as spider, snake, and monster. While the researcher was preparing the program to deal with anxiety, she adapted the activities in the sessions according to the types of anxiety the group experienced more intensively, and these concerns were studied more frequently throughout the process.

On the other hand, the scores of the students participating in the study from the school phobia sub-dimension are lower than the other sub-dimensions. The reason for this may be that these students are in fourth grade and school phobia is generally observed more frequently during the beginning of primary school, middle school or high school (Ollendick and Mayer, 1984). In addition, the developed program does not include a module directly for school phobia. These situations can be seen as possible reasons for the program not to have an impact on school phobia.

The applied program does not include parental sessions. Since there is no parental involvement, it is thought that the children are not getting enough support from their parents while using the skills and coping methods they have learned through practice in daily life. This may have caused the implementation to be effective only partially. As a matter of fact, Ginsburg (1995), Mendlowitz et al. (1999) and Silverman et al. (1999) stated that parental involvement in the treatment of childhood anxiety disorders is important in terms of encouraging the generalization of coping methods learned to children during the therapy to the outside world. In this regard, it can be said that the children participating in the program have deficiencies in generalizing their coping methods acquired during the process to their experiences in the outside world, and thus the program has failed to provide changes in some anxiety inflicting situations.

For these reasons, the program applied may not have an impact on children's panic disorder/somatic symptoms and school phobias. There was a difference in the Generalized Anxiety Disorder, Separation Anxiety and Social Anxiety levels of the experimental group in terms of pre-test, post-test and follow-up measurements and this difference was not observed in the control group. According to this result, it can be said that the applied CBT program has an impact on the general anxiety, generalized anxiety disorder, separation anxiety and social anxiety levels of the children. Feedbacks received from the parents in the study also support the findings. Particularly, the parents stated that there was a decrease in the fear of animals, fear of darkness, and loneliness in their children.

Furthermore, according to the feedback received from the parents, a student stated that she calmed herself by using the relaxation and breathing exercises taught in the sessions when she rode on a high machine in the amusement park. Another parent stated that his child stopped using the night light by going over the fear of darkness and that he was able to cope with this fear. In line with these feedbacks received from the parents, it can be said that the Anxiety-Coping Program is effective in ensuring that children acquire coping behaviors with anxiety. This result is in accordance with the results of other effectiveness studies in related literature (Flannery-Schroeder and Kendall, 2000; Mifsud and Rapee, 2005; Wergeland et al. 2014).

In addition, it is also observed based on the feedback received from the parents that some other positive changes have taken place in the children the experiment group such as transferring the acquired skills to other areas of life, development of positive emotions, increased self-confidence, self-expression, self-defense, learning to cooperate with peers . As a matter of fact, group therapies for children and adolescents have positive effects on children such as positive self-esteem and increased self-confidence, cooperation with peers and developing social skills. Accordingly, it can be stated that the Anxiety Coping Program developed and implemented within the scope of the present study is effective in developing positive emotions for children with high anxiety levels. As a result, the anxiety-coping program for children based on cognitive behavioral therapy is considered to be effective in reducing the anxiety levels of children.

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Examination of Teacher Candidates' Views on Peer Learning Performed with Interactive Videos in the Blended Learning Process

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Abstract

Today, the speed of the development of technology has various effects in many areas. In the field of education, some concepts, methods, techniques, theories and models come to the fore with the effect of technology and attract the attention of researchers. One of them is blended learning. Blended learning is a learning process in which both face-to-face learning processes and learning processes in online environments coexist. Today's learners are expected to be able to solve problems, work collaboratively, and have strong communication. It is thought that peer learning can be used in constructivist teaching processes in order to gain these features. Peer learning involves learners performing their learning by interacting with each other. In this study, it is aimed to determine the opinions of teacher candidates about peer learning realized with interactive videos in the blended learning process. The study group consists of 37 Computer and Instructional Technologies Education Department teacher candidates, 11 women (29.73%) and 26 men (70.27%) enrolled in the "Special Teaching Methods - II" course in the spring semester of 2018-2019 academic year. In the online part of the study, a web 2.0 tool (Edpuzzle) was used to prepare interactive video content. The videos prepared by the peers regarding the course content were expected to be watched online and before the face-to-face lessons. In the face-to-face learning process, students progressed the learning process interactively with their peers. At the end of the process, the data were collected with the data collection tool named "teacher candidate opinion form" developed by the researchers from the study group. The collected data were analyzed with content analysis and interpreted by the researchers. In the study results, the opinions of the teacher candidates about the process after their learning experiences were determined. It was found that a great majority of the teacher candidates had a positive opinion about the peer learning realized with interactive videos in the blended learning process.

Keywords: Blended Learning, Peer Learning, Flip Classroom, Enriched Interactive Video

1. Introduction

The body of a manuscript opens with an introduction that presents the specific problem under study and describes the research Today, changes in the expectations of the system, employers, students, administrators, teachers and parents from the teaching processes have paved the way for the creation of innovative processes. In the literature regarding this situation, it is stated that it is necessary to conduct studies to understand the situations related to developments in digital technologies for education, philosophical thoughts, new subject areas that have been emphasized, approaches, etc., in order to achieve the goals in the teaching process. (Ipek & Ziatdinov, 2017). As a result of the studies conducted in this context, new approaches, models and theories are emerging in order to support learning. Blended learning, which provides an enriched learning process that supports the learner from various angles, is one of these approaches (Peña, Martinez-Reyes, & Soberanes-Martín, 2020).

Blended learning is the effective use of different presentation formats in which e-learning processes are included (Procter, 2003). In a more recent definition, blended learning is defined as the combination of face-to-face teaching and online teaching processes (Graham, 2006). In the literature, it is stated that the use of blended learning has advantages such as increasing the effectiveness of learning, providing rich access opportunities, providing optimization in terms of cost and time, and ensuring that the results come out as desired (Singh & Reed, 2001). In another study, the advantages of blended learning are stated as providing an improved pedagogy, increasing accessibility and flexibility, and increasing efficiency in terms of cost-effectiveness (Graham, 2006). It is stated that the use of blended learning can support students to have a positive attitude towards learning, and students can have high benefit, motivation, and satisfaction in using blended learning (López-Pérez, Pérez-López, & Rodríguez-Ariza, 2011).

Video content is quickly seen as a widely used learning tool in online and blended lessons (Blackstock, Edel-Malizia, Bittner, & Smithwick, 2017). Interactive videos have a very important place in commercial studies related to entertainment and can be considered popular among learners (Hong, Tsai, Ho, Hwang, & Wu, 2013). In the literature, it is stated that the use of interactive videos enriched with questions in teaching processes can be easily used and considered useful by learners (Koçdar, Karadeniz, Bozkurt, & Büyük, 2017). In his study, Vural (2013) observed that interactive videos enriched with questions increase the amount of interaction of learners and positively affect the time spent on the material. Similarly, in another study, it is mentioned that using interactive video enriched with questions is effective, efficient, and remarkable in the learner's learning process (Koçdar, Karadeniz, Bozkurt, & Büyük, 2017). Considering that only the inclusion of an interactive video enriched with questions in the environment may not positively affect learning, it can support the desired learning outcomes and student success if used in a planned manner (Vural, 2013). It was stated that the learners were satisfied with the use of interactive video enriched with questions and that they think it should be popularized (Koçdar, Karadeniz, Bozkurt, & Büyük, 2017).

It is seen as a critical situation for learners to interact with their peers in the learning process (Michinov, Brunot, Le Bohec, Juhel, & Delaval, 2011), and it is stated that it can positively affect learning when peer learning is used that supports peers' interactions (Topping, 2005). As a result of the literature review conducted by the researchers, there was no study on determining the opinions of teacher candidates on peer learning, which was realized with videos enriched with questions in the blended learning process. In this context, it is thought that the study will contribute to the literature.

1.1 The Purpose of the Study

The aim of this study is to examine the opinions of teacher candidates about peer learning realized with interactive videos enriched with questions in the blended learning process. In order to achieve this aim, the following research questions have been tried to be answered.
1.How is the teacher candidates' use of interactive video materials enriched with questions?
2.What are the opinions of the teacher candidates about interactive video materials enriched with questions?

3.What are the opinions of the teacher candidates about the peer learning process carried out by using interactive videos enriched with questions in blended learning?

2. Method

In this study, the content analysis method, one of the qualitative research methods, was used in order to determine the opinions of teacher candidates about peer learning realized with interactive videos enriched with questions in the blended learning process. In this context, the study group, research design, data collection tools and data analysis processes are given under this heading.

2.1 Study Group

The study group consists of 37 Computer and Instructional Technologies Education Department teacher candidates, 11 women (29.73%) and 26 men (70.27%) enrolled in the "Special Teaching Methods - II" course in a state university in Turkey in the spring semester of the 2018-2019 academic year. In addition to the study group, eight teacher candidates who had successfully completed the course before participated in the study as peer tutors.

2.2 Data Collection Tools

In the study, a semi-structured data collection tool named "teacher candidate opinion form" prepared by the researchers was used. There are open-ended and 5-Likert items in the data collection tool.

2.3 Research Design

As shown in Figure 1, at the beginning of the study, experienced peer teacher candidates were selected by the researchers. In this process, experienced and knowledgeable teacher candidates who had previously successfully completed the course in the subject area were selected. Then, a blended learning process was carried out for four weeks. When the blended learning process was completed, the data were collected with the "teacher candidate opinion form," which is a data collection tool. Then, the analysis of the data was carried out and reported.
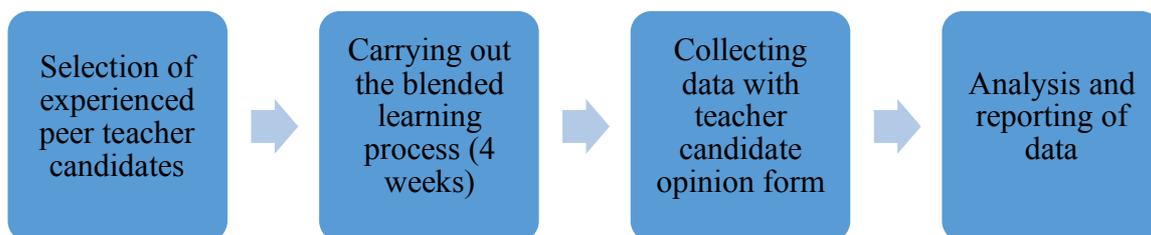
Figure 1. Design of the research process

2.4 Blended Learning Process

The flip classroom model was used in the blended learning process. In this model, the learners perform the theoretical knowledge online at their own learning speed. Then the practice activities, which are considered the fun part of the lesson, are carried out in a face-to-face environment. Interactive videos enriched with the questions prepared by the peers on block-based programming were used in this process carried out within the scope of the "Special Teaching Methods - II" course, which has a course content suitable for this structure. Interactive videos enriched with prepared questions were presented to the teacher candidates through the learning management system. The document with a part of the image in Figure 2, which contains information

about interactive videos enriched with questions, sample visuals and links, was shared with the teacher candidates in order to be able to progress in accordance with individual learning processes.

Figure 2. A screenshot from the document prepared for teacher candidates

There are two sections in the document called "Scratch basic training videos" and "Scratch examples." In the "Scratch basic training videos" section, there are 13 video contents such as "Scratch download and installation," "Scratch interface introduction," "Scratch dummy add and speaking," etc., prepared by peers. These videos were presented to teacher candidates in the Edpuzzle environment with the forward jump feature turned off. Watching these videos has been reviewed and encouraged by the researcher. In the "Scratch examples" section, there are seven video contents such as "Cat mallet game," "Pattern game", "Let's get to know English colors," and so on prepared by peers. The links and class code where they can access the Edpuzzle environment to access the videos are included in the document. The screenshot of one page of this document is presented as an example in Figure 3.

Figure 3. A screenshot from the document prepared for teacher candidates

In the document, questions were added to all the videos presented to teacher candidates in the Edpuzzle learning environment, and the teacher candidates were expected to answer the questions. A screenshot of interactive videos presented to teacher candidates in the Edpuzzle environment is presented in Figure 4.
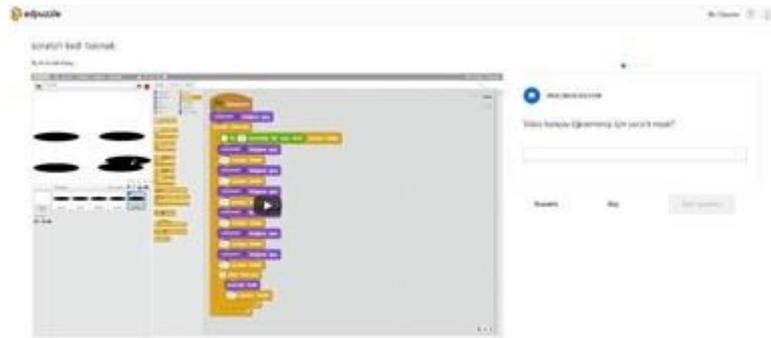
Figure 4. A screenshot from the Edpuzzle interactive video environment presented to the teacher candidates

Teacher candidates were asked to watch interactive videos enriched with questions before the lessons, answer the questions, and complete the lesson's implementation tasks. They were expected to create videos prepared with the expression of peers and interactively with peers in the classroom. After four weeks, the process was completed by collecting data with the data collection tool.

2.5 Data Analysis

The data obtained with the teacher candidate opinion form were analyzed by using content analysis and descriptive statistics methods. In the content analysis, the data were examined by the researchers. The researchers encoded the data in line with these studies, and common codes were determined with a consensus about the differences encountered in coding. In the data given in the findings, the frequencies show the coding numbers and the percentages show the percentage distribution of the codes for the expressions.

2.6 The Role of the Researcher

The researchers took part in the study as participant observers. Researchers took a guiding role by taking part in all processes in the working environment.

3. Results

The findings obtained about the purpose of the study and the research questions related to the purpose are presented in this section. Some of the statements of the teacher candidates selected by the researchers were also stated as direct quotations.

3.1 RQ1- How are the teacher candidates' use of interactive video materials enriched with questions? Findings on the research question

Regarding the research question, the data regarding the subscription status to the web 2.0 environment where interactive videos enriched with questions take place are given in Table 1.

Table 1: Teacher candidates' subscription status to the environment where interactive videos enriched with questions take place

Subscription status	The number of teacher candidates (*f*)	Percentage (%)
Subscribed	36	97.30%
Unsubscribed	1	2.70%

As shown in Table 1, 36 (97.30%) of 37 teacher candidates who participated in the study subscribed to the environment where interactive videos enriched with questions were included, and 1 (2.70%) did not.
Regarding the research question, the data on the teacher candidates' watching the interactive videos enriched with questions more than once are given in Table 2.

Table 2: Teacher candidates' statuses of watching interactive videos enriched with questions more than once

Multiple watching statuses	The number of teacher candidates (*f*)	Percentage (%)
Multiple watched	24	64.86%
Multiple unwatched	13	35,14%

As can be seen in Table 2, it is seen that 24 (64.86%) of 37 teacher candidates who participated in the study watched interactive videos enriched with questions more than once, 13 (35.14%) did not watch more than once. Regarding the research question, the data regarding the frequency of visits of the teacher candidates to the environment with the interactive videos enriched with questions are given in Table 3. As seen in Table 3, of 37 teacher candidates who participated in the study, 2 (5.41%) always, 11 (29.73%) frequently, 17 (45.96%) sometimes, and 7 (%) 18.92) rarely visited.

Table 3: The frequency of the teacher candidates' visits to the environment where interactive videos enriched with questions take place

Frequency of visit	The number of teacher candidates (*f*)	Percentage (%)
Always	2	5,41%
Frequently	11	29.73%
Sometimes	17	45.96%
Rarely	7	18.92%

3.2 RQ2- What are the opinions of the teacher candidates about interactive video materials enriched with questions? Findings on the research question

The items in the data collection tool related to the research question were examined, and the findings obtained are presented below. Regarding the research question examined in this context, the opinions of the teacher candidates on the item "I find it unnecessary to teach the subjects by preparing video lessons." are given in Table 4.

Table 4: The opinions of teacher candidates on the item "I find it unnecessary to teach the subjects by preparing video lessons."

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Strongly Agree	1	2.70%
Agree	1	2.70%
Undecided	5	13.51%
Disagree	11	29.73%
Strongly disagree	19	51.35%

As seen in Table, of 37 teacher candidates who participated in the study on the item, 4, 1 (2.70%) strongly agree, 1 (2.70%) agree, 5 (13.51%) undecided, 11 (29.73%) disagree and 19 (51.35%) strongly disagree.

Regarding the research question, the opinions of the teacher candidates on the item "Being able to repeat the subject as many times as I want with video lessons helps me to learn." are given in Table 5.

Table 5: The opinions of teacher candidates on the item "Being able to repeat the subject as many times as I want with video lessons helps me learn."

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Strongly Agree	18	48.65%
Agree	17	45.95%
Undecided	2	5,41%
Disagree	0	%0
Strongly disagree	0	%0

As can be seen in Table 5, it is seen that, of 37 teacher candidates who participated in the study on the item, 18 (48.65%) strongly agree, 17 (45.95%) agree and 2 (5.41%) undecided.

Regarding the research question, the opinions of the teacher candidates on the item "Video lessons help me understand the subject." are given in Table 6.

Table 6: The opinions of teacher candidates on the item "Video lessons help me understand the topic."

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Strongly Agree	16	43.24%
Agree	20	54.05%
Undecided	1	2.70%
Disagree	0	%0
Strongly disagree	0	%0

As can be seen in Table 6, it is seen that, of 37 pre-service teachers who participated in the study on the item, 16 (43.24%) strongly agree, 20 (54.05%) agree and 1 (2.70%) undecided.
Regarding the research question, the opinions of the teacher candidates on the item "I get the opportunity to learn at my own pace with video lessons." are given in Table 7.

Table 7: The opinions of teacher candidates on the item "I get the opportunity to learn at my own pace with video lessons."

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Strongly Agree	19	51.35%
Agree	16	43.24%
Undecided	2	5,41%
Disagree	0	%0
Strongly disagree	0	%0

As can be seen in Table 7, it is seen that, of 37 pre-service teachers who participated in the research on the item, 19 (51.35%) strongly agree, 16 (43.24%) agree and 2 (5.41%) undecided.

Regarding the research question, the opinions of the teacher candidates on the item "I can also learn what I have learned from video lessons by reading a book or on a computer screen." are given in Table 8.

Table 8: The opinions of teacher candidates on the item "I can also learn what I have learned from video lessons by reading a book or text on a computer screen."

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Strongly Agree	5	13.51%
Agree	10	27.03%
Undecided	16	43.24%
Disagree	5	13.51%
Strongly disagree	1	2.7%

As seen in Table 8, of 37 teacher candidates who participated in the research on the item, 5 (13.51%) strongly agree, 10 (27.03%) agree, 16 (43.24%) undecided, 5 (13.51%) disagree and 1 (2.70%) strongly disagree.

Regarding the research question, the opinions of the teacher candidates on the item "I find video lessons boring." are given in Table 9.

Table 9: The opinions of teacher candidates on the item "I find video lessons boring."

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Strongly Agree	0	%0
Agree	0	%0
Undecided	8	21.62%
Disagree	15	40.54%
Strongly disagree	14	37.84%

As can be seen in Table 9, it is seen that, of 37 teacher candidates who participated in the study on the item, 8 (21.62%) undecided, 15 (40.54%) disagree, and 14 (37.84%) strongly disagree.

Regarding the research question, the opinions of the teacher candidates on the item "I think my level of success has increased thanks to the video lessons." are given in Table 10.

Table 10: The opinions of teacher candidates on the item "I think my level of success has increased thanks to the video lessons."

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Strongly Agree	8	21.62%
Agree	21	56.76%
Undecided	7	18.92%
Disagree	1	2.70%
Strongly disagree	0	%0

As seen in Table, of 37 teacher candidates who participated in the study on the item, 10, 8 (21.62%) strongly agree, 21 (56.76%) agree, 7 (18.92%) undecided and 1 (2.70%) disagree.

Regarding the research question, the opinions of the teacher candidates on the item "Video lessons make teaching more effective." are given in Table 11.

Table 11: The opinions of teacher candidates on the item "Video lessons make teaching more effective."

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Strongly Agree	16	43.24%
Agree	17	45.95%
Undecided	3	8.11%
Disagree	1	2.70%
Strongly disagree	0	%0

As seen in Table 11, of 37 teacher candidates who participated in the study on the item, 16 (43.24%) strongly agree, 17 (45.95%) agree, 3 (8.11%) undecided and 1 (2.70%) disagree.

Regarding the research question, the opinions of the teacher candidates on the item "I think teaching with video lessons is enjoyable." are given in Table 12.

Table 12: The opinions of teacher candidates on the item "I think teaching with video lessons is enjoyable."

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Strongly Agree	16	43.24%
Agree	13	35,14%
Undecided	5	13.51%
Disagree	3	8.11%
Strongly disagree	0	%0

As seen in Table 12, of 37 teacher candidates who participated in the study on the item, 16 (43.24%) strongly agree, 13 (35.14%) agree, 5 (13.51%) undecided and 3 (8.11%) disagree.

3.3 RQ3-"What are the opinions of the teacher candidates about the peer learning process carried out by using interactive videos enriched with questions in blended learning?" Findings on the research question

Regarding the research question, the general opinion of the teacher candidates regarding the peer learning process carried out by using interactive videos enriched with questions in blended learning is given in Table 13. As seen in Table 13, 36 (97.30%) of 37 teacher candidates who participated in the study had a positive opinion about the peer learning process, which was carried out using interactive videos enriched with questions in blended learning, and 1 (2.70%) had a negative opinion.

Table 13: The opinions of the teacher candidates about the peer learning process carried out by using interactive videos enriched with questions in blended learning

Opinion	The number of teacher candidates (*f*)	Percentage (%)
Positive	36	97.30%
Negative	1	2.70%

The statements of some of the teacher candidates who have these views were selected and specified by the researchers. One of the teacher candidates (T7) states that the peer teaching process carried out offers a sincere, useful and enjoyable learning process by using the expression "*Peer learning has been on the rise in recent times, entering educational settings. Peer learning is very useful because it is a friendlier environment among friends. I think it is a way of learning where individuals enjoy learning.*" Another teacher candidate (T5) states that it is an effective process and that he can focus more on the learning process he spent with his peers by saying, "*I think it was pretty effective. Since some people are familiar to us, I actually focused more on them.*" Another teacher candidate (T27) states that he has a positive view of the process and that he thinks it contributes to his learning with the expression, "*It was very positive, while I was telling my friends, my knowledge and*

experience increased more." Another teacher candidate (T8) states that it can positively affect the students' motivation regarding the lesson in the learning process carried out with their peers by saying, "*I think peer learning is definitely better than the lecturer's narration. I think peers can teach each other in a more appropriate language. I think that this system will increase the motivation of the students to the lesson.*" Another teacher candidate (T31) states that peers can understand each other more easily and contribute to their needs with the expression, "*I think that peer education is very important, saying that only the wearer knows where the shoe pinches. We can have common thoughts on our own needs, shortcomings, expectations and projects. We can reveal different imaginations. Thanks for your efforts at the end of the term, sir :)*" Another teacher candidate (T29) states that listening to the lesson from his peers is a good experience by saying, "*It was good for me to listen to a lesson from someone I know.*"

4. Conclusion and Discussion

4.1 RQ1- How are the teacher candidates' use of interactive video materials enriched with questions? Conclusions regarding the research question

It is thought that 36 (97,30%) of 37 teacher candidates who participated in the study subscribed to the environment with interactive videos enriched with questions, and it can be interpreted positively for using statuses. In addition to this, when looked at multiple watching statuses of the teacher candidates for interactive video materials enriched with questions, it was seen that 24 (64.86%) teacher candidates watched more than once, 13 (35.14%) did not watch it more than once. In this case, it is thought that teacher candidates make use of as many materials as they want in line with their needs. Another case examined within the scope of this research question is the frequency of the teacher candidates' visits to the environment with interactive videos enriched with questions. Considering the frequency of visits of the teacher candidates, 2 (5.41%) were always, 11 (29.73%) often, 17 (45.96%) sometimes, and 7 (18.92%) rarely visited the environment. This situation can change depending on the needs and the amount of individual effort, as in watching videos multiple times. For this reason, it is thought that teacher candidates use the system according to their learning speed, prior knowledge, and the number of repetitions they need.

4.2 RQ2-"What are the opinions of the teacher candidates about interactive video materials enriched with questions?" Findings on the research question

Considering the views of the 37 teacher candidates participating in the study about interactive video materials enriched with questions, it was determined that that most of them think that it is not unnecessary to learn with video lessons, the possibility of repeating as many times as desired in line with individual needs will support learning, video lessons provide support to understand the subject, video lessons provide the opportunity to learn at the speed of individual learning, video lessons are not boring, the success level is positively affected by video lessons, it will make teaching more effective, and they have an enjoyable learning process.

4.3 RQ3-"What are the opinions of the teacher candidates about the peer learning process carried out by using interactive videos enriched with questions in blended learning?" Conclusions regarding the research question

Examining the findings of the teacher candidates' opinions on the peer learning process, which is carried out using interactive videos enriched with questions in blended learning, it is seen that 36 (97.30%) of 37 teacher candidates who participated in the study had a positive view on the peer learning process performed using interactive videos enriched with questions in blended learning, 1 (2.70%) teacher candidate has a negative opinion. Considering this situation, it can be thought that most of the teacher candidates have a positive opinion about the process. In addition to this, when the statements of the teacher candidates regarding the process are examined, it is seen that a cooperative process is important; they can communicate with their peers more easily, they can express themselves more comfortably, they have an effective learning experience, and they express their positive thoughts intensely.

When the literature is examined, it is seen that the planned use of interactive videos enriched with questions can support the learning process to become effective and productive, and learners can find it as an easy-to-use and useful learning experience (Koçdar, Karadeniz, Bozkurt, & Büyük, 2017). When this situation is compared with the results obtained from the statements of the teacher candidates who participated in the study, it is thought that the results obtained are parallel to the literature. Vural (2013) stated that enriched interactive videos positively affect the time spent by learners on the material. It can be inferred that the fact that more than half of the teacher candidates included in the findings of the study watched interactive video materials enriched with questions more than once is in parallel with this statement in the literature. It is stated in the literature that the blended learning used in the design of the study has advantages such as increasing the effectiveness of learning in the learning process, providing rich access opportunities, and supporting the formation of desired outcomes (Singh & Reed, 2001). Similar to the literature, it is seen in the outputs of the study that the teacher candidates stated that they think the learning process takes place as an effective and beneficial process.

This study was conducted to determine the opinions of teacher candidates about peer learning carried out with interactive videos enriched with questions in the blended learning process. As a result of the study, it was found that teacher candidates generally had positive opinions about peer learning carried out with interactive videos enriched with questions in the blended learning process.

4.4 Recommendations

Peer learning performed with interactive videos enriched with questions in the blended learning process is a method that can be viewed positively by teacher candidates. In this context, this method can be used in application studies.

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Examining the Structure of Observed Learning Outcomes of Associate-Degree Vocational School Students in a CAS-Supported Environment: Limit-Continuous Sample

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Abstract

This study aimed to learn the learning outcomes of associate-degree students attending a Vocational School (VS) in a CAS-supported learning environment within the scope of the limit-continuity subject. The study was conducted using the action research method, and the worksheets prepared by Ertem Akbaş (2016) were used. While evaluating and interpreting the VS students' learning outcomes, the SOLO taxonomy was preferred. The study group included 32 VS associate-degree students in Turkey. Within the framework of the research problem, detailed information was provided about what level of the SOLO taxonomy the students' learning outcomes corresponded to. The learning outcomes of the VS students were found to be below the relational structure level according to SOLO taxonomy in the environment where the CAS software was used. Thanks to the CAS software, the quality of the pre-structure level and uni-structure level learning outcomes of VS students increased to and over the multi-structure level.

Keywords: Vocational School Associate-Degree Students, CAS, SOLO, Limit-Continuity

1. Introduction

With the development of technology in the field of education, it is not difficult to predict that the future teaching method will be shaped and improved in the light of technological developments. This has revealed new expectations in the teaching methods used in mathematics lessons. According to these expectations, students will be able to discover technology and mathematics on their own, and paper-pencil applications will remain in the background (Papert, 1993). Even if the expectations did not come true, this universal dimension provided by technology had an important effect on 'what and how should we teach?' within the content of mathematics. Parallel to this problem, important experience has been gained on how to use a computer so that students can learn mathematics better (Powers & Blubaugh, 2005; Pierce & Stacey, 2002; Renshaw & Taylor, 2000; Sevimli & Delice, 2015; Wiest, 2001). Many researchers stated that Dynamic Geometry Software (DGS) and Computer Algebra Systems (CAS) have a significant potential in reflecting these experiences into mathematics classes (Hazzan & Goldenberg, 1997; Powers & Blubaugh, 2005; Tabuk, 2019). Hazzan and Goldenberg (1997) pointed

out that geometry software, which has a dynamic feature, provides students with the opportunity to concentrate much more on abstract structures than the commonly used paper and pencil works. Students' concentration on abstract structures leads to an increase in the imagination power in mathematics and means opening the way of intuition and thus the ways of learning. These ways will improve students' skills such as doing analysis, making assumptions, making generalizations and problem solving (Baki, 1994). In this respect, it is important to making students active producers of information and rather than making passive receivers of information by considering student-centeredness in teaching.

One of the few sub-branches that constitute the basis of contemporary mathematics is analysis. The definitions of topics such as derivative, integral and approximation theory, which are all included in the scope of the course of analysis, are built on the formal definition of the concept of limit and continuity. The concept of limit, which includes continuity as a special case and which many concepts are based on, plays an important role in various branches of analysis (Artigue, 2000; Oktaviyanthi & Dahlan, 2018; Swinyard & Larsen, 2012; Winarso & Toheri, 2017). Despite this importance, it is seen that limit and continuity are among concepts which even students with high level of pre-learning have difficulty in giving meaning (Cottrill, Dubinsky, Nichols, Scwinngendorf, Thomas & Vidakovic, 1996; Juter, 2006; Prenioslo, 2004; Tall & Vinner, 1981). As a matter of fact, in these concepts, which are the basis for transition to advanced mathematical thinking, deficiency in learning causes weak algorithm operations in learning related to analysis. This situation is considered important for students who start taking advanced mathematics education and are expected to conceptualize limit and continuity in two ways such as dynamic (informal) and static (formal). Therefore, another subject that is as important as the limit-continuity concept appears: "limit-continuity teaching and the necessary method to be used in limit-continuity teaching." This shows the importance of the way of presenting learning-teaching activities in concretizing the limit-continuity subject, which has an abstract structure.

Obviously, when software with a dynamic feature is effectively used with an appropriate subject in mathematics teaching, many relations, features and generalizations that cannot be created in traditional environments can be studied easily. In this respect, it is thought that CAS environments provide students with an opportunity to develop their skills in interpreting symbols, working with symbols and reasoning, in short, abstract thinking. In addition, CAS environments, different from traditional environments, create a strengthening game environment that aims to develop students' visualizing, exploring and developing mathematical ideas. Briefly, it offers students the opportunity to make use of graphical and numerical representations along with symbolic representations (Laborde, 2001). Therefore, it is important to use software such as CAS depending on the use of technology in mathematics teachers' contemporary learning, teaching and evaluation processes. One of the problems that studies, as well as the present one, involving the use of CAS software were concerned with is how to develop students' abstract thinking skills regarding mathematical subjects in computer-aided learning (CAL) environments. Of course, here, the individual's understanding of mathematical concepts depends on the learning environment and his/her actions, and the teaching and concepts related to these actions do not have to be concrete. Shortly, learning environments involving the use of CAS software should provide students with the opportunity for abstract thinking about their own actions. For this reason, in the present study, the subject of limit-continuity taught in a learning environment in which the Derive software, one of CAS software, was used. The researcher teacher tried to provide the students with the opportunity to build their understanding on their own actions in this environment.

The effectiveness of mathematics course in the development of the features that guide logic and thinking is considered important in terms of professional development that should be gained by individuals. An individual with professional development competence is the one who thinks, learns and produces as well as demonstrates good performance thanks to his qualified workforce. The way to have a qualified workforce is possible with well-planned vocational education. In this sense, Vocational Schools (VS) of universities, which fulfill the function of filling the gap between Vocational and Technical Education institutions that give education at undergraduate and associate degree levels and the employment areas targeted by secondary education institutions, play an important role (Karadeniz & Kelleci, 2015; Karakuş, 2013). Vocational Schools were established to train intermediate staff equipped with sufficient knowledge and skills for the industry, commerce and service sectors. Thus, it is important to train qualified staff and to develop employees' abstract thinking

skills. In this respect, the importance of teaching and learning mathematics, which is known to improve thinking, becomes apparent. In line with this importance, considering the fact that 40% of students who have completed their secondary education and succeeded in the university placement exam in our country continue their education in associate degree programs, it is inevitable to teach the concepts included in the content of the general mathematics course taught in the vocational schools of our universities. However, this importance is not taken into account for the concepts of limit-continuity, in relation to which the conceptual understanding dimension is neglected due to the concern of preparing for the university placement exam, although they are included in the final year curriculum of secondary education institutions. For example; VS students perceiving infinity as a number think that an uncertain function can be continuous. In addition, VS students who do not examine the function graph until they graduate from secondary education have difficulty in adapting the formally-defined limit-continuity concepts to any problem they encounter. Obviously, students cannot adequately understand even the pieces of information they have memorized. This situation leads to the neglect of the dimension of conceptual understanding of the abstract concepts of mathematics and causes VS students to have memorized knowledge. In this respect, it is considered important to revise and evaluate the change in students' levels of learning in a CAS-aided learning environment designed for the concepts of limit-continuity which is taught in VS and whose dimension of conceptual understanding is neglected. In this study, which included students at different levels in relation to learning environments, it was considered appropriate to use the SOLO taxonomy (Structure of the Observed Learning Outcome) developed by Biggs and Collis (2014) in order to deeply evaluate the observed learning outcomes of students regarding limit-continuity.

The SOLO taxonomy is a taxonomy that is aimed at evaluating the cognitive knowledge and skills of students at different levels (Biggs & Collis, 2014). In addition, SOLO provides a hierarchical model for qualitative analysis of students' responses to specific tasks. It is seen that it is widely used as an effective tool in interpreting and evaluating the mathematical thinking skills of students in relation to certain concepts from primary education to university (Kabaca & Musan, 2014; Vallecillos & Mareno, 2002). Moreover, it could be stated that especially in studies whose purpose is to see the whole process and to measure the quality of the answers given by students, SOLO is an appropriate evaluation in terms of classifying students' thinking skills.

When the literature is examined, it is seen that there is not much room for preparing a technology-supported learning environment in VS students' learning the limit-continuity subjects and that the focus is generally on pure studies or misconceptions (Çeziktürk Kipel, 2013). In addition, it is seen that the experimental design is generally used to examine what VS students have learned about mathematical concepts and that the learning environments which the cases are connected to are interpreted with the support of qualitative data. Since the common purpose of these studies is to describe how much students have learned, the evaluations chosen for these studies might be reasonable. However, in this study, the main purpose of which was to understand how VS students learn, it was considered appropriate to choose the preferred model as the SOLO Taxonomy while evaluating and interpreting students' learning. In this way, while giving meaning to students' responses, the focus will be on finding answers to the questions of "what happened? What is happening? What will happen in the future? And How can we understand best?" as well as on what level of the SOLO taxonomy the learning outcomes correspond to.

When the thinking stages of the SOLO model are examined, it is seen that the abstract (formal) stage corresponds to the early adulthood period (Biggs & Collis, 2014). Since the interpretation of the limit-continuity concepts requires abstract thinking skills, it was assumed that the VS students, who are associate's degree students, were also in the abstract phase and were considered appropriate for this study to be carried out. In this respect, the study is important with its purpose of evaluating VS students' learning of limit-continuity with the SOLO taxonomy by using the Derive software from CAS in the CAL environment. Within the framework of this importance and the information presented above, this study tried to find answers to the problem of "What is the level of VS students' learning of 'the limit value of the function at a point and its image at that point' and 'thinking that continuity cannot be sought at the points where the function is undefined' in the CAS-supported environment according to the SOLO taxonomy?"

2. Method

2.1. Research Model

In this study, as the purpose was to examine the reflections of the teaching plan prepared within the scope of the limit-continuity example regarding the use of the Derive software from CAS upon VS students' learning, the study was carried out with the action research method, one of qualitative research methods. Action research is a systematic research process conducted by teacher researchers in order to evaluate the learning processes of their students in the learning/teaching environment (Mills, 2003). In addition, although action research is defined as a process to improve the quality of teaching, it provides researchers with the opportunity to work in their own classroom environment (Johnson, 2005). Therefore, in this study, where the practitioner was also the researcher, the researcher developed an action plan, conducted applications and evaluated the VS students' learning in the teaching process. In this respect, the study was designed in accordance with the action research model.

2.2. Study Group

The study group was made up of 32 students attending a Vocational School at a state university located in the east of Turkey. While determining the participants of the study, depending on the purpose of the study, the convenience sampling (Patton, 2014), which provides advantages in terms of accessibility, time and cost, was preferred. As a matter of fact, this study is considered to be suitable for convenience sampling in terms of being an action research in which the lecturer was the researcher and within the context of working with the students the researcher was teaching. In the study, the students involved in the process were coded as S1, S2, … S32.

2.3. Data Collection Tools

In action research, data are collected through observation, interview, audio-recording and documentation (Philips & Carr, 2009). In this study, the data were collected with the help of a part of Derive-supported worksheets (taking the focused problems into account) prepared by Ertem Akbaş (2016), screenshots, observations, researcher teacher's notes, dialogues with students and audio-recording. Mutual confirmation of the data obtained with different methods allows increasing the validity and reliability of the results (Yıldırım & Şimşek, 2013). For this reason, the data collection tools specified in this study were used together. In addition, after the worksheets used within the scope of the study were re-evaluated by the researcher teacher, the content validity was obtained by taking the opinions of two experts. In addition to correcting the incomprehensible points in the worksheets arranged in line with the opinions of the experts, attention was paid to the fact that the students should discover the information and make generalizations by drawing conclusions with clue questions and without directly transferring the information to the students. Thus, it was thought that the mathematical thinking and abstraction capacity of the students would increase and that a more conceptual mathematics would emerge. The table below presents the target outcomes and strategic goals with the worksheets used in this study.

Table 1: Target Outcomes and Strategic Goals with Worksheets

Worksheets	Conceptual Clues	Target Outcomes	Strategic Goals
Worksheet-2	Function concept, factoring, ∞ concept, uncertainty states and limit concept	- Distinguishes the limit value of the function at a point and the image of the function at that point. - Finds the limit value of the function in cases of uncertainty - Examines the function graph	- Explains the limit of trigonometric functions on the graph and conducts related applications - Explains the $\frac{0}{0}$ uncertainty state at the given point and calculates the limit of the function $\frac{0}{0}$
Worksheet-7	Concept of function, factorization, concept of limit and continuity	- Examines the graph of the function and finds the intervals in which it is continuous.	- Determines whether the function is continuous or discontinuous at a given point and explains this on the graph

		- Tells that continuity cannot be sought at points where the function is undefined. - Establishes a relationship between limit and continuity	- Explains the continuity of a function in an interval on a graph - Specifies the properties of continuous functions in the closed interval and explains them on the graph.

2.4. Data Analysis

Strauss (1987) emphasized that data analysis methods in qualitative research cannot be standardized and that standardizing data analysis will limit the qualitative researcher. In general, the most striking and common point in the recommendations regarding qualitative data analysis is the importance attached to the description of the data (Yıldırım & Şimşek, 2013). Taking this importance and the SOLO taxonomy into consideration, the qualitative data obtained were analyzed in three groups.

The Way Followed for Determining the Levels of Learning

The basic data for this study were those obtained from the learning outcomes of the students. In order to analyze the learning outcomes more easily, the questions in the worksheets were grouped within the framework of the research problem and analyzed separately. Below is the table related to grouping the questions in the worksheets used in this study:

Table 2: Grouping the Questions in the Worksheets

Name of the Question Group	Worksheet	Sub-Research Questions	Target Outcome of the Question Group
First Question Group	2	2, 3, 4, 5	Determines the limit value of the function at a point and the image of the function at that point and interprets the relationship between them
Second Question Group	7	2, 3	Says and comments that continuity cannot be sought where the function is undefined

The data obtained in line with this grouping were transformed into text and read several times in line with the research questions. The messages that each student tried to give were coded, and vignettes covering the problem situation were written (Baki, 1994). Following this, these vignettes were brought together for each question group and evaluated comparatively, and rubrics were created. Together with the researcher teacher, another researcher who had knowledge about the SOLO taxonomy took part in this process. The researcher teacher and the other researcher independently assigned the answers of the VS students to a level by using the rubrics. Thus, all the data were re-read and discussed with the other researcher, and an agreement was reached on the most appropriate level of thinking. The agreement percentage between the researchers was calculated with the reliability formula of Miles and Huberman (1994) and was found to be 82%. According to Miles and Huberman (1994), considering that a percentage of 70% and above is a reliable coding, we see in this study that the rubric developed based on the levels of the SOLO taxonomy was suitable for consistent and reliable leveling.

The Way Followed in Determining the Average Level of Learning

In the analysis process, for the calculations, the rubrics related to the SOLO taxonomy were classified with the help of a numerical scaling (1-5) (Mooney, 2002). In the rubrics, 1 shows an answer at the level of pre-structure (PS), 2 at the level of uni-structure (US), 3 at the level of multi-structure (MS), 4 at the level of relational structure (RS) and 5 at the level of abstracted structure (AS). These levels helped determine the VS students'

average levels of learning the subject of limit-continuity in a CAS-supported environment. Some answers were found to be below or above the classification even though they had properties related to the SOLO level. In this type of answers, the sign "-" was put in front of those below the level, and the sign "+" was put in front of those above the level. This showed a numerical increase or decrease of 0.25 point (Mooney, 2002).

Analysis of the Data Collected via the Dialogues

The researcher teacher was in constant dialogue with the students in order to evaluate their learning experiences in depth. In this process, the researcher teacher took explanatory notes and audio records when necessary. These notes and records were read and listened to over and over again, and the data required for the purpose of the study were supported with direct quotations and interpreted with the rubrics considering the levels of the SOLO taxonomy.

2.5. Application Process

Within the scope of the study, a total of 12-hour course flow was maintained with the VS students for four weeks. The researcher teacher, who intended to understand the students' learning about the subject of limit-continuity in depth, took on the role of researcher and lecturer during the 4-week study. In addition, in order for the students to use the "Derive" software effectively, a guide containing the menus in the software, the tools in the menus and the features of these tools was prepared. Table 3 summarizes the role of the researcher and the teaching process applied accordingly.

Table 3: The Teaching Process Applied and the Researcher's Role

Week	Researcher's Role	Applications Conducted	Application Process
Week 1	Explanatory and guiding	Conceptual clues about the subject of limit-continuity were given. The "Derive" introductory guide was distributed.	3-hour lesson process
Week 2	Explanatory and guiding	By introducing the software with the help of the guide, applications such as finding limits, drawing graph and continuity analysis were carried out with the students.	3-hour lesson process
Week 3	Observant, explanatory and guiding, providing consistency	The second worksheet (Worksheet-2) was applied with the help of the software.	3-hour lesson process
Week 4	Observant, explanatory and guiding, providing consistency	The seventh worksheet (Worksheet-7) was applied with the help of the software.	3-hour lesson process
TOTAL			12 hours

3. Findings

Within the scope of this study, the structure of the learning outcomes of the VS students in the CAS-supported learning environment was evaluated according to the SOLO taxonomy. In this section, the findings of the study are presented under two headings within the framework of the research problem. Under these headings, the descriptive analysis of the answers given by the students and the levels according to the SOLO taxonomy is presented together with the reasons. In the dialogues, the researcher teacher was coded as "RT," and the participating Vocational School students were coded as "S1, S2, … S32".

Findings Related to Distinguishing the Limit Value of the Function at a Point and the Image of the Function at That Point

Under this heading, the answers given by the VS students within the scope of the "First Question Group" were revealed and examined.

In general, it was seen that the VS students had no difficulty in defining the given function. On the other hand, it was revealed through the dialogues that the VS students questioned whether the function was wrong or not, saying "the denominator becomes zero, and this function has probably been given incorrect" when they saw that the value of $f(x) = \frac{\sin(2x-2)}{3x-3}$ was $\frac{\sin(0)}{0}$ in x=1. According to VS students, the use of Derive software to find the limit of the function at a given point helped reach the limit value of the function at this point. Below are sample answers of the students related to this question group:

 S7: Teacher, is there anything wrong with this function? Or I'm doing wrong.
 RT: Why?
 S7: Because when I write 1 instead of x in the function, the denominator becomes zero. You told us that when the denominator is zero, there is no solution set.
 RT: So what to say about the function in such cases?
 S7: It is an undefined function.
 RT: If you cannot find the answer to the question asked in the first step, you might be interested in the other steps.
 S7: Teacher, since this function is undefined, would it be correct to look at the other steps? (S7 was only doing paper and pencil work in this process.)
 RT: I don't know, if you want, try to find the answers using the software as directed by the worksheets.

 S7: All right.

Figure 1: S7's operations on the software

 S7: There is indeed a value. So writing down the given point was not the definition of limit.
 RT: Then, what's the definition of limit?
 S7: Even if limit is undefined at one point, it is that there are limits from the right and left at that point.
 RT: What is limit on the right and left?
 S7: it refers to taking the same values while approaching the limit from the right and from the left... Approaching the point is something different, and finding the value at the point is something else!
 RT: So can you tell us what the difference between them is? I want you to think out loud.
 S7: Actually, limit is something like a border, and when you approach that border, it is limit... So what's the value at the point? I am confused ... The value at that point is not limit, but when approaching from the right and left, it becomes limit. In fact, if it was up to me, I would not say that there is limit here, but you find a value when you make an operation in Derive!
 S7 During this thinking process, he was looking at his work in Derive software and trying to gather the knowledge in his mind. The comments made by the student on the worksheet were as follows:
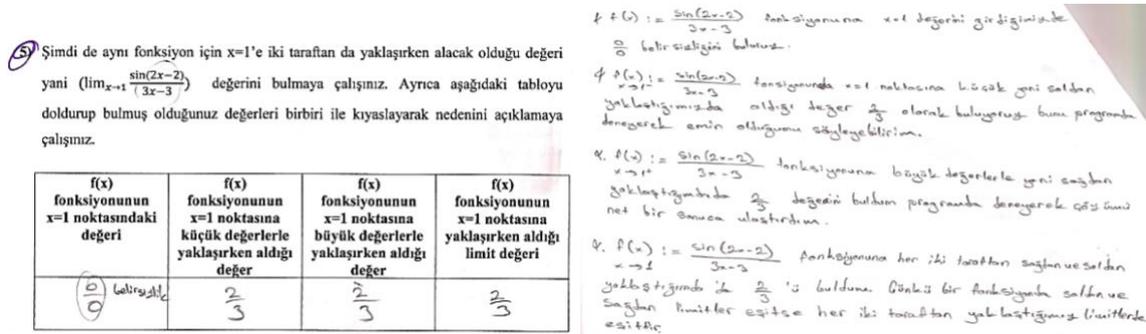
Figure 2: S7's writing in the worksheet

When the answers given and written on the worksheet by S7 were examined, the idea of getting closer to the point x = 1 based on the student's knowledge of the number line was found striking. This thought of the student shows that he had knowledge of the subject. In addition, the biggest problem experienced by S7, who was aware that the value of the function at this point and the value it would take while approaching this point from small-large values were different, was that he failed to combine these pieces of knowledge. The value expected by the student as limit was that it would be the image at that point. In this process, although the Derive software helped the student find the value at the given point, the student was in doubt due to the uncertainty he obtained. The operations performed on the software by S7, who looked for a solution at the given point before finding the limit, are as follows.
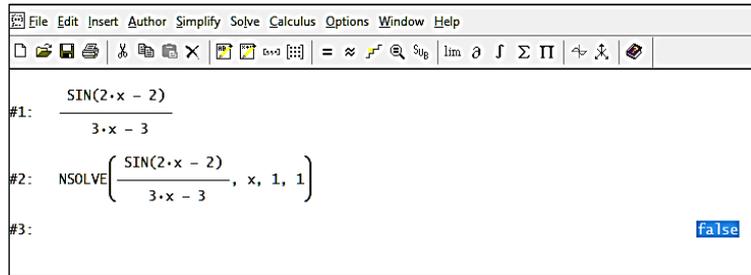
Figure 3: The solution made by S7 on the software before finding the limit

S7: Teacher, when we write the point in the given function, even the computer says "false." So it is wrong! I mean we can't find the limit, right?

At the very beginning of the questions, S7, who said that this expression did not have a limit value without doing any work on the limit of the function, failed to distinguish the limit value and the value of the function at a given point. In short, the student had difficulty in combining the pieces of knowledge. From this point of view, S7's answers were shaped around the uncertainty of the statement and placed at the "US" level because the focus was on only one aspect of the question. When all the answers were examined, expressions similar to the answers of S7 were encountered in general. These expressions are as follows;

"This point helps us here reach the uncertainty of $\frac{\sin{(0)}}{0}$."
"The denominator is zero, and this has no solution"
"there is uncertainty, but there is limit in the software
"There is the right-left limit"

It was seen that besides S7, some other students (S11, S15, S17, S22 and S31) could not write the given point. In addition, these six students, who were not aware of what it means the function approaches a given point, could only find the limit value with the Derive software. They were also unable to come up with any idea of how to find the limit value they found. They also failed to establish a relationship between the limit value and the image of the function at that point. From this point of view, as it was seen that these students focused only on one aspect of the question being studied and that their answers regarding the question group were limited, these

answers were placed at the level of "US." As an example of this situation, S11's statement of "I cannot write the point instead" on the worksheet can be given;

f(x) fonksiyonunun x=1 noktasındaki değeri	f(x) fonksiyonunun x=1 noktasına küçük değerlerle yaklaşırken aldığı değer	f(x) fonksiyonunun x=1 noktasına büyük değerlerle yaklaşırken aldığı değer	f(x) fonksiyonunun x=1 noktasına yaklaşırken aldığı limit değeri
yazamam	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$

Figure 4: S11's writing in the worksheet

In general, when the VS students' dialogues with the researcher teacher, the worksheets and the screenshots were examined in depth, it was seen that the expected learning could not be achieved. Nevertheless, it was seen that the answers given by some students at the US level at the beginning turned into the MS level as a result of the completion of the activity by moving the same questions to the Derive environment. In fact, it was revealed that some of the thoughts of the VS students who, for the first time, encountered the CAL environment developed. The dialogue between S30 and RT is given below to exemplify such situations;

S30: Teacher, while approaching the value you gave, shouldn't I write that value instead of x in the function and solve it?

RT: Let's accept it as you said!

S30: So why did you ask again the value it will take for x=1 here?

RT: So let's ask like this; x approaching 1 and x being equal to 1, are these the same statements?

S30: Teacher, there is a sine here. Even if I write 1 where I see x, I cannot find the result! (Using paper and pencil, the student writes 1 where he sees x in the function.) The solution here is zero because the denominator is zero!

As no relationship had been established between the limit value and the image of the function at that point up to that time, it could be stated that the student though at the "US" level. The dialogue between RT and S30, who brought the same questions to the Derive environment in the next period, was as follows:

RT: S30, you can use the software for the results you can't find.

S30: I found it "false" again, so wrong!

RT: Can you continue it by thinking aloud?

S30: "find limit" "limit point" Let's write 1. Result $\frac{2}{3}$! , now let's find for "left," "right." The same result $\frac{2}{3}$!

RT: What can you say in such a situation?

S30: The limit, right limit, left limit are all the same! Only the solution for x = 1 is "false"!

RT: So what can you say about this situation?

S30: Now even if there is no result at the point x = 1, the function has a limit. It also has a limit from the right and left.

As this dialogue shows that the answers given by S30 to the questions which he transferred to the software contained disconnected pieces of knowledge, it could be stated that the student thought at the level of "MS" in this process. In addition to the dialogues given as examples, the notes taken by the researcher teacher revealed that the CAS environment was encouraging for learning. Some of the notes taken by the researcher teacher are given as examples below:

"I was very curious about how to do the math lesson with the computer. This is great!"

"The software is very useful and easy, you can easily reach the result of any mathematical operation."

"Teacher, when you wrote on the blackboard, I was having my friend write and then I was taking it from him. But in this lesson, I tried to do something, too."

"It is very enjoyable to do operation with Derive. You write the function and find the limit."

"While we cannot write the given value where we see x in the function, we find limit in the software."

"Without the Drive, I would have been definitely unable to find the answers to the questions given in the worksheets."

From the notes above, we see that the CAL environment was effective on the students' participation in the lesson. In addition, it is quite clear that the Derive software used was remarkable and fun for the students. When the learning outcomes of the VS students in relation to this were examined, the answers given by some VS students at the US level at the beginning increased to the level of MS with the completion of the activity and with the dialogues. Thus, six of the student answers could be placed at the US level, and 26 at the MS level. The table below presents the SOLO leveling obtained from the answers of the VS students in relation to learning this outcome within the context of the number of students.

Table 4: Number of Student Answers According to SOLO Level

Name of the Question Group	Worksheet	Question Number	SOLO Levels															
			-	PS (1)	+	-	US (2)	+	-	MS (3)	+	-	RS (4)	+	-	AS (5)	+
First Question Group	2	2, 3, 4, 5					6			26							

Table 4 demonstrates that according to the students' answers, 6 learning outcomes at the level of (US, 2) and 26 at the level of (MS, 3) were achieved. Thus, it could be stated that the answers given by the VS students in relation to distinguishing between the limit value of the function at a point and the image of the function at that point were generally at the level of (MS, 3). Accordingly, although the VS students draw one or more correct conclusions, they failed to associate them consistently with each other.

By examining the data given in Table 4 and the data analysis of these data, the average level of the answers given by the VS students regarding this outcome was determined. The average scoring of the answers corresponding to the SOLO levels is summarized in the graph below.
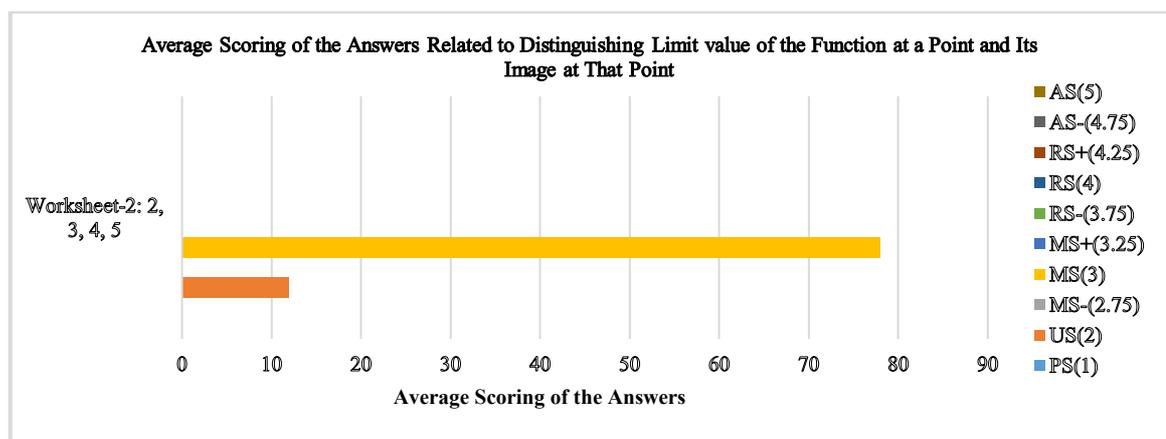
Graph 1: Average scoring of the responses corresponding to the SOLO levels

Graph 1 shows the average scoring of the answers given to the questions about distinguishing the limit value of the function at a point and its image at that point. According to this scoring, 6 (US, 2) corresponds to an average scoring of 12 (US), and 26 (MS, 3) to an average scoring of 78 (MS).

When the tables, graphs and dialogues given above were examined, it was seen that the students who turned to paper-pen before using the software gave answers focusing on one aspect of the questions and that the answers developed with the use of the software and contained independent and meaningful pieces of information. In this sense, the CAS environment could be said to contribute to the learning process of the VS students.

Findings Related to Thinking that Continuity Cannot be Required Where the Function is Undefined

Under this heading, the answers given by the VS students within the scope of the "Second Question Group" were revealed and analyzed.

In the questions in this group, the VS students were asked to find a solution for f(x)=0 after defining the given function $f: [-1, 2] \to R, f(x) := x^2 + 2x$. Here, the function has a certain definition interval, and in order to explain the continuity in a certain interval without drawing a graph, it should be known that continuity cannot be sought at points where the function is undefined. Some of the students who thought that these questions could be solved easily with paper and pencil did not feel the need to use the software. The dialogue between RT and S29, who used the software to show the accuracy of the solutions he found, was as follows;

S29: Teacher, here, I was asked a solution for f(x)=0. Is this the solution set?

RT: Yes, Ö29, it is the solution set for f(x)=0 for this function.

S29: The question asked me to use the Derive software. Let's see if it will find 0 and -2 like me. (While S29 was saying this, he was doing the solution of the function in the worksheet and, at the same time, trying to find results in the software).

Figure 5: Operations done by S29 on the software

S29: Super software! I can prove whether what I did is correct or not.

RT: You can move on to the next question.

S29: The question asks which one is in the definition interval and whether it cuts the x-axis? Why does it ask this? Wouldn't we be interested in continuity?

RT: Why do you think it is asking that?

S29: If there was an interval, we had to find the values in that interval. Then we were looking to see if it was less than zero or greater. Isn't that so, teacher?

RT: Go on.

S29: I didn't fully understand this and I do not know what I am doing it for. We did something like this. If there is a closed interval, we find the values of the limit points and multiply them ...

Figure 6: S29's writing in the worksheet

RT: What did we do these for?

S29: It says in the question examine the continuity ... If there is lack of definition in the closed interval, we have to see it so that we can find the continuity.

When S29's answers were examined, it was seen that in the advanced stages, the student had difficulty in the questions which he initially regarded as simple. As the answers of S29 were close to conceptual understanding, it is obvious that his answers were above MS. Despite this, S29, who did not conceptually combine the pieces of knowledge in his answers, could not give an adequate answer regarding the continuity of the function. S29's answers were placed at the level of "MS+" because they contained memorized pieces of knowledge far from conceptual understanding.

When all of the answers were examined, there were similar statements in the answers of S7, S9, S16, S20 and S28 similar to those of S29. Among the other students, the answers of S2, S3, S5, S18, S21, S23 and S32, who focused on the solution of function for zero, were placed at the level of "CY," although they tried to examine the continuity. The dialogue between S3 and RT is given below to exemplify the answers given at the MS level.

S3: To find the solution for f(x)=0, we set the function to zero. Then why would we try to find the point left in the domain? I didn't understand this!


```
#1:    f(x) ≔ x·x + 2·x
#2:    x·x + 2·x
#3:    SOLVE(x·x + 2·x, x, Real)
#4:                                              x = –2 ∨ x = 0
#5:    f(x) = 0
#6:    SOLVE(f(x) = 0, x, Real)
#7:                                              x = –2 ∨ x = 0
```

Figure 7: Operations done by S3 on the software

RT: You can associate it with the subject of our lesson.

S3: Continuity! Teacher, there are -2 and 0 in the real solution of x. Here we draw a graph to look at continuity. We look at these points. We understand whether it is continuous or not.

RT: So what could be the reason for giving an interval here? How would you associate it?

S3: An interval is given so that we can see if the function is continuous or not. We look at the interval of [-1,2] in the graph, if we can draw without raising our hand, it is then continuous.

Although S3's answers to examine continuity in the closed interval were not sufficient, the fact that he found a solution for f(x)=0 and questioned this solution was effective in placing his answers at the level of "MS." Among the remaining students, the answers of 19 students who could not give information about how to examine continuity in closed interval but tried to find a solution for f(x)=0 were placed at the "US" level. Some of the students' statements are given below as an example of the answers at the US level:

"We can find f(x)=0 without using the Derive."

"Are we going to substitute zero for x here?"

"How do we find if it cuts the x-axis?"

"The worksheet we did in the previous lesson was better. Here we use Derive less ..."

When all of the learning outcomes of the VS students regarding this outcome were examined, it was seen that 19 of the student answers could be placed at the level of US, 7 of them at the level of MS and 6 of them at the level of MS+. In the table below, the SOLO leveling obtained from the answers of the VS students in relation to learning this outcome is indicated within the context of the number of students.

Table 5: Number of Students' Answers According to the SOLO Level

Name of the Question Group	Worksheet	Question Number	SOLO Levels														
			-	PS (1)	+	-	US (2)	+	-	MS (3)	+	-	RS (4)	+	-	AS (5)	+
Second Question Group	7	2, 3					19			7	6						

Table 5 shows that among the students' answers, a total of 19 learning outcomes were obtained at the level of (US, 2), 7 at the level of (MS, 3) and 6 at the level of (MS+, 3.25) were obtained. Thus, it could be stated that in these questions examined in relation to thinking that continuity cannot be sought at points where the function is undefined, the answers given by the VS students were generally at the levels of (US, 2) and (MS, 3). According to this situation, the VS students focused only on one aspect of the question, failed to form conceptual understanding and could not associate the pieces of knowledge.

By examining the data given in Table 5 and the data analysis of these data, the average level of the answers of the VS students regarding this outcome was determined. The average scoring of the answers corresponding to SOLO levels is summarized in the graph below.
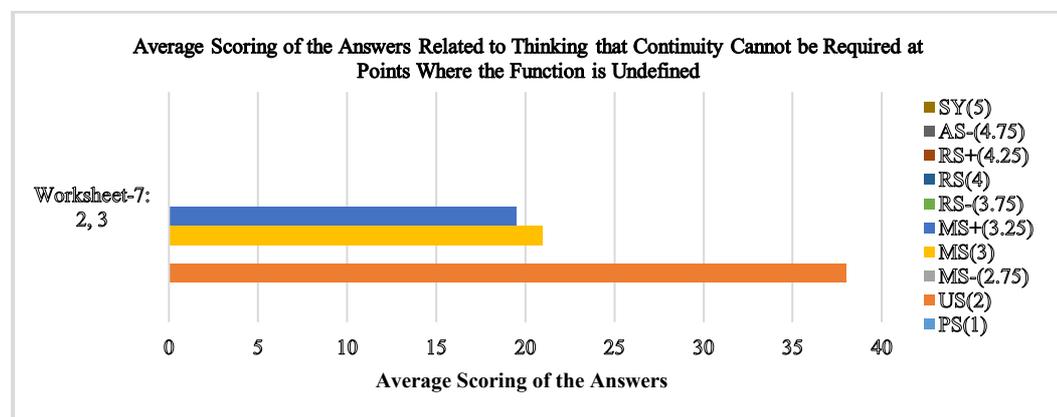
Graph 2: Average scoring of the answers corresponding to the SOLO levels

Graph 2 shows the average scoring of the answers given to the questions about being able to say and interpret that continuity cannot be sought at points where the function is undefined and interpreting it. According to this scoring, 19 (US, 2) corresponds to an average scoring of 38 (US); 7 (MS, 3) to an average scoring of 21 (MS) and 6 (MS, 3+) to an average scoring of 19.5 (MS+).

When the learning outcomes presented above to summarize this group were examined, it was seen that the answers containing independent pieces of memorized information developed with the use of the software. In this sense, CAS could be said to contribute to students' abstract thinking in the learning process.

4. Discussion and Conclusion

In the environment where CAS software was used, the learning outcomes of the VS students were evaluated as to be below the RS level according to the SOLO taxonomy. The use of CAS software allowed the VS students to increase the quality and structure of the learning outcomes at the level of PS and US to the level of MS and above. In line with this general result, in this section, the results will be discussed under two headings within the framework of the research problem.

Most of the answers given by the VS students about distinguishing the limit value of the function at a point and the image of the function at that point from each other improved to the level of MS. Although there were

answers below this level (US), no answer at the top level was encountered. These answers, which were not close to conceptual understanding, revealed that the expected learning did not occur and that VS students were not successful in integrating the meanings in a consistent structure in terms of abstract thinking skills. The expected learning did not occur, yet it could be stated thanks to the learning outcomes that the student expressions developed and that the learning environment contributed to this development. In the dialogues with the VS students who got accustomed to the use of the software, it was seen that as the questions progressed, the students turned to the computer in front of them, became more interested in mathematics by focusing on the lesson, had the curiosity of doing the mathematics lesson with a computer and would not be able to do the activities without the software. In addition, the CAS-supported learning environment was effective in helping the students question their memorized knowledge and abstract thinking. In the related literature, it is possible to meet studies on the effect of visual representations on learning by improving conceptual understanding and reasoning skills in CAL environments (Camacho, Depool & Santos-Trigo, 2010; Hutkemri, 2014; İlhan & Aslaner, 2020; Yıldız & Aktaş, 2015; Yorgancı, 2019). The common results of these studies cover not only the appropriateness of the software to be used for technology to have a positive effect on learning but also the importance of the activity contents to be prepared. Therefore, according to the findings of this study, although the software played a more effective role in the learning process of the students than the blackboard, the necessity of creating technology-supported content to support the learning-teaching process emerged. This necessity is similar to the research results reported by Sevimli and Delice (2015). With the help of the dialogues and her notes, the researcher teacher concluded that environments where visual elements are not used encourage students to memorize. In addition, the researcher teacher revealed that passing a class without sound concept knowledge and having only secondary school mathematics knowledge are not sufficient for VS students. In real life, in technical programs, students cannot fully understand the equivalents of the mathematics course in their professional life. The most important factors here are visualilty and interactive use. Thus, according to the researcher teacher, it is important to present the limit subject, which forms the basis of higher education mathematics, to the students with visual and conceptual relationships. This is especially important for the insufficient and memorization-based mathematics knowledge (US and MS-) that VS students take during their secondary school education. In the study, it was seen that during the lesson process, the students had difficulty in finding the limit by approaching the given point from small-large values and in distinguishing the limit of the function at a point and its image at that point, though included in the secondary school limit calculations. This situation is consistent with the result obtained by Biber and Argün (2015), who reported that students who start higher education without strong mathematical concept knowledge have inadequate mathematical knowledge, as well as with the result obtained by Aygün, Durukan, Aydın and Diril (2015), who showed that the most important share in school success differs depending on the students of the school and on the type of the secondary school graduated from.

In this study, in which the learning outcomes were evaluated with SOLO, the answers given by the VS students in relation to distinguishing the limit value of the function at a point from its image could not go beyond the levels of US and MS, which included operational and memorized pieces of knowledge. As a matter of fact, in the process of examining the limit of the functions at the given points in the question groups, the students tried to write the given point for x in line with their previous memorized knowledge. At the beginning of the study, the VS students, who had the misconception that the value of the function should exactly equal the limit value, were not aware of what reaching a value or convergence could be. It could be stated that the answers starting at the US level turned into the answers at the MS level. This situation revealed that the answers of the students who got used to the software and looked for limit on the software developed even though they did not integrate in a consistent structure. In addition, towards the end of the teaching process, it was seen that some of the VS students got rid of the misconception that the function's limit at one point could be equal to its image at that point.

Most of the answers given by the Vocational School students regarding thinking that continuity cannot be sought at points where the function is undefined remained at the level of US and MS. Most of the answers given by the VS students in relation to thinking that continuity cannot be sought at points where the function is undefined remained at the level of US and MS. The answers of the students who focused on the solution they found rather than on the continuity of the function, who stated that they would not be able to examine continuity without graph, who failed to associate their solutions with theoretical knowledge or failed to understand were placed at

the US level. As the study progressed, it was observed that the answers given developed from the US level to the MS level. Considering that the expected learning was at the RS level in the SOLO taxonomy, it is clearly seen that the VS students did not have this competency. In this sense, it was concluded that the VS students were not able to give sufficient information about discontinuity or to demonstrate the expected success. In addition, it was seen that the students had difficulty in what to do when the function was undefined. The reason for this might be the undefined function as well as the missing knowledge of the VS students about continuity. The results obtained in the related literature (Çeziktürk Kipel, 2013; Davis & Vinner, 1986; Tall & Vinner,1981; Turan & Erdoğan, 2017) regarding the discontinuity knowledge support this conclusion. Especially the statements of the VS students who stated that "there is continuity where there is limit" without checking whether the function was defined or not were parallel to the misconception in the results obtained by Baştürk and Dönmez (2011).

It was seen that the VS students expressed continuity more clearly in their work on graph. Some of the VS students associated the graphs they drew on the software with real-life concrete shapes such as "slide, heartbeat, fairy chimney, arms that go to eternity"; made sense of convergence by moving on the graph and reaching the points where there was discontinuity; and gave meaning to infinity by making the graphic smaller and larger and examining the arms extending towards eternity. This situation revealed that the VS students who gave inconsistent answers were more successful in their works on the chart. As a result, it could be stated that the software brought comfort and concreteness to the virtual and tiring structure of mathematics. Derive software, which allowed visual presentation of mathematics, played a role in the development of the students' interest in mathematics and in shaping the learning outcomes. In this respect, the answers given could be said to be technology-oriented. The researcher teacher frequently saw that the VS students who drew graph on the software had misconceptions such as "if there is a gap in the graph, it is not defined, no limit, and not continuous" for. Accordingly, the researcher teacher noted the reason for this as the limit-continuity subject, uncertainties, infinity concept and function deficiency. Some of the studies that examined the limit-continuity subject and uncertainty situations and identified students' deficiencies reported similar results (Biber & Argün, 2015; Dane, Çetin, Bas & Sağırlı, 2016; Elia, Gagatsis, Panaoura, Zachariades & Zoulinaki, 2009; Sierpinska, 1987; Szydlik, 2000). The researcher teacher took notes emphasizing that traditional teaching methods are not sufficient to overcome these deficiencies; that learning environments should be created to support students' learning; and that especially environments where visual elements are not used encourage students to memorize. In the literature on technology-aided mathematics education, studies indicating that visual representations are effective in teaching complex subjects that students have difficulty understanding (Aztekin, 2012; Ertem Akbaş, 2019; Hutkemri, 2014; Sevimli & Delice; 2015; Yıldız & Aktaş, 2015) support the findings obtained by the researcher teacher in the present study. According to the researcher teacher, presenting the subject of limit-continuity, which is the basis for higher education mathematics, to students with visual and conceptual relationships is important in developing students' abstract thinking skills about these concepts. This is especially important for VS students' inadequate and memorized mathematics knowledge. The fact that the students who stated that they took mathematical or non-mathematical courses throughout their vocational secondary school education and that they never studied on limit-continuity is an indication of this importance. These statements, which were at the US level focusing on one side of the question, were interpreted as another effect of the students' failure to express that continuity could not be sought by examining the points where the function was undefined.

However, it was seen that the answers given by the VS students with the graph they drew on the Derive software were more meaningful. Thus, it could be stated that some answers initially considered to be appropriate to the US level included statements at the MS level as the study progressed. The visuals and technology in the dynamic environment appear to have a supportive role in the development of students' answers. In addition, it was concluded that the use of CAS was effective in the VS students' questioning their memorized knowledge about the strategies they followed for solution. This result reveals that the actions taken by the students in the software provided them with dynamic problem solving strategies.

In Turkey as well as in the world, in teaching the science of mathematics, which is subjected to students' comments such as "difficult, impossible to understand," new methods and software suitable for the technology of the era and today's student profile should be taken into consideration by teachers in mathematics teaching. It will

be beneficial to use such mathematical software in the development of learning outcomes of VS students who cannot fully comprehend the equivalent of mathematics especially in their professional lives.

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An Investigation of the Relationship Between Preschool Teachers' Individual and Administrative Creativity and Job Satisfaction

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Abstract
The creativity skills of individuals have started to gain importance in adapting to today's changing conditions. In this context, teachers need to transfer their individual creativity to the organizational environment. In order to do this, they need to provide personal pleasure and satisfaction from their work. The main aim of this study is to examine the relationship between preschool teachers' individual and administrative creativity and job satisfaction. The study, which is designed as relational survey model, was carried out with 173 preschool teachers. The data obtained from Personal Information Form, Organizational Creativity Scale and Job Satisfaction Scale. As a result of the research, the organizational creativity scores of preschool teachers in the dimension of individual creativity showed a significant difference according to the type of institution, and no difference was found according to the status of wanting to do a different profession, the number of students in the class, professional seniority and weekly working hours. There was a difference in the administrative creativity of teachers according to the type of institution, their willingness to do a different profession and the number of students in the classroom, while professional seniority and weekly working hours make no difference. There was a difference among teachers' job satisfaction scores according to the type of institution, their willingness to do a different profession, and the number of children in the classroom, but not according to professional seniority and weekly working hours. According to the result of the research it can be claimed that as the organizational creativity scores of preschool teachers in individual and administrative dimensions increased, their job satisfaction increased too. It was suggested that conditions improving organizational creativity and job satisfactions of preschool teachers should be given place in schools.

Keywords: Preschool Teachers, Individual Creativity, Administrative Creativity, Job Satisfaction

Introduction

It is a well-known fact that information is rapidly renewed in our century and this renewal has significant effects on situations, relationships and products. In such an age, teachers who made important contributions to the development of societies; as their role as transmitters of knowledge decreases, their role as facilitators is

increasing, providing the tools necessary to build on existing knowledge. In this context, it has become more important for teachers to notice changes, adapt to innovations, and develop strategies to cope with problems. These features are largely related to creativity.

Creativity and Organizational Creativity

According to Mumford, Medeiros and Partlow (2012), creativity is essential for partially solved or never solved problems, and only creative thinkers can keep up with the rapid changes in the world. According to the most widely known definition, creativity is the process of being sensitive to problems, inadequacies, lack of information, missing elements and incompatibilities; identifying difficulties, searching for solutions; making predictions or hypotheses about deficiencies and testing them repeatedly; changing and re-testing these when it is necessary and explaining what comes out (Torrance, 1962).

In the past years, creativity was thought to be an individual act; however, the idea that creativity is an ability for organizations has gained importance in recent years (Akman & Abasli, 2017; Cengiz, Acuner & Baki, 2007, Hunter et al., 2005; Nisula, 2013; Shalley & Gilson, 2004). When creativity skills are adapted to the organization, organizations can foresee future changes and are more successful in making quick decisions and taking actions based on these changes (Balay, 2010; Indriartiningtias, Hartono & Subagyo, 2018). Organizational creativity can generally be defined as the ability of employees, individually or as a group, to bring a new product, service, idea, procedure, or process which is valuable, useful, and practical to the organization (Olszak, Bartus & Lorek, 2018; Parjanen, 2012; Shalley, Gilson & Blumsource, 2000; Taggar, 2002; Woodman, Sawyer & Griffin, 1993).

Individual, administrative, and social creativity are addressed together for organizational creativity (Boyacı & Karacabey, 2016; Hirst, Van Dick & Van Knippenberg, 2009). Therefore, these three elements must be related to each other. Individual creativity emerges in problem solving environments in the work and/or daily life and has a positive effect on organizational creativity (Iraz & Akyazı, 2015), administrative creativity is mostly based on the leader's behavior or leadership style in an organization. The level of organizational creativity is an administrative process where managers are responsible for guiding organizations to meet their objectives which require creative problem-solving. On the other hand, another fundamental condition for organizational creativity is the existence of a social environment that allows for creativity (Kwaśniewska & Nęcka, 2004).

Supporting factors for organizational creativity showed that the support of administration, transparency of processes for all employees, financial appreciation of employees such as monetary issues, appreciation of the moral aspects such as approving, empowerment of employees to make decisions and to initiate certain tasks and providing flexibility of risks and uncertainty influence organizational creativity positively (Cengiz et al., 2007). In order to ensure creativity in organizations, it is necessary to identify employees with high intrinsic motivation. The intrinsic motivation mentioned here refers to the personal pleasure and satisfaction of a person is doing and accomplishing a job (Greenberg, 2002). Since schools are an organization, it is natural that subjects that support creativity in organizations also apply to schools.

Job Satisfaction and Organizational Creativity

Job satisfaction can be described as an individual's involvement in an emotional reaction to work environment (Perie & Baker, 1997) and it can be addressed both positively and negatively. From a positive perspective, job satisfaction for an individual is explained as the pleasure that s/he gets from her/his profession or work experiences and their positive emotional consequences for the individual (Duxburg, Armstrong, Drew & Henly, 1984; Izgar, 2000). It is seen that job satisfaction is actually an important factor for the performance and success of all organizations (Dee, 2006). Individual factors affecting job satisfaction can be considered as expectations from the work environment, age, gender, socio-cultural environment, personality, education level, the number of working year, appreciation of the profession, professional seniority (Kılıç, Tanrıkulu & Uğur, 2013; Özyürek, 2009; Yılmaz & Izgar, 2009). Environmental factors affecting job satisfaction can be named as the quality of work, wage, working conditions, group interaction, administrator characteristics (Smith, Kendall & Hulin, 1969,

cited in Özkalp, 2013, p. 74). When the factors affecting job satisfaction are considered, it is noticed that these factors also influence organizational creativity.

Studies revealed that an organizational climate that supports the creativity of the employees has a positive effect on their job satisfaction (Abu-Saad & Hendrix, 1995; Baltaş & Baltaş, 2000; Çekmecelioğlu, 2005; Friedman, 1991; Goldberger & Breznitz, 1982; Schwab, Jackson & Schuler, 1986). Job satisfaction is rather seen as a function of the relationship between what teachers want from teaching and what they perceive (Papanastasiou & Zembylas, 2005). Özdemir, Sezgin, Kaya and Recepoğlu (2011) also mention that teaching profession is a strenuous and stressful profession. Also, it is notified that when job satisfaction decreases, job productivity also decreases in many work areas (Keser, 2006). From this point of view, it is inevitable that the quality of education given to students will decrease if job satisfaction of preschool teachers decreases.

When the literature is examined, it is seen that the relational studies on the organizational creativity and job satisfaction levels of preschool teachers do not take place enough in the field. As preschool children will be more affected by the attitudes of the teachers than the children in the older age group because of their closer relationship with teachers, it is possible for preschool teachers to reflect the negative effects of their dissatisfaction to their work environment. Teachers' job satisfaction also has an impact on the academic success of the institution, student behaviors, student satisfaction and the power of the teacher to produce work, in short, organizational creativity (Çekmecelioğlu, 2005; Greenberg, 2002; Hutabarat, 2015; Jiang, 2005; Zhou and George, 2001). In this sense, the possibility of reflecting the negativity of the preschool teachers to the educational environments where young children are educated is an important issue to be taken into consideration. It has been observed that studies with preschool teachers on this subject are extremely limited. Thus, the aim of this study is to investigate the relationship between preschool teachers' organizational creativity (in terms of individual and administrative creativity) and job satisfaction. To achieve this purpose, whether preschool teachers' organizational creativity and job satisfaction make significant difference was also explored depending on their type of institution (public and private), longing for a career change, number of children in the class, professional seniority, and weekly working hours.

Methodology

The purpose of this research is to investigate the relationship between preschool teachers' organizational creativity and job satisfaction. Therefore, this research was conducted in accordance with correlational survey model. Survey model refers to "studies that determine the characteristics of the participants' views, interests, skills, abilities, attitudes, etc. about a subject or event" (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2008). In this study, after the organizational creativity and job satisfaction of preschool teachers were described, the correlation between these two variables was examined and comparisons were made in terms of various variables.

Participants

The participants of the study were comprised of 173 female preschool teachers who participate in the study voluntarily through "Google Form." When the demographic distribution of participants was looked at, 71.1% of the participants work in public institutions and 28.9% of them work in private institutions. While 32.9% of the participants stated that they wanted to do another profession, 67.1% of them stated that they did not . 67% of the participants had less than 20 children in their class, 33% of them had more than 20 children in their class. 24.3% of the participants had 0-2 years, 22% of them had 3-5 years, 15% of them had 6-8 years and 28.7% of them had 9 years or more professional seniority. 61.8% of the participants worked 20-30 hours a week, 23.7% of them worked 31-40 hours a week and 14.5% of them worked 41 hours and more a week.

Data Collection Instrument

Personal Information Form. For the demographic data of the preschool teachers, Personal Information Form was used which included items about the type of institution (public or private), the longing for a career change, the number of children in the teaching class, the professional seniority of the teachers and weekly working hours. ***Organizational Creativity Scale.*** Organizational Creativity Scale was developed by Balay (2010) and checked for its reliability and validity with pilot studies. It consisted of 3 dimensions with 38 items in total, of which 16 are individual items, 11 are administrative items and 11 are social items. While the item loadings in the factors of the scale ranged between .47 and .88, when the alpha values taken for each dimension were calculated, they equaled to .92 in the individual dimension, .93 in the administrative dimension and .95 in the social dimension. In addition, when the scale was combined and used in a single dimension, the total variance was 58%, which meant that the scale could be used for a single dimension. The items of the 5-point Likert scale could be marked as "totally disagree," "slightly agree," "moderately agree," "strongly agree" and "totally agree." When the arithmetic means of the scores obtained from the scale were checked, 1.00-1.80 was evaluated as "Very low," 1.81-2.60 was evaluated as "Low", 2.61-3.20 was evaluated as "Medium", 3.21-4.20 was evaluated as "High" and 4.21-5.00 was evaluated as "Very high". In this study, however, only individual, and administrative dimensions of the scale were used. The reliability values for this study for the Individual dimension of the Organizational Creativity Scale was .904 and the reliability value for the Administrative dimension was .928.

Job satisfaction scale. The Job Satisfaction Scale, developed by Hackman and Oldham (1975), was adapted to Turkish by Silah (2002). Taşdan (2008) conducted the validity and reliability measurement studies with school organizations and teachers. Therefore, this research adopted Taşdan's (2008) Job Satisfaction Scale. The factor loading values of the scale were between .69 and .86. The total variance of the scale was 63.86%. Item total correlations ranged from .66 to .84. Cronbach's Alpha value of the scale was found to be .95. The scale consisted of 14 items and was one-dimensional. The items of this scale, which was in the form of 5-point Likert scale, could be marked as "not at all satisfied," "not very satisfied," "somewhat satisfied", "very satisfied" and "extremely satisfied." In the evaluation of Job Satisfaction Scale, the ranges of job satisfaction scores were as follows: "14-24 points: Very low level", "25-35 points: Low level", "36–48 points: Medium level", "49–59 points: High level" and "60–70 points: Very high level". The reliability value of the Job Satisfaction Scale for this study was found to be .898.

Data Collection/Procedure

A form was created on "Google Form" by combining Personal Information Form, individual and administrative dimensions of Organizational Creativity Scale and the items of Job Satisfaction Scale. The person who did not fill in any question was blocked by the system from completing the form. Each form took approximately 5-10 minutes to complete. The link to the form created during the data collection process was delivered to preschool teachers via the Internet. A total of 173 female pre-school teachers completed the form and all of the forms were included in the study. It took approximately two months for the forms to be filled in by the teachers.

Data Analysis

In order to determine the appropriate analysis method to be used for the data obtained from the scales, the normality test was performed first. T-test, one-way analysis of variance and Pearson correlation analysis were used for independent samples, which are among the parametric tests for variables because of their normal distribution.

Findings

In this section, findings related to the purpose and objectives of the research are given.

Table 1: T-Test Results of the Teachers' Organizational Creativity in Individual and Administrative Dimensions and Job Satisfaction According to School Type

Scale	Institution	n	$\overline{X}$	S	SD	t	P-value
Individual Dimension of Organizational Creativity	Public	123	3.75	.511	171	2.003	.047
	Private	50	3.93	.594			
Administrative Dimension of Organizational Creativity	Public	123	2.75	.874	171	3.621	.000
	Private	50	3.32	1.053			
Job Satisfaction	Public	123	3.00	.753	171	3.546	.001
	Private	50	3.45	.762			

As shown in Table 1, there was a statistically significant difference depending on the type of institution between the preschool teachers' organizational creativity scores in the individual dimension (t=2.003, p=.047<.05) and organizational creativity scores in the administrative dimension (t=3.621, p=.00<.01), which was in favour of those working at private institutions. A statistically significant difference was found between job satisfaction scores of preschool teachers (t=3.546, p=.001<.01) in favor of teachers working at private institutions in terms of the type of institution.

Table 2: T-Test Results of Teachers' Organizational Creativity in Individual and Administrative Dimensions Scores and Their Job Satisfaction Scores in Terms of Longing for a Career Change

Scale	Longing for a Career Change	n	$\overline{X}$	S	SD	t	P-value
Individual Dimension of Organizational Creativity	Yes	57	3.79	.521	171	.219	.827
	No	116	3.81	.552			
Administrative Dimension of Organizational Creativity	Yes	57	2.63	.99	171	2.81	.005
	No	116	3.06	.91			
Job Satisfaction	Yes	57	2.63	.76	171	2.57	.011
	No	116	3.06	.77			

As seen in Table 2, there was no statistically significant difference between preschool teachers' organizational creativity scores in individual dimension (t=.219, p=.82>.05) depending on the status of longing for a career change, while organizational creativity scores in administrative dimension (t=2.81, p=.005<.01). This statistically significant difference was in favor of preschool teachers who did not want a different profession. A statistically significant difference was found between the job satisfaction scores of the preschool teachers (t=2.57, p=.011<.05) in favor of those who did not want to do a different profession according to the status of longing for a career change.

Table 3: T-Test Results of Teachers' Organizational Creativity in Individual and Administrative Dimensions Scores and Their Job Satisfaction Scores in Terms of the Number of Children in Classes

Scale	Number of students in class	n	$\overline{X}$	S	SD	t	P-value
Individual Dimension of	Less than 20	116	3.83	.54	171	1.00	.317
	20 and more	57	3.74	.53			

Organizational Creativity								
Administrative Dimension of Organizational Creativity	Less than 20	116	3.03	1.01	171	2.29	.023	
	20 and more	57	2.68	.80				
Job Satisfaction	Less than 20	116	3.25	.75	171	3.04	.003	
	20 and more	57	2.87	.77				

In Table 3, no significant difference was found between the pre-school teachers' organizational creativity scores in individual dimension (t=1.00, p = .317> .05) with regard to the number of children in their classes. It was seen that there was a statistically significant difference between the preschool teachers' job satisfaction scores according to the number of children in their classes (t=3.04, p=.003<.01) and the organizational creativity scores in administrative dimension (t=2.29, p =.023 < .05). These statistically significant differences were in favor of preschool teachers who have less than 20 students in their classrooms.

Table 4: Pearson Correlation Analysis between Teachers' Job Satisfaction and Organizational Creativity Scores in Individual and Administrative Dimensions

Scale		Individual Dimension	Administrative Dimension	Job Satisfaction
Individual Dimension of Organizational Creativity	r	1	.271**	.176**
	p		.0	.021
	n	173	173	173
Administrative Dimension of Organizational Creativity	r	.271**	1	.621**
	p	0		.0
	n	173	173	173
Job Satisfaction	r	.176**	.621**	1
	p	.021	.0	
	n	173	173	173

$**p<.05$

As shown in Table 4, it was revealed that there was a low, positive, and significant correlation between pre-school teachers' individual and administrative organizational creativity scores (r=.271, $p<.01$). The results indicated a low, positive, and significant correlation between teachers' organizational creativity and job satisfaction (r=.176, $p<.05$). According to Table 5, a moderate, positive, and significant correlation between teachers' administrative organizational creativity and job satisfaction was also identified (r=.621, $p<.01$).

ANOVA results indicated that there was no statistically significant difference between preschool teachers' job satisfaction (p=.097), individual (p=.473) and administrative (p=.056) dimensions of organizational creativity scores in terms of professional seniority, and between their job satisfaction (p=.357), individual (p = .270) and administrative (p=.715) dimensions of organizational creativity scores concerning weekly working hours ($p>.05$).

Discussion, Conclusion and Recommendations

The current research which was conducted to examine the relationship between the organizational creativity and job satisfaction of preschool teachers had 173 female preschool teachers as participants. In the analysis of data obtained from Personal Information Form, Organizational Creativity (Individual and Administrative Subscales) and Job Satisfaction Scale, t test for independent samples, one-way analysis of variance and Pearson correlation

analysis were used. While the organizational creativity and job satisfaction scores of the teachers were examined for each variable, it was calculated whether there was a statistically significant difference between the organizational creativity of the teachers in individual and administrative dimensions and the organizational creativity and job satisfaction.

As the organizational creativity scores of the preschool teachers increased in the individual dimension, the organizational creativity scores in the administrative dimension also increased. Accordingly, it can be claimed that the greater the individual creativity of the individual is, the more the organizational creativity of the administrative dimension is affected. Besides, it was recognized that the relationship between individual and organizational creativity was affected by different factors. For example, it was indicated that preschool teachers who were pleased to be preschool teachers had higher levels of organizational creativity in administrative dimension than those who were not satisfied with their profession. It may be surprising that preschool teachers thought that they had demonstrated their creativity in administrative sense although they believed that they did not reveal their creativity in individual sense. However, these teachers also have high job satisfaction as seen in another finding of this study and may have to use their creativity in organizational climate to deal with the administrative problems they face in order to practice their profession.

Preschool teachers working in private institutions had higher individual and administrative organizational creativity scores and job satisfaction scores than those working in state institutions. In the literature, there are studies showing that teachers working in private schools are higher than teachers working in public schools in terms of creativity (Fidan & Öztürk,2015; Uğurlu & Ceylan, 2014) and job satisfaction (Perrie & Baker,1997; Sönmezer, & Eryaman, 2008; Taşdan & Tiryaki,2008). This situation suggests that teachers working in public institutions may have some internal institutional problems.

There was no statistically significant difference between the individual organizational creativity scores of preschool teachers depending on the number of children in their classes, professional seniority and weekly working hours. Looking at the creativity of preschool teachers from an individual perspective, the study by Zembat, İlçi Küsmüş and Yılmaz (2018) also showed that teachers' creative thinking tendencies did not change according to the number of children in their classrooms. A study by Nartgun and Demirer (2015) also found that the organizational creativity of administrators does not differ depending on professional seniority. When the job satisfaction scores of the teachers were examined, no statistically significant difference was found in terms of professional seniority variable. Some studies also have shown that preschool teachers' job satisfaction does not differ according to professional seniority (Şahin & Dursun, 2009; Eser, 2010).

It was found that there was a statistically significant difference between teachers' job satisfaction scores and administrative organizational creativity scores according to the number of children in their classes. The preschool teachers with less than 20 children in their class had higher job satisfaction scores than the teachers with more than 20 children in their class. Tekerci (2008) also notified that preschool teachers with fewer (10 and less) children had higher job satisfaction. Contrary to these findings, in some studies, there was no statistically significant difference between the job satisfaction scores of preschool teachers with regard to the number of children in their classrooms (Durualp & Kaytez, 2016; Perie & Baker, 1997). The results of the current study may be due to the fact that the number of teachers participating in the study is not similar or may suggest that teachers working with fewer children may have less work stress.

It was found that job satisfaction increased as teachers' individual and administrative organizational creativity scores increased. In the study of Yılmaz and Karahan (2010), it was revealed that organizational creativity had an effect on employee performance, while Çekmecelioğlu (2005) concluded that job satisfaction was affected to the extent that organizational climate supported employees' creativity. Greenberg (2002) also stated that the organizational creativity of the people who had job satisfaction while doing a job would be high. In a study conducted by Yılmaz and Izgar (2009) with teachers working in primary schools, it was expressed that there was a statistically significant relationship between teachers' organizational creativity and job satisfaction, and job satisfaction was significantly predicted by organizational creativity.

The current study assumed that the emotional bond established between the younger age group and the teachers affected some results (i.e., no change in job satisfaction in terms of professional seniority). This suggests that the level of children (such as primary school level and secondary school level) who teachers educate may have an impact on organizational creativity and job satisfaction. Therefore, it is recommended to carry out research investigating the organizational creativity and job satisfaction of teachers at different educational levels. This study, on the other hand, examined the relationship between organizational creativity and job satisfaction. However, there are other variables to which organizational creativity is correlated. Consequently, studies investigating the relationship between other factors (such as organizational support, administrative support, colleague support, resource adequacy, freedom, workload pressure, psychological climate in the environment) and organizational creativity can be conducted. The fact that the study group consisted of only women can also be seen as a limitation. Also, the number of teachers who participated in the study is less than expected which is an important factor for the generalization of the research results. For future studies, inclusion and comparison of other variables (gender, age, educational status, etc.) that affect teachers' organizational creativity and job satisfaction and conducting a study with a larger group of teachers are recommended. In addition, the reason why organizational creativity and job satisfaction scores of teachers working in state institutions were lower than teachers working in private institutions can be investigated.

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Difficulties Apprenticeship Trainers in Secondary Vocational Education Deal within their Educational Work: A Greek Case Study

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Abstract

The institution of the Post-Secondary Year - Apprenticeship Class was introduced in Greece in 2013 and after its pilot phase, its application in Vocational High Schools (EPAL) throughout the country was expanded in 2017. After the completion of four years of presence and implementation of the institution, with significant benefits for the apprentices, some factors emerge that make the participation and operation of the trainers involved in the Apprenticeship difficult. The aim of this study is to record, investigate and interpret a) the difficulties trainers encountered in their educational work and b) the necessary supplies they utilized to deal effectively with these difficulties. The sample was fifteen (15) trainers of EPAL who participated in the implementation of the Apprenticeship. The qualitative method was selected for the research, with semi-structured interviews as a tool for data collection and thematic analysis for their analysis. According to the findings of the research, trainers face difficulties in their educational work, mainly in the extensive course material, the low level of knowledge and the indifference of apprentices. The main means they use in the classroom to manage and deal with these difficulties are the very good knowledge of their specialized subject, the extensive educational experience, the application of the principles and practices of Adult Education and their skills. The present study aims to contribute, through the utilization of the research conclusions, to the feedback of education executives and trainers for the functional improvement and enhance the effectiveness of the institution.

Keywords: Apprenticeship, Vocational High Education (EPAL), Professional Development, Adult Education

1. Introduction

In recent years at the European level the governments of many countries have recognized that the role of Apprenticeship is crucial:

❖ in the combating youth unemployment,
❖ in improving the professional skills of the adult workforce,

❖ to better match training and labor market needs and
❖ to facilitate the transition to employment, agree to formulate a common strategy, promote and implement reforms and investments of significant resources to introduce new or strengthen existing Apprenticeship programs under a specific framework of guidelines.

The Greek state, in its effort to harmonize with the European directives and to use the given positive European experience and the policies of the European Union, dynamically restored the institution of Apprenticeship and made it a priority for the upgrading of VET (Vocational Education and Training).

2. The apprenticeship in Greece

During the period 2013-2016, the Greek state enacted a series of legislative provisions concerning the structure, operation and organization of the Apprenticeship system. New Apprenticeship programs, in parallel with those already offered, were introduced, resulting in a national Apprenticeship system that includes:
a) The 49 EPAS Apprenticeship Schools, under the auspices of OAED (Labor Force Employment Organization)
b) The Post-Secondary Year-Apprenticeship Class of EPAL supervised by the Directorate of Vocational Education of the Ministry of Education and c) The Apprenticeship Program of IEK (Vocational Training Institutes), under the auspices of GSVETLLY (General Secretariat of Vocational Education, Training, Lifelong Learning & Youth). By 2021, when the evaluation of the entire Apprenticeship system will have be completed and decisions will be made regarding its future structure, all three programs will coexist, operating in parallel.

The financial crisis of 2008 brought a deep recession to the Greek economy with negative effects on employment rates in almost all age groups and in almost all sectors, with small and medium-sized enterprises having been hit hard. These unfavorable developments that are happening in the country, are a great challenge for the Apprenticeship system both in terms of increasing the enrollment of apprentices and in terms of their future transition to regular employment in the labor market (CEDEFOP, 2018).

2.1 The institution of the Post-Secondary Year – Apprenticeship Class

The institution of the Post-Secondary Year - Apprenticeship Class, introduced in 2013, is built on formal education and constitutes a continuation of it as non-formal (optional) education. It is a learning environment based on the dual system of VET, in which the learning time alternates between a) the school unit with the teaching of specialty courses and preparatory courses for the certification and b) the workplace. The implementation of the Apprenticeship Class is supervised by the Directorate of Vocational Education of the Ministry of Education, while its operation is co-financed by European and national resources (Paidousi, 2014).

It is primarily aimed at young adults and GEL (General Lyceum) graduates and holders of EPAL degrees, who are out of training and employment, and have the right to participate. Their selection is based on criteria such as the high school diploma (GEL or EPAL), the degree of the EPAL degree and finally the age. Study in the Apprenticeship Class lasts nine (9) months. The apprentices attend the laboratory course of their specialty for one day (7 teaching hours) per week and a total of two hundred and three (203) hours, while in the professional space of a public or private body they follow a training program of twenty-eight (28) hours per week in four (4) days. The process of implementation of the Apprenticeship Class is subject to a regulatory framework, institutionalized by the Ministry of Education, which determines: the employment contract, trainers in the school unit, supervisors, instructors in the workplace, remuneration and full insurance and employment rights of apprentices. The compensation of the apprentices is set at seventy five percent (75%) of the minimum wage of the unskilled worker and is divided into a subsidy from the Ministry of Education through the Partnership Agreement for the Development Framework (PA) and into monthly payment by the employer of the private or public body that has undertaken their education.

By the participation of the graduates of EPAL in the institution of apprenticeship, their smooth and safe entry into the labor market is attempted, with the aim of supporting them after obtaining their degree. At the same

time, unlike other forms of training in the workplace, it is ensured, through the implementation of a specific Curriculum, that students acquire essential knowledge, relevant to their specialty. Upon completion of the program, graduates obtain a Degree in Vocational Education and Training level 5 of the National Qualifications Framework, which is awarded after the completion of the certification of their qualifications by the EOPPEP (National Organization for the Certification of Qualifications and Vocational Guidance). They also gain valuable work experience which leads them to obtain a license to practice. So far, two certification exams have been held (June 2018, February 2019) for the first two phases of implementation of the institution and already more than 1,500 graduates have obtained a level 5 degree in their specialty. The success rate in these exams ranged from 75-80%.

The European Commission praised the program "Post-Secondary Year - EPAL Apprenticeship Class" in the annual report on the Structural and Investment Funds. The European Commission includes the "Post-Secondary Year - Apprenticeship" as an example of good practice of the European Social Fund (ESF) for "Spreading apprenticeship programs across the country as a path to excellence" at both national and European level.

2.2 Implementation phases of the Post-Secondary Year - Apprenticeship Class

After the implementation of the pilot application in the school year 2016-2017, the program of the Apprenticeship Class is developed and evolved (CEDEFOP, 2018). From the completion of the four phases of successful implementation of the program, very encouraging data emerge for the future of the institution in Greece. Specifically, there is a continuous integration of new specialties (2016-2017: 6 specialties, 2019-2020: 29 specialties), a gradual increase in the number of participants (+ 231% compared to the school year 2016-2017), and the school units that have included Apprenticeship in their educational process (+ 49% in relation to the school year 2016-2017), as well as an increase in the number of Apprenticeship departments that operate in them (+ 128% in relation to the school year 2016-2017).

The criteria set by the Ministry of Education for the selection and gradual integration of the specialties in the Apprenticeship Class are the following: to belong to the specialties in different fields, to create departments with a sufficient number of apprentices, a prospect should exist for graduates to be absorbed in the labor market and a sufficient number of posts to be available in the private and public sectors.

Despite the ongoing development of the institution and the improvement initiatives of the Greek state, the challenges that still need to be addressed are a) the assignment of roles, the cooperation and coordination of the stakeholders and b) the response of the content of the apprenticeship education and training with the labor market.

3. Apprenticeship trainer's role

The active participation of trainers in the Apprenticeship Class is realized with a dual role: a) as a trainer (adult educator) in the classroom and b) as a supervisor, a mediator between the apprentices and the companies of private or public sector. To successfully fulfil their role, they must develop the following perspectives:

a) As an adult trainer in the Apprenticeship Class:
   ◎ Excellent knowledge of the subject they teach, to present the thematic material of the course, to organize and coordinate the necessary activities that promote the critical thinking of the apprentices.
   ◎ To systematically encourage the active participation of learners in the learning process, using the participatory methods of Adult Education.
   ◎ To cultivate meaningful and effective communication with the apprentices, to develop a relationship of mutual respect, cooperation and dialogue with them and to support them in achieving the goals of the Apprenticeship.

b) As a Supervisor in the Apprenticeship Class:

   ◎ To supervise the compliance with the terms of the signed contract between the apprentice and employer.
   ◎ To complete all the necessary forms of the program and the monthly reports from the workplace.

◉ To inform the system database of the Apprenticeship with all the necessary data.

In order to ensure the proper implementation of the Post-Secondary Year - EPAL Apprenticeship Class, the trainers of EPAL involved in it attend a short and flexible 39-hour training program that includes: i) 18-hour classroom training (Apprenticeship framework and Apprenticeship procedures, basic principles of Adult Education, etc.), ii) 21-hour online education training (safety and health at work, entrepreneurship, etc.). A total of 786 trainers were trained in 2018 alone (Cedefop, 2020).

3.1 Professional development of trainers and Apprenticeship programs

The quality and skills of trainers can contribute to ensuring a high-quality provision of Apprenticeship programs (CEDEFOP, 2016). The professional development of trainers is a factor that determines the quality of the work produced. It is a laborious process in which trainers constantly modify their practice and technique according to their experiences and their participation in formal and informal forms of training. Their professional development is directly related to lifelong learning, the need for which is further reinforced by the ongoing changes taking place in education and in the global digital society. These changes, which must be addressed effectively, create new needs in the qualifications of trainers (Korelli & Mouzourides, 2016). That is, the trainers of VET who participate in the Apprenticeship programs, are invited to develop a dual professional identity. To evolve as experts, with the constant updating of their professional knowledge. To evolve as educators, by adopting and enhancing what is needed for contemporary teaching, pedagogical knowledge and techniques as well as acquiring skills in information literacy and developing community-based collaboration communities (Jones, Pittard & McClusky, 2011). The adoption of such a professional development strategy maximizes the potential of trainers in improving learning and cultivating the skills of 21st century learners, which is its ultimate goal (Chu, Reynolds, Notari, Taveres & Lee, 2016).

4. Methodology

This section contains the methodological framework of the research.

4.1 Research questions

The research questions were:

1. What difficulties did the trainers who participated in the Post-Secondary Year-Apprenticeship Class encounter in their educational work?
2. What knowledge and skills do the trainers of the Post-Secondary Year-Apprenticeship Class consider necessary to face the difficulties in their educational work?

4.2 Research Method - Strategy - Research Tool

The qualitative approach was chosen, as it is suitable for the detection, understanding, development and highlighting of a central phenomenon (the difficulties faced by the trainers involved in the Apprenticeship), "*based on the views of the participants in the study*" (Creswell, 2016, pp. 16-17).

The semi-structured interview was used to collect qualitative data because "*it has a specific purpose of obtaining research-related information and focuses the interviewer on content defined by the research objectives with a systematic description, prediction or interpretation*" (Cohen, Manion, & Morrison, 2008). It shows flexibility in the order, layout and modification of the content, also in adding or subtracting questions, depending on the interviewer's perception of what he deems most appropriate with the evolution of the discussion with the respondent (Creswell, 2016; Robson, 2010).

Thematic analysis was applied for the analysis of the qualitative data of the research. It is the method that allows the researcher to access collective concepts and experiences, to focus their attention on the numerous semantic

patterns that are detected in all data under study and are suitable to answer their research questions (Braun & Clarke, 2012).

4.3 Research limitations

The research findings are not generalizable to the general population, as participants are not a representative sample of any group other than themselves (Cohen et al., 2008).

4.4 The sample of the research

The survey was conducted from January to March of the school year 2019-2020. The sample of the research consists of fifteen (15) trainers of four (4) EPAL of Patras of Achaia, who implemented the Post-Secondary Year-Apprenticeship Class of the C phase (2018-2019). The researchers had easy access (Cohen, Manion & Morrison, 2008) to the specific trainers due to their long-term partnership and as they stated, they were "*available and willing*" (Creswell, 2016, p. 146) to participate in the research process (convenient sampling). Eight (8) of the trainers in the sample were women and seven (7) were men. Most of the trainers in the sample work in VET from 21 to 30 years, three (3) from 16 to 20 years, while one trainer from 11 to 15 and another from 6 to 10 years. All but one worked on the Apprenticeship program for two years. Eight (8) of the interviewed trainers had attended the training program of the Ministry of Education for Apprenticeship, ten (10) knew and applied in their training the principles of Adult Education and finally five (5) had the Certification from the EOPPEP (National Organization for the Certification of Qualifications and Vocational Guidance).

5. Presentation of results

The qualitative analysis of the trainers' answers to the first question showed that the difficulties they encountered in their educational work were related to the teaching of the specialty course for each field, to the attitude of the students in the classroom as well as the means of supervision and teaching space of the school unit. The difficulties are illustrated in the following Graph. 1:

Graph 1: Apprenticeship trainers' difficulties
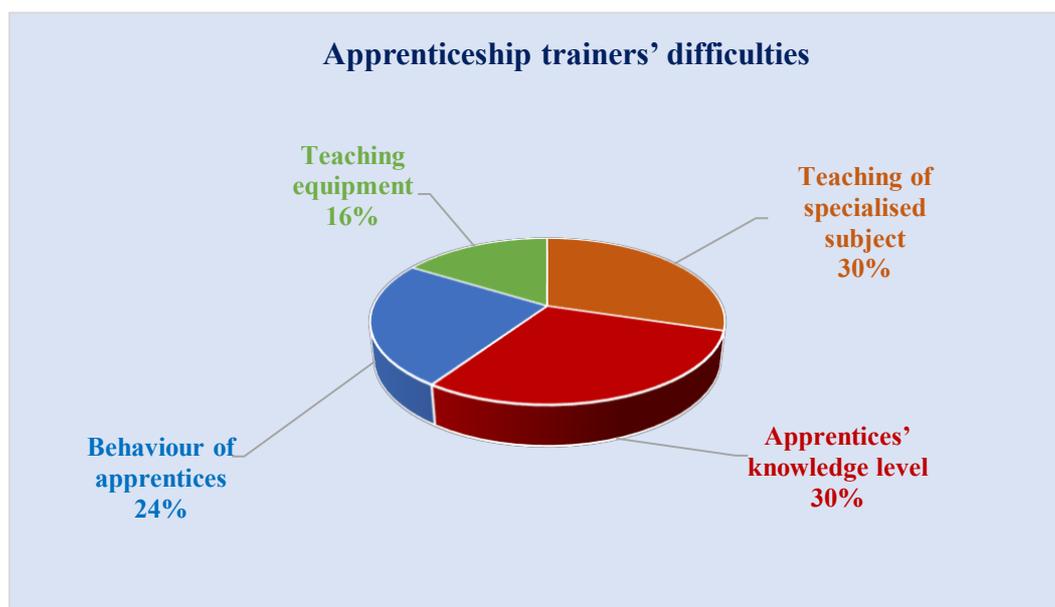
Most trainers, eleven (11) out of fifteen (15), answered that the difficulties they encountered in teaching the specialty course come mainly from the material provided by the Curriculum. Eight (8) of them argued that the material is voluminous, extensive, very specialized, with the cognitive range of modules covering many areas,

while the time provided is insufficient for its detailed teaching (*Interview 4: "The material was extensive and demanding," Interview 12: "The time to cover the material is short"*). They pointed out that the questions contained in the material have poor and rough wording, while their answers are difficult to identify (*Interview 8: "Poor wording in some questions with difficult answers"*). Three (3) pointed out that the material is structured in sections that do not correspond or are very theoretical about the professional subject of the apprentices' workplace (*Interview 5: "The course of the specialty does not correspond to the reality of the labour market"*).

The students' cognitive level, which was low in relation to the high level of knowledge provided by the specialty course, caused intense concern. Apprentices are characterized by many learning gaps that they "carry" from their previous schooling. *"The biggest difficulty I encountered as a trainer in the classroom is the low level of knowledge of the students" (Interview 12)*, "The level of knowledge provided by the Curriculum is high compared to the level of knowledge of students, who are characterized by many learning gaps, legacy of previous years of study" (Interview E9). These two answers summarize the statements of eleven (11) of the fifteen (15) trainers interviewed.

The trainers involved with the Apprenticeship also faced significant problems in relation to the participation and cooperation of the apprentices. The attitude of the apprentices in the classroom made it difficult for the majority, - nine (9) - trainers interviewed. The apprentices, according to the Apprenticeship program, come to the school to attend for one day - for seven (7) hours - the specialty course. They approached the lesson either with a relaxed mood and reluctance, or with fatigue and indifference, or refused to learn and engage in activities or participate actively. The apprentices considered the day they came to the school unit for the specialty course as a peculiar "holiday" of the maximum five days training and work to the employer (*Interview 2: "They participated in the course with difficulty," Interview 11: "Unfortunately, the apprentices did not show particular interest in learning," Interview E13: "They generally had a relaxed mood and immaturity," Interview 15: "They considered the school day to be something like a break from work, they were relaxed and generally reluctant to attend class"*).

Finally, almost half of the trainers in the sample stated that they encountered problems in the implementation of laboratory exercises due to the insufficient available teaching equipment. The non-existent electrical devices, the few and technologically obsolete computers, the lack of a video projector as well as the lack of consumables such as photocopy paper and stationery, impeded the teaching of the course in the way provided by the Curriculum (*Interview 4: "Teaching equipment was scarce and outdated," Interview 8: "There was difficulty in disposing of and using the required consumables such as photocopy paper and stationery," Interview 13: "There was no projector in the class which would help the course"*).

Regarding the second research question, the trainers who participated in the research, mentioned the very good knowledge of the subject of specialization, the principles and techniques of Adult Education, the long educational experience in VET and the personal skills of the trainers themselves, as valuable supplies in dealing with implementation difficulties of the Apprenticeship. These qualities and the necessary skills are shown in Graph. 2:

Graph 2: necessary knowledge and skills of trainers for the effective treatment of difficulties in their educational work
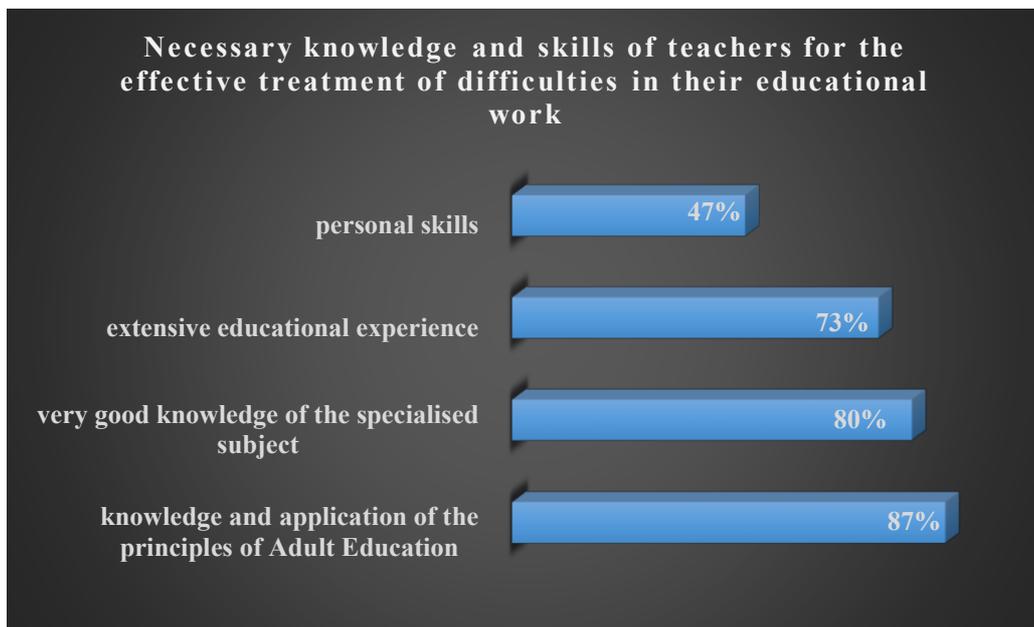
Twelve (12) out of fifteen (15) trainers claimed that their in-depth knowledge of the subject helped them to fulfill their role as Apprenticeship trainers (*Interview 1: "It helped me in my Apprenticeship because I know the subject in depth," Interview 3: "I faced the difficulties with the good knowledge of the subject that I have already acquired"*). Thirteen (13) trainers emphasized that the Apprenticeship trainer should have a very good knowledge of the basic principles of Adult Education, in order to adopt in the classroom, the appropriate techniques and the appropriate tools based on them, since the apprentices are on the verge of adulthood and need different and careful treatment. Besides, four (4) of them stated that they are certified in Adult Education trainers in a corresponding question that was asked to them (*Interview 2: "It is necessary for the Apprenticeship trainer to have additional knowledge in Adult Education in order to know the skills, techniques and the tools and to adjust them appropriately to the learners," Interview E6: "The trainer who participates in the Apprenticeship ... is required to have passed the training in Adult Education in order to be able to meet the requirements of the program, because the apprentices are in a transitional stage of adulthood"*). Most of the trainers also interviewed - eleven (11) - pointed out the educational experience as another tool on which they relied on to effectively overcome the difficulties they encountered (*Interview 1: "It helped me face the difficulties by having a great educational experience," Interview 3: "I faced the difficulties with the teaching experience"*).

More than half of the trainers - seven (7) - said that in order to be able to manage their students, they developed appropriate skills and communication codes. More specifically, they pointed out that the Apprenticeship trainer needs to be social, to cultivate dialogue, constant communication, and substantial cooperation with the apprentices in order to achieve the goals of the program. They stressed out that the participation of the trainer in the program must be accompanied by good mood, passion, and zeal to be effective and efficient. One trainer went further and argued that it would be very helpful if the Apprenticeship trainer had the psychological skills to support the students (*Interview 1: "And of course to have the mood and desire to help the students," Interview E8: "The sociability of the trainer plays a big role ... must have a constant open dialogue with learners, Interview 10: "Even counselling and supportive psychology skills are required", Interview 12: "Communication skills certainly increase the resources to deal with the difficulties that arise"*).

6. Discussion

Regarding the first research question, we notice that the trainers of the sample taken, in their attempt to achieve the objectives of the Apprenticeship program, were faced with difficulties that caused:

➢ The material of the Apprenticeship specialty course that follows the curriculum is voluminous, extensive and very specialized for its effective teaching and the students face problems in understanding and assimilating the new knowledge in the time available. The opinion of the trainers is very important for the discrepancy between the modules of the material taught in the school unit and the actual practical training in the professional field. The same is pointed out in the studies of Zarifi, Fotopoulos, Zanola and Manavi (2017), Karatzogianni and Pantazi (2014) and Karoula (2017) as well as in the report of CEDEFOP (2018). In addition, the aforementioned report states that the Apprenticeship specialty courses are not yet systematically harmonized with the needs of the market and are not based either on research needs or on evaluation of the results of the program.

➢ The participation and attitude of the apprentices in the Apprenticeship makes in many cases the work of the trainers involved difficult. The main difficulties are the low learning ability of the apprentices, as pointed out in the research of the IEP (2018) and the lack of willingness and interest for their active participation in the learning process. This conclusion contradicts the research of the IEP (2018) according to which only 19% of the surveyed trainers considered the aforementioned difficulties as inhibiting factors in their work.

➢ The insufficient logistical structure is a deterrent key to the implementation of the Apprenticeship, a finding which contradicts with Zarifi et al. (2017) and Papastefanakis (2002), who argue that the available logistical infrastructure is one of the strengths of VET.

In order to effectively manage the aforementioned difficulties, the trainers mobilized:

➢ Their many years of teaching experience since everyone has been working in VET for over ten years.

➢ Their cognitive adequacy in the material of the specialty course, since in addition to the knowledge of their basic degree, the long-term teaching of specialty courses in the B and D class of EPAL, whose material of the specialty course of the Apprenticeship is a natural continuation, led to the in-depth cultivation of the required technical knowledge. They feel well prepared for the effective transmission of knowledge to the apprentices, since they themselves have developed their own knowledge, skills and abilities and communicate them with codes adapted to their culture (McCoshan, 2017).

➢ The utilization and application of the principles and techniques of Adult Education in the classroom. Apprentices are in the transition to adulthood and need careful treatment, while developing a different relationship between trainer and learner (Rogers, 1999). Some trainers have already been certified by EOPPEP, while others have attended the training program of the Ministry of Education for Apprenticeships, which included training in the field of Adult Education. After all, the quality implementation of the Curricula of the Apprenticeship specialties presupposes trainers not only with an appropriate cognitive and technical level but also with updated pedagogical training, able to apply appropriate pedagogical practices in the classroom, in order to stimulate the interest of the students and strengthen their desire for learning (Karatzogiannis & Pantazi, 2014; IEP THE2, 2018).

➢ The personal skills and abilities they possess. They consider that the most important ones are suitable for adult educators, such as communication, dialogue, sociability, cooperation, motivation, and guidance of learners. The willingness, diligence and dedication showed by the trainers are mentioned by Zarifi et al. (2017) as one of the positive elements of VET. In addition, they state that a good knowledge, not only of the local market, is needed. Many times, the specialty trainers due to their long stay in the classrooms of vocational schools, lose part of their cognitive burden and move away from the real professional space (Adam, 2008). This removal leads them to the inability to monitor the technical and professional developments in their field. Therefore, the quality of teaching and effective participation in Apprenticeship, cannot be guaranteed when trainers are isolated from broader trends and developments in their field (Broek, Pagliarello, Noort, & Vroonhof, 2017).

7. Conclusion

EU Member States face common challenges, such as the globalization of the economy, technological change and the advent of the information society, and common phenomena, such as very high levels of youth unemployment, "formal qualification inflation" and lack of professional skills (European Commission, 2015b). One of the policies adopted to address these problems is the development of VET and the promotion of Apprenticeship programs, which are internationally recognized as valuable learning models for a successful and smooth transition of young people from school to work (Akkerman & Bakker, 2011). These are programs that combine internships in real working conditions with the provision of knowledge in the school unit and aspire to be for students an integrated proposal of preparation for the world of work and an advantage in finding a job. They provide the possibility of a possible alignment of the needs and requirements of the labor market with the skills and abilities of young future employees (Zimmerman, Biavaschi, Eichhorst, Giulietti, Kendzia, Muravyev, Pieters, Rodriguez-Planas, & Schmidl, 2013).

The Greek state in its effort to follow the strategy of "Europe 2020", implements from March 2017 the program "Post-Secondary Year-Apprenticeship Class" in Vocational High Schools. The role of EPAL specialty trainers in the implementation of the Apprenticeship program is crucial and multifaced to ensure the quality of learning and teaching (CEDEFOP, 2016). In order to better support the Apprenticeship trainers in their educational work, it is necessary to adopt actions and initiatives to support and enhance their professional development, which is an investment in the provision of high-quality teaching and the acquisition of updated teaching standards, so that trainers can face key challenges.

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Investigating the Training Needs of Music Teachers in Primary Education: A Greek Case Study

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Abstract

The purpose of the current research is to examine the views of music teachers that work in primary education, regarding their training needs. With the investigation and emergence of their training needs, useful data occur for the design of effective training programs that focus on the coverage of the special training needs of these teachers. In this context, a quality research was designed and conducted in a sample of fifteen (15) music teachers in the Achaia district. The research data was derived from semi-constructed interviews and the results were analyzed with the method of thematic analysis. The sample music teachers wish to be trained to improve new technologies that refer to the music subject, their cognitive subject, in conducting the choir and the management of children with special needs. Music teachers are positive in creating a participatory pattern of organizing and conducting these training programs. As for the characteristics and the organizational parameters of the training, they prefer short training programs, live or distance learning, obligatory type that will be enriched with personalized and cooperative actions.

Keywords: Music Teachers, Music Teachers´ Education, Training Needs

1. Introduction

The cultivation of musicality, the innate human capacity for artistic and creative expression contributes to the balanced and harmonious development of the child's personality and at the same time to the creation of a lifelong relationship with the art of sounds. Quality music education is the right of every child and the obligation of every modern educational system in order to nurture citizens who are not musically isolated, but appreciate the aesthetic experiences and through them build a healthy relationship both with their inner world and with the immediate environment in which they live and develop.

The Greek educational system, recognizing the contribution of the Music Education course to the integrated development of the child's personality, has included it in the program of primary education as an autonomous and distinct teaching subject since the 1990s. However, the current situation regarding the teaching of music in primary schools is not encouraging.

Problems such as the lack of material and technical infrastructure in the school units, the frequent changes of school units by teachers), the reduction of teaching hours etc. complicate the working conditions of music teachers and act as a deterrent to the effectiveness of the educational process (Stavrou, 2006). Respectively with the integration of music teachers and other specialties in the training programs of teachers, their special training needs are ignored in relation to their specialty, their differentiated initial education and their personal educational path (Sakkoulis & Vergidis, 2017).

The information and training of music teachers of primary education through training programs focused on their special needs are necessary up to an imposed basis of modern educational requirements (Keramida & Vaiouli, 2017). The systematic investigation of their training needs is the process that will provide essential information about the current views, attitudes and perceptions of the specific specialty in relation to the training, so that training programs of similar interest and high efficiency are designed.

Due to the need to support the demanding role of primary education music teachers, who are called to be both artists and educators, the investigation of their educational needs was chosen as a research topic and it was decided to carry out the present research.

2. The training of teachers

Teachers are those who provide young people with the knowledge and skills to respond successfully in the future as active citizens of society. Therefore, first of all, they must renew the knowledge of their initial education, follow the developments in their subject, learn the modern teaching approaches and integrate them into their teaching.

2.1 The concept of teacher training and its importance.

Teacher training is a multidimensional process that contributes to redefining the relationship between the teacher and his work and promotes his individual, social, academic and professional development (Mavrogiorgos, 1999). Training as a continuous and integral part of a teacher's professional career is part of the wider context of lifelong learning. Lifelong learning is a concept that includes all the educational activities that compose an educational continuum that is in constant interaction with the economic, socio-political and cultural characteristics of the respective (or of each) educational system (Vergidis, 2001; Nasainas, 2010).

However, the training along with its decisive contribution to the professional and personal development of the teacher is necessary for the modernization and service of the needs of an educational system (Doulkeridou, 2015).

In order to adequately cover the various educational interests of teachers, such as the heterogeneity of basic education, specialization, years of service, gender, etc. and the need to promote innovation and reform in education, modern education systems have organized an institutionalized framework of training programs. Thus, according to Mavrogiorgos (1999), training is defined as the set of activities and procedures related to the conception, design and implementation of special programs, which have as their main goal the enrichment and further development of the level of scientific, practical and personal knowledge and skills of teachers during their term of office.

The existence of planned training activities is very important in our time, because, due to the unemployment of teachers, it often takes several years from the completion of their basic studies to their appointment in education. In addition, the multicultural composition of the student population, the tendency for school under-performance, the speed of aging of knowledge, the need for differentiated teaching, the democratization of education through the promotion of school autonomy and other modern pedagogical issues diversify daily working conditions of teachers (Lainas, 2000). Also during their educational course the teachers have to understand and apply

successive changes in the curricula, in the textbooks, in the way of the exams, the teaching methodology, to take positions of responsibility etc. (Nasainas, 2010).

All the above make it clear that the training in the sense of informing the teachers in the current developments of the sciences of Education (or of the Educational studies) is necessary, as it contributes to the continuous upgrade of the quality of their work in school and to the efficiency and modernization of the whole educational system (Mavrogiorgos, 1999).

2.2 The training of music teachers.

The training of primary school music teachers after their appointment and after they have completed the compulsory program of Introductory Training at the Regional Training Centers (PEK) is limited.

During the school year in each Directorate of Primary Education, there are one to two scientific-pedagogical meetings of the music teachers with their School Counselor. These meetings take place during the teachers' morning hours.

In Stavrou's research (2006) it is particularly emphasized that the level of cooperation of music teachers with the competent School Counselor does not satisfy the teachers, as the majority of them characterize it as insufficient. The problem of the small number of School Counselors (one in Athens and one in Thessaloniki for both levels of education) is clearly highlighted and the objective difficulties faced by School Counselors in offering scientific assistance and support to their teachers are evident. It is worth mentioning that today, 15 years after the aforementioned research, the institution of the School Counselor has been replaced by the institution of the Educational Project Coordinator (Government Gazette 4299) with responsibilities for the organization of training programs, the strengthening of cooperation between schools, the promoting educational innovations in its schools of responsibility and the advisory guidance and scientific support of teachers. Now the positions for Educational Project Coordinator for the specialty of Music Education for the two levels of education are ten throughout Greece. For the regions of Western Greece and Central Greece, i.e., for a total of eight prefectures, only one position of Coordinator of the Educational Project of Music Education has been appointed.

Characteristic of the "poverty" of the educational biography of music teachers is the fact that the only educational program that was done nationwide under the approval of the Ministry of Education and the Pedagogical Institute for the most effective use of teaching and pedagogical approaches of the music books for A´ and B´grade of elementary school duration of 50 hours took place in June 2010 in Piraeus and strictly provided for the participation of only 100 teachers (PE16 training in the teaching package of Music Education for primary and secondary school, 2010).

Also in 2010, the Ministry of Education assigned to the Teacher Training Organization (OEPEK, 2010) the training of Aesthetic Education teachers (visual arts, theater and music) who moved from secondary to primary education and taught in 800 primary schools.

The above training programs concern the main trainings offered by the state mechanism to cover the professional needs of primary education music teachers in the last decade. The lifelong education and training of these teachers beyond depends on their own initiative, desire, willingness and financial ability to attend training programs, organized by associations such as the Association of Primary Education Music Teachers (EEMAPE), the association of primary education teachers of Northern Greece (SY.K.P.E.B.E.), the alumni associations of the University Music Departments and other private entities.

3. The investigation of educational needs and its importance

Giannakopoulou (2018) holds that educational needs are the realization of the lack of specific knowledge, skills and attitudes, which an individual or a group needs to adequately, perform a task or activity. Karalis and

Papageorgiou (2012) summarize by defining educational need as any deficit in the level of qualifications in relation to individuals, social groups, organizations and systems, the coverage of which may be the subject of targeted educational intervention.

Also the educational needs in terms of their level of awareness by the target group can be divided into conscious and unconscious or latent (Vergidis, 2008). In some cases the target group is aware of its educational needs and openly expresses the need to satisfy them, but other times it hesitates to express them or formulate them indirectly and with implication. There is also the case that the target group has not even realized the lack of knowledge or skills it has in relation to the execution of a task and is thus not aware of the requirements of the social and economic environment and the possible changes that occur in it.

According to the above, the educational needs are divided into:
•   Conscious and explicit.
•   Conscious and implicit.
•   Unconscious or latent needs.

The operation of multiple levels in the formation of educational needs makes their investigation a particularly complex process. Karalis and Papageorgiou (2012) consider that the investigation of educational needs is a systematic research process that determines the content of an educational intervention in relation to a specific target population and aims to cover its shortcomings in terms of the defined frame of reference.

The detailed identification of the real training needs of the target group contributes to the improvement of the quality and the effectiveness of the educational intervention and utilizes to the maximum the available financial resources (Sipitanou, Salpiggidis & Platsidou, 2012).

Especially in the case of teachers, the investigation of their training needs is crucial, if we take into account the heterogeneity of the trainees (personal interests, motivations, needs, initial education, previous service, specialty, etc.) and the diversity of the social context that may belong (social, economic, cultural geographical environment, etc.) (Vergidis, 2008 ; Rogers, 2009).

4. The training needs of music teachers. Literature review

In his research, Bowles (2002) develops a questionnaire to determine the interests and educational preferences of experienced music teachers. The topics highlighted by the responses of 406 teachers from the northwestern states of the United States of America (USA) in order of priority are the following: the use of technology, the evaluation, the choral and orchestral repertoire and the improvisation.

Bauer (2007) focuses on identifying the training needs of experienced music teachers (with more than 12 years of service) and attempts in a literature review to summarize the research data to date. He concludes that teachers of music, primary, secondary and musical instruments, prefer long-term in-school or out-of-school training and that they are mature enough to develop the musical skills and knowledge of their primary education and adapt them to the needs of their students.

Koner and Eros (2018) in their literature review on the professional development of experienced music teachers argue that as the years pass and mature professionally music teachers specify their training needs and vigorously claim opportunities to supplement and renew their knowledge, which promote their professional growth and development. However, it is a common finding of the above researchers (Bauer, 2007 ; Koner & Eros, 2018) that future research on the educational needs of music teachers should be specialized according to the level they teach, the specialty of these teachers and their professional experience, as their differentiation is very likely.

In a corresponding synthetic study, which summarizes the findings of research on the training needs of experienced music teachers, Hammel (2007) concludes:

• General content trainings are carried out, but in the design of the specific training programs neither the specializations of the teachers, nor their years of service, nor the special needs and the characteristics of their school units are taken into account. Music teachers are interested in taking an active role in planning and organizing trainings aimed at their professional development.

• Regarding the characteristics of the training, the music teachers find the long-term training programs more effective, as they are focused on specific goals and are carried out with experiential methods and active participation techniques of the trainee adapted to his personal desires and needs.

In the research of Van Weelden and Whipple (2014) on the perceptions of music teachers about their music education and their support in managing students with special needs, music teachers (1128 in total from all 50 US states) express their need to be trained in special education. Less than 25% of survey participants, while teaching students with disabilities, have attended special education programs.

Bautista, Toh and Wong conducted quantitative research to identify the motivations, needs, and preferences of primary school music teachers in Singapore (2016). First in the selections of the 406 teachers of the sample is the training in issues of music teaching and especially in the learning of the music pedagogical systems Orff, Kodaly and Dalcroze and the use of digital software for the teaching of music. The participants in this research showed a particular preference for short-term programs.

The views of music teachers regarding their participation in distance learning programs are explored in their qualitative study by Kos and Goodrich on behalf of Boston University in 2012. The results of the interviewees' responses showed that most teachers from their participation in the distance learning program acquired knowledge and skills that improved their teaching practices, reviewed their perception system and became members of an online community of colleagues in which friendly and professional relationships were established. The conclusions of international research generally converge with the results of Greek researchers on the research subject of the educational needs of music teachers.

In Koukoutsi's research (2014) the majority of primary school teachers state the need to be trained in how to teach, explain and analyze musical concepts and meanings to their students, but also in how to organize and direct the school choir. The music teachers also considered important their training on how to cover the content of school textbooks and achieve the goals of the curriculum in a one-hour lesson in parallel with the preparation of school events for national holidays, cultural programs, etc.

Regarding the very important fields of learning difficulties and special education, we draw remarkable findings from the qualitative research of Keramidas and Vaioulis (2017) on the views and concerns of primary education music teachers in relation to differentiated teaching in music. Primary music teachers in the interviews conducted as part of the research state that they do not have the knowledge and skills to teach their students, who have special learning difficulties and other educational needs. In the conclusions of this research, teachers expressed their interest in acquiring knowledge that will help them manage the special cases of students they face every day in their classroom.

An important parameter in determining the training needs of music teachers is the investigation of their views on their training in issues of utilization and use of Information and Communication Technologies (ICT) in their course. Angelidou's (2016) research, which explored the views of music teachers in primary and secondary education on the teaching practices they use and the difficulties they face with emphasis on new technologies, presents important data on the use and utilization of ICT by music teachers. According to the results of the research, 60% of the sample states that they systematically or often use new technologies in their lesson, using a computer or video projector and utilizing material from digital repositories such as "Efterpi," "Fotodentro" etc.

Similar results are recorded by Lymperopoulou (2019) finding that 77% of music teachers who participated in the survey state that they use a computer for the needs of the course. In addition, in the research of Koukoutsi (2014) and Sakkouli and Vergidis (2017), the interest of teachers for ICT training is particularly high.

Regarding the views of music teachers on the design, organization and implementation of their training programs, important data emerge from the research of Zosi and Bagakis (2014). The results of the research show that the trainees evaluated the collaborative atmosphere, which was enriched with experiential activities and constructive discussions, as the most successful element of the seminar.

In Sfontouri's research (2019) on the views of Aesthetic Education teachers of primary schools on their problems and training needs, the results showed the great desire of teachers for training, as their subjects are evolving and they are willing to be informed about the new pedagogical trends and developments. Aesthetic teachers are also positive in their active participation in the design of programs for their specialty, preferring the face to face meetings and the optional nature of the training. They appear satisfied with the supportive and educational role of the Educational Project Coordinators, however they consider it necessary for them to communicate more often with the teachers.

Similar results were shown by Dimitraki's qualitative research (2019) for the training needs of the educational musical instruments of the Music schools regarding the teaching of students with learning difficulties. The teachers of the sample want to create a participatory training model adapted to their specific needs and not the hetero-defined training in the absence of investigation of their training needs that is valid in recent years.

From the review of the relevant literature we find that music teachers have diverse and complementary training needs. Both their differentiated initial education, as well as the updating of the knowledge of their subject matter, in combination with the evolving educational reality, make necessary their scientifically organized professional information. It is something that, as it seems, the teachers themselves have realized, as they clearly express that they want support in many areas of their educational work through training in order to teach their students quality and harmonized with the requirements of modern Music Education.

5. Research Methodology

The research question posed is: What are the training needs of music teachers working in primary education according to the views of the sample?

The type and characteristics of the research problem led to the selection of a flexible research design according to the standards of the qualitative approach. The semi-structured interview type was used as a data collection tool, which is a popular way of collecting quality data, because it enhances interaction, signifies verbal and non-verbal communication and contributes to the discovery of new aspects of the research field under study (Flick, 2017). The research was conducted during the period March-April 2020 in the prefecture of Achaia. The available sample of the research consisted of 15 primary school music teachers, twelve women and three male music teachers, aged 38-55 years with teaching experience from 14 to 29 years. During this period, lessons in schools across the country were taught by the method of distance learning because of measures to limit the spread of covid-19. Due to the extraordinary social conditions, the scheduled interviews were conducted by telephone. The conclusions of the research provided interesting data, however they cannot be generalized, because they are based on the views of a portion of music teachers working in primary schools in the prefecture of Achaia.

For the most efficient management of the quality data that emerged, the method of thematic analysis was chosen, which facilitated the condensation of the content of the interviews and through correlations and comparisons led to the interpretation of the participants' views and the final report and analysis of the data (Creswell, 2011).

6. Results

This section presents the results of the research.

In the context of exploring their training needs, music teachers were initially asked if their training needs had increased in recent years compared to the first years of their school work and if this is the case, why they think this is happening. All fifteen (15) teachers in the sample answered positively to this question.

Ten (10) teachers in the sample state that they have an absolute need for renewal and feedback of their knowledge for their personal professional development after so many years in education.

Interview 15: "I have been in this job for 20 years. I make my own move to find something new, to look for something to renew me professionally. Of course I need more training as the years go by."

Eight (8) teachers state the need to enhance their digital skills in order to meet the needs of the digital classroom and distance education.

Interview 3: "… Today in the age of the coronavirus it is obvious that our digital knowledge and skills need immediate reinforcement to meet the needs of distance education."

Six (6) teachers consider that they have an increased need for training in order to be informed about modern music pedagogical methods and to keep pace with the normal development of society.

Interview 4: "As the years go by, because everything around you changes and you have to stay a child, that is, to think with the mind of the children in front of you, with the result that in this case you need to train according to needs of a changing society… "

The finding that they face more difficult pedagogical issues than in the past is expressed by five (5) teachers in the sample.

Interview 13: "We now face more pedagogically complex issues that require knowledge of intercultural education. We also need training to better meet the needs of children with learning disabilities."

The teachers then answered the question on what topics they consider useful to be trained.

It is striking that the majority of the teachers in the sample, twelve (12) out of fifteen (15) answered that they consider that they need to be trained in new technologies and the ways of their utilization in the music lesson. It is worth recalling that the research was conducted in March and April 2020 when teaching in all schools was done by the method of distance learning due to the coronavirus pandemic.

Interview 7: "I think in the utilization of new technologies and in the development of skills for the application of distance learning which the key issue of the days is."

Interview 9: "I believe that due to the situations we are experiencing, it would be good to have an education for everyone about the e-learning and how it can be set up."

Five (5) teachers express interest to be trained exclusively on their subject, such as e.g. music pedagogical methods, music-motor education etc.

Interview 2 "… in some music pedagogical methods or even good practices that have proven useful and effective in practice."

The interest for training expressed by music teachers in the direction of the school choir is important.

Interview 12: "… I would also like to train in the school choir, which is a favorite part of my job and I am constantly happy to improve."

Four (4) teachers of the sample submit their need to be trained in issues of special education.

Interview 12: "I believe that I definitely need training in special education…"

There is a special need expressed by four (4) teachers to be trained in the proper use and organization of their teaching time. This need arises as a result of the various teaching obligations of music teachers in relation to the proportionally little teaching time they have.

14.9: "I would like to train in the management of teaching time based on the current conditions prevailing in schools. Let someone more experienced show us how to use one teaching hour a week and to meet the expectations of our students and their special needs and to cover the material of the books and to prepare the school events." Two (2) teachers wish to be trained in pedagogical issues.

Interview 15: ".. And in terms of pedagogy I would be interested in some training, we need a renewal of knowledge and in this regard because we are dealing with children."

Also two (2) teachers state that they are interested in training in matters of intercultural education.

Interview 1: "…. In my cognitive object upstairs clearly and in some intercultural issues."

Continuing, the teachers were asked to express their preferences in matters of planning their training programs. They were initially asked if they prefer short- or long-term training programs. All but one of the sample teachers stated that they prefer short programs, because they immediately satisfy their training needs without requiring many hours of monitoring and study.

Interview 13: "I prefer short programs, because if a training lasts 2 to 3 days you have better mood to attend it…"

Teachers were asked to answer the same question if they prefer optional or compulsory training programs. Seven (7) teachers emphatically stated that they want compulsory training. They consider that it is more appropriate for the trainings in their specialty to be obligatory at the given time on the one hand, in order to inform everyone about the modern developments in the teaching of music education on the other hand, because that way they will take it more seriously and organized.

Interview 13 "..Certainly the trainings should be obligatory, because in this way we are more formal and more correct towards them."

In the second subcategory that emerged from the qualitative analysis of this question, five (5) teachers expressed the view that they have no problem with whether or not a training program will be mandatory and believe that the subject matter of the program should determine the nature of the training.

Interview 6: "..Some must be mandatory and some optional. That is, the vocal placement must be compulsory training." Three (3) teachers expressed the desire that the training programs be optional.

Interview 5: "I would like optional training lasting 2-3 months. Two to four hours a week."

Music teachers were then asked to express their views on how the training programs were organized.

Seven (7) teachers want their training to be carried out in the traditional way, i.e. through face to face. They believe that a better climate of communication and mutual feed is achieved when you have direct contact with the trainer and the colleagues-participants in the program.

Interview 11: "I believe that face to face training is better, because there is communication with colleagues and everyone expresses their views, their difficulties, their concerns and there is a result…"

Four (4) teachers prefer to attend distance training programs, because they are relieved of the space-time commitments that the live-giving meetings have.

Interview 4: "… I personally like distance programs, because they give you a comfort and an opportunity to watch them without spoiling your family routine."

Also, four (4) participants in the research consider that it would be ideal for distance education to be combined with two to three live meetings, proposing in some way the blended model of training.

Interview 6: "Because I have experience from distance education, I consider distance education to be a good solution, but in some cases live face to face meetings are also needed."

The music teachers of the research were asked the same question about how the training is organized and which teaching methods they prefer in their training.

Thirteen (13) teachers answered that due to the nature of their subject matter they prefer the trainings that use collaborative and experiential actions in their teaching methods.

Interview 15: "…. Because we have attended presentations very much, I would like very experiential and collaborative actions. I think they help a lot and you can bring all this to the classroom with more enthusiasm."

Two (2) teachers expressed the opinion that it is good to combine teaching methods.

Interview 11: Now in terms of methods, I believe that a variety and a combination is needed in the use of all methods."

Then the music teachers were asked which elements they evaluate as positive and which as negative in a training program.

Seven (7) music teachers answered that they evaluate it positively, when a training program is designed and organized to meet the specific training needs of their specialty only.

Interview 2: "I evaluate positively the fact that the program is adapted to the school reality and the special educational needs of each specialty."

The correct organization in terms of topics, coordination and adherence to the schedule is positively evaluated by five (5) teachers.

Interview 7: "On the positive side I will put a satisfactory structure in a seminar, a proper coordination, a nice learning atmosphere with the right choices of activities."

The feedback of knowledge made through learning activation and communication with colleagues of the same specialty is evaluated as a positive element of a training program by four (4) music teachers.

Interview 6: "The positives are when in a program you get feedback of your knowledge, you activate your learning role and surely no matter how many flaws a program has, something positive will leave us."

Three (3) teachers report as a positive element of a training program it's staffing with experienced trainers.

Interview 9: "I evaluate a positive element when the trainer has set goals that they follow in a series that makes sense for the trainee. They must have organized his time so that the part of the introduction, the theoretical one, is so small and bigger that the part that will give a result. To have a flow and organization of time in order to understand the object of their teaching."

The integration of experiential actions is also evaluated as a positive element in the structure of a training program by three (3) teachers.

Interview 10: "I think a positive element is the experiential and for me it is the most basic."

In relation to the negative elements of a training program, many music teachers (7) when attending a training program evaluate negatively the continuous theoretical presentations.

Interview 4: "… As for the negatives, I believe that the use of the theoretical presentation inactivates the trainees and affects the effectiveness of the program."

As they mentioned as a positive element, the content of the training should be addressed to the needs of their specialty, so in the opposite case, when this does not happen, that is, the music teachers evaluate it negatively. More specifically, five (5) teachers point out:

Interview 3: "Primary school teachers do not all have the same training priorities and needs. Personally, I have not participated in an organized training, only for musicians. So the subject matter of a program that is not relevant to my training needs, I would evaluate it negatively."

Three (3) teachers commented as a negative element, when during the training they realize that the content does not meet their expectations.

Interview 6 "As negative if the subject of the training is not what it really should be or you thought it would be then time is wasted."

Issues of poor organization of the training program, which may be related to the time and place of the event, the information and the management of the schedule, are evaluated as negative by three (3) teachers.

Interview 7: «I would say as negative the compressed schedule of a seminar many times, that is, the stressful time of conduct. Also in the negative I evaluate the difficulty of access to the seminar venue, as well as the lack of valid information for its conduct, since sometimes we learn it at the last minute."

Teachers were then invited to submit their views on the role of the Educational Project Coordinator in training and supporting their project. The majority of teachers in the sample (thirteen out of fifteen) stated that at the given time they have no guidance or pedagogical support from their Coordinator, nor they have participated in any training program organized by him. Many say that they do not know exactly the new responsibilities of the Educational Project Coordinator in relation to those of the former School Counselors, but they consider that no one is interested in their scientific support and pedagogical guidance anymore.

Interview 12: "I have understood that the responsibilities of the Educational Project Coordinators are different from those of the former School Counselors. It is more decentralized to say the role of the Coordinators, it seems to me somewhat. What is certain is that we need support and pedagogical guidance as a specialty and at the moment we do not have it."

Two teachers stated that they understand the increased professional responsibilities of the Music Coordinator and commented positively on the role of their Coordinator on the occasion of the outbreak of the coronavirus pandemic.

Interview 10: "The important thing is that with the current situation created with closed schools due to covid 19, the Coordinator of our district was given the opportunity to send a variety of e-learning material and advices to his teachers, which helped our project."

In the last recapitulative question the teachers presented their views on what improvements they would suggest in the design, organization and implementation of the training programs of their specialty, if they participated in their design.

Nine (9) music teachers, suggest that the design of their training programs be based on their current training needs and that their topics be strictly focused on the content of their course.

Interview 3: "The main thing that would interest me is that they are designed by specialized music educators and are addressed exclusively to musicians of a specific level of education, e.g. only primary. I am tired of attending training programs together with philologists, teachers and other specialties."

Regarding the content of the training, five (5) music teachers propose to organize programs on the use of new technologies in the music lesson.

Interview 9: "I would like to be introduced to some programs to the extent that I could understand that they are related to digital form of the course."

Many teachers (five in total) also suggest that the training programs be staffed by experienced and renowned trainers.

Interview 2: "If I participated in such a planning I would suggest: To invite renowned and experienced music educators of primary education (and from other cities) to support our teaching."

Four (4) teachers suggest the use of experiential actions in the teaching methods of training to enhance communication between.

Interview 15: "I would suggest experiential seminars for musicians to exchange views…"

The distance learning of the trainings is wanted and proposed by two (2) teachers.

Interview 8: "I would definitely suggest the distance learning of the program…"

Also, two (2) teachers suggest that two to three trainings be done during the school year.

Interview 2: "Trainings should be done maybe three times during the school year (beginning-middle-end)."

7. Conclusions

The research question was about identifying the training needs of primary education music teachers according to the views of the sample.

The experienced music teachers of the sample show increased training needs compared to the first years of their work motivated by the personal need for knowledge renewal and professional development (Koner & Eros, 2018; Sfontouri, 2019). They highlight the training in new technologies and their utilization in the subject of music education as their primary training need in order to adequately meet the requirements of distance education (Bowles, 2002 ; Sakkoulis & Vergidis, 2017). Other needs mentioned are training in the cognitive subject (Bautista, Toh & Wong, 2016 ; Lymperopoulou, 2019), choir conducting (Bowles, 2002 ; Koukoutsi, 2014) and special education (Van Weelden & Whipple, 2014 ; Tiles & Vaiouli, 2017). They consider, although

they have several years of teaching experience, that they need training for the effective management of their teaching time in relation to the many and varied obligations of their school curriculum (Koukoutsi, 2014).

Regarding the organization of training programs, the teachers of the present research show a preference for short-term programs in contrast to the research of Bauer (2007) and Hammel (2007), because they can more easily combine them with their daily program and offer immediate feedback in the classroom (Bautista, Toh & Wong, 2016). In relation to the method of organizing the training programs, the experienced music teachers of the research equally support the traditional way and the distance method for different reasons. They want the programs to be carried out for life, because it serves the laboratory character of the course and satisfies their need for communication and strengthening of their fellow relations (Sfontouri, 2019). However, a significant part of the participants lean towards the preference of the distance education as more flexible and adaptable to their personal times (Kos & Goodrich, 2012), while the application of the blended learning is also supported as ideal with great pedagogical efficiency. A remarkable finding, as it is not often found in such research, is the desire of a large number of research teachers for compulsory training programs, as well as the view of many that the subject matter of training is the criterion that should determine its compulsory or optional nature. Experiential and collaborative activities, as highlighted in the literature review, are preferred by music teachers in the training program (Zosis & Bagakis, 2014) and short presentations are considered necessary only for a conceptual approach to the theoretical part.

The role of the Music Education Coordinator is considered crucial for the support and pedagogical guidance of the diverse educational work of music teachers. However, the teachers of the sample claim that they have not participated in any training activities organized by their Coordinator, nor is there any substantial two-way communication or a broader coordination of their work by him. With the above data and in combination with the fact that the Coordinators of the Music Educational Project have under their pedagogical responsibility school units of many times and two Regions, it is deemed necessary to review the institutional framework and provide increase of positions for Educational Project Coordinators for this specialty, so that they can respond to their pedagogical role substantially and not formally.

Research teachers are clearly frustrated with the implementation of the heterogeneous training model, which ignores their special training needs and groups teachers in attending general education programs (Hammel, 2007; Koner & Eros, 2018). They want to create a participatory training organization framework (Sfontouri, 2019; Dimitraki, 2019), which focuses on the systematic investigation of their training needs, the solution of specific problems they face in the classroom and the strengthening of their teaching practices.

Irrespective of the above explicit training needs, expressed in detail by the participants, and in relation to the difficulties they occasionally face in their relationships with colleagues and students, the cultivation of communication and interpersonal relationship management between members of school community emerge as an implicit training need of the music teachers of the sample (Hammel, 2007). The development of communication skills would strengthen the level of interpersonal relationships, cooperation and mutual understanding between the members of the pedagogical team and would significantly consolidate the position of the music teacher in it.

The present research effort highlighted useful data regarding the mapping of the current training needs of the music teachers of primary education of the prefecture of Achaia. As it turns out, music teachers in fact in recent years have not received any training always in relation to their specialty. They go on their own, essentially looking for ways to renew their knowledge through the use of resources from the internet, attending postgraduate programs, participating in seminars organized by private organizations, etc. Their educational support from the state is necessary, because it is a specialty with an important contribution to the formation of tomorrow's citizens with respect for humanitarian values and the ability to think critically and aesthetically, elements necessary for modern man to respond to the rapid pace of materialistic and transformative our society.

The data of the present research, as well as related educational research mentioned in the literature review, are useful to be used by official educational policy makers, such as the I.E.P., universities, etc., to create a database

with the topics in which music teachers want and need training. However, because the conclusions of the research come from the views of a portion of music teachers, who work in the primary schools of the prefecture of Achaia, they cannot be generalized. In order to generalize the results, it is advisable to carry out similar qualitative research in other prefectures or regions of our country and to combine, possibly with quantitative methodological approaches, in order to further cross-compare and compare the results in a wider geographical sample. In this way, the planning will be systematized and training programs will be organized, which will really help music teachers to meet any of their training needs in order to be creative, productive, proud of their teaching work and to feel equal members of the educational community.

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Using the SERVQUAL Framework to Examine the Service Quality in Higher Education in Thailand

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Abstract

Customer service and quality are driving forces in the business community. As higher educational institutions struggle for competitive advantages and high service quality, the evaluation of educational service quality is essential to provide motivation for and give feedback on the effectiveness of educational plans and their implementation. Monitoring student satisfaction with education quality has become an integral part of the educational process in not only a number of universities, but also further afield. This research presents an enhanced approach to using the SERVQUAL framework for measuring student satisfaction. It involves the use of factors concerning student services that are queried and surveyed using the SERVQUAL methodology. The proposed instrument was tested at a regional university in Thailand with a sample of 400 undergraduate students. Rigorous analysis demonstrates the usefulness of the approach in gathering business students' perceptions, analyzing them, and reducing them to a form usable by management as an off-the-shelf service quality measurement tool.

Keywords: Satisfaction, Service Quality, SEVQUAL, Higher Education, Thailand

1. Introduction

Higher education is facing pressure to improve the value in its activities (Cavallone et al., 2019). The present principle for enhancing educational value is to expend effort on continuous improvement, to focus on stakeholder interests, and to increase student satisfaction. Student satisfaction is often used to assess educational quality, where the ability to address strategic needs is of prime importance (Tomlinson, 2018). Quality in education can be determined by the extent to which students' needs and expectations can be satisfied. Various concepts and models have been developed to measure student and stakeholder satisfaction. The quality of teaching and learning has become a major strategic issue in tertiary education systems across the globe over the past decades. Monitoring student satisfaction with education quality has become an integral part of the educational process in not only a number of universities, but also further afield. Furthermore, as competition in higher education becomes intense, concepts that did not figure in the strategic plans of universities, such as service quality, student satisfaction, image of the institution, and student loyalty, have suddenly become key

ingredients for their survival (Seyfried & Pohlenz, 2018; Latif et al., 2019). The present research builds upon the SERVQUAL instrument as a framework to assess the service quality in higher education.

1.1. Student perspectives on learning

Student learning is more influenced by their perspectives on the context of learning than by the context of learning itself, per se (Trautwein & Bosse, 2017). Consequently, the learning and teaching issue depends not only upon how teachers have designed and structured their subjects and courses, but also how their students perceive and understand this design and structure (Rueda, Benitez & Braojos, 2017; Fuchs, 2021a). In business education, students' constructs of learning are primarily dependent on their interpretations of the demands of the task, assessment, and teaching and learning environment (Fuchs, 2021b). Moreover, students' interpretations of the context of learning are important in their choice of learning strategies. Individual approaches to learning have been characterized as deep or surface (Rueda, Benitez & Braojos, 2017; Fuchs, 2021c). Students who employ a deeper approach aim to understand the material, interacting vigorously and critically with the content. On the other hand, those who take a surface approach to learning simply aim to reproduce parts of the content and accept ideas and information passively. The deep approach is associated with specific characteristics of teaching (Osman & Saputra, 2019). A third approach, labeled the strategic approach, refers to the intention of achieving the best possible grades by adapting to the assessment demands (Alves & Raposo, 2009). Effective teaching is multidimensional and no single criterion is sufficient in itself (Rueda, Benitez & Braojos, 2017). It is characterized by a long list of qualities, such as the demonstration of enthusiasm, giving feedback to students, understanding students' problems, and the presentation of subjects in an interesting manner. These bring about real differences in teaching quality and such variations can be measured (Alves & Raposo, 2009). Students' learning is strongly connected with their satisfaction with courses and their surrounding learning environment (Osman & Saputra, 2019).

1.2. SERVQUAL

SERVQUAL measures the difference between what is expected from a service encounter and the perception of the actual service encounter (Ladhari, 2009; Parahoo et al., 2016). The author named this the disconfirmation paradigm and operationalized it as:

$$Service\ Quality\ (SQ) = Perception\ (P) - Expectation\ (E)$$

The SERVQUAL instrument is actually a survey form containing multiple items, wherein each item measures both the perception and the expectation of a particular service attribute. SERVQUAL is widely used as an off-the-shelf instrument in many service settings. Major dimensions in the SERVQUAL model for determining the gap between customer expectations and perceptions are (1) tangibles, i.e., physical facilities, equipment, and appearance of personnel; (2) reliability, i.e., capability to provide the promised service accurately and dependably; (3) responsiveness, i.e., willingness to provide a prompt service and help customers; (4) assurance, i.e., courtesy and knowledge of personnel and ability to convey confidence and trust; and lastly (5) empathy, i.e., attention provided to an individual customer (Đonlagić & Fazlić, 2015).

2. Methodology

2.1. Questionnaire and Methodology Development

This study involved the application of a survey instrument specifically for the use of a university adapted from an earlier study conducted by Đonlagić & Fazlić (2015), which was an adaptation from that which was available in the current literature. A survey form consisting of 25 attributes classified into five factors was developed for the research. Namely, these five factors were tangibles, reliability, responsiveness, assurance, and empathy. Each of the 25 attributes that were adaptedrelatese to a specific aspect of university education. In line with the SERVQUAL methodology, the statements were constructed to ask students about their expectations (E) as well as their perceived experiences (P). In contemporary research projects, it is argued that the Likert-type scale is

best suited to allow individuals to express their agreement or disagreement with a particular statement (Đonlagić & Fazlić, 2015). Using the five-point Likert-type scale allowed the students to report their level of agreement or disagreement with regard to their expectation and perception about 25 individual attributes related to their university study experience. The response options corresponded to the following verbal interpretations: (1) Poor, (2) Fair, (3) Average, (4) Good, and (5) Excellent and point value range (Table 1) as used on the slider (Table 1).

Table 1: Interpretation of five-point Likert-type scale and point range

Item on Likert-type scale	Value	Range
Excellent	5	4.50-5.00
Good	4	3.50-4.49
Average	3	2.50-3.49
Fair	2	1.50-2.49
Poor	1	1.00-1.49

2.2. Survey Details

The survey was self-administered electronically on the Internet over the period from February to March 2021. It was targeted at undergraduate tourism students from a regional university in Thailand. Snowball sampling was applied for the bilingual survey through an instant messaging application that the students were subscripted to as part of their course enrollments. It was expected that the survey reached more than 1,250 students with the request to voluntarily participate in the survey. Recipients were asked to follow a link to the survey website. This approach allowed for the transmission of returns directly to a database without user intervention. Coupled with proper preparation of the database structure (including the handling of incomplete and missing data), the author was able to attain a high level of data format efficiency in that the data came out in a format ready for analysis.

2.3. Data Analysis

In all, there were 421 responses, of which 400 were used for analysis. Twenty-one responses were discharged from the analysis due to irrelevance or incomplete information. A broad socio-demographic profile ranging through gender, age range, nationality, and year of study were represented (Table 2). The mean values of each factor were then analyzed by their respective gap scores, which are perception minus expectation.

Table 2: Socio-demographic profile of the respondents (n=400)

Characteristics *	Absolute	Percent
Gender		
Male	122	30.5%
Female	268	67.0%
Others	10	2.5%
Nationality		
Thai students	378	94.5%
Foreign students	22	5.5%
Year of study		

First-year undergraduate	68	17.0%
Second-year undergraduate	128	32.0%
Third-year undergraduate	132	33.0%
Final-year undergraduate	72	18.0%
Age range		
18 years or below	72	18.0%
19 – 20 years old	198	49.5%
21 – 22 years old	108	27.0%
23 years or above	22	5.5%

* Note: Only responses from undergraduate tourism students were

3. Empirical Findings and Analysis

3.1. Empirical findings of the survey

To reiterate, service quality is measured by the difference between what is expected from a service encounter and the perception of the actual service encounter. In other words, the adopted methodology quantified service quality gap scores by measuring perception (P) minus expectation (E). The following results represent the findings based on 400 responses from undergraduate students based on their expectations and perceptions towards the higher institution at which they are enrolled. Positive gap scores indicate satisfaction or positive perceptions of the product or service consumed. Negative gap scores imply that there was dissatisfaction. The results of the survey indicate a range of consistently negative service quality gaps at the university (Table 3).

Table 3: Mean gap scores and satisfaction grid results (summarized from survey data)

Factors	Mean expected service score	Mean perceived service score	Mean gap score	Cronbach's coefficient alpha
Tangibles	**3.93**	**3.42**	**-0.51**	**.910**
1 The faculty has modern technical equipment for the education process (i.e., computers/beamers)				
2 The building and premises of the faculty are modern and visually likeable				
3 Employees of the faculty appear professional and neat				
4 Teaching materials are available and up-to-date (study programs, brochures, student guides)				
Reliability	**3.97**	**3.14**	**-0.83**	**.902**
5 Classes are held in accordance with the schedule of lectures and without delays				
6 Working hours of the Academic Office are adequate and in accordance with students' needs				
7 Staff and the faculty provide support and help to students				
8 Academic staff have precise records of students' activities (presence at lectures, exam results)				
9 Academic staff apply consistent grading criteria				
10 Students are informed about the realization of certain activities (exams or seminars) in a timely manner				
Responsiveness	**3.98**	**3.22**	**-0.76**	**.831**
11 Inquiries, requests, and claims of students are handled and resolved promptly				
12 Academic staff conduct themselves in students' best interests				
13 Academic staff pay special attention and provide help to students in resolving their problems				
Assurance	**3.97**	**3.16**	**-0.81**	**.914**

14	Academic staff have the necessary knowledge and skills, as well as adequate communication skills
15	The faculty implement study and educational programs with clear aims for the specialization of students
16	Quality of education processes is at a high level
17	Staff conduct fills students with confidence
18	The reputation and position of the faculty in the environment is adequate
19	Academic staff provide professional answers to students' questions

Empathy		*3.90*	*3.11*	*-0.79*	*.920*
20	Academic staff understand students' needs
21	Academic staff show positive attitudes towards students
22	Academic staff treat students equally and with respect
23	Academic staff are available for consultations and are forthcoming with students
24	The faculty value and acknowledge feedback from students for improving processes
25	Staff are polite, kind, and professional in communications with students

3.2. Evaluation of Gap Scores

The largest recorded gap was recorded for factor reliability (-0.83), followed by factor assurance (-0.81) and factor empathy (-0.79). Consequently, the lowest negative gap scores were recorded for factor tangibles (-0.51) as well as factor responsiveness (-0.76). The largest gap (-0.83) was recorded between the mean expected service score and mean perceived service score for the six attributes that collectively constructed the aggregate 'reliability.' It can be noted that the lowest mean perceived service score was recorded for factor empathy (3.11). Contrary to this finding, the factor tangibles scored the highest, with a mean perceived service score of 3.42 (Table 3). Furthermore, it can be noted that students' expectations towards the attributes that make up the five factors range from 3.90-3.98, indicating a relatively high service quality expectation towards their educational institution of choice (Figure 1). Moreover, for each of the five factors, Cronbach's alpha was calculated to measure the internal consistency – how closely related a set of items are as a group. The five factors ranged between 0.831-0.920 (Table 3), indicating good internal consistency for factor responsiveness (0.831) and factor reliability (0.902), while indicating excellent consistency for tangibles (0.910), assurance (0.914), and empathy (0.920).
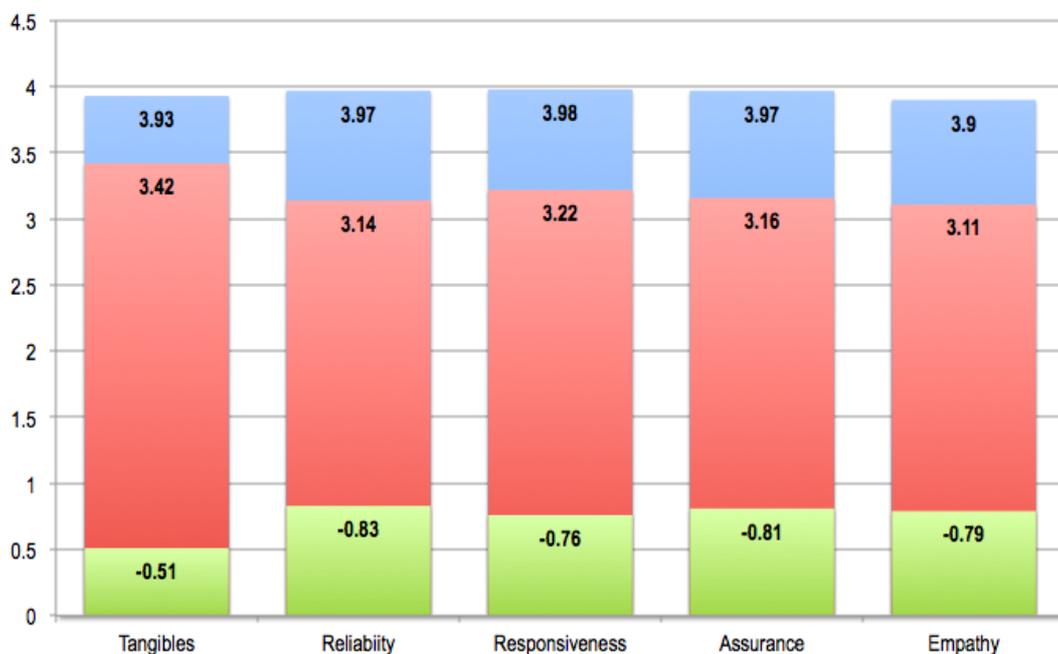
Figure 1: Visualization of expected service score (blue), perceived service score (red) and gap score (green)

3.3. Verbal interpretation of findings

To further investigate the meaning of the aggregated responses, a verbal interpretation was added in accordance with the introduced methodology in the previous section. It can be stated that all three items received the second-highest rating, namely 'Good,' based on the mean expected service score. The mean perceived service score yielded a verbal interpretation of 'Average' on all five factors. Based on the service quality gap and verbal interpretation, the results suggest that the surveyed undergraduate students have a relatively high expectation towards their educational institution. However, the institution was unable to meet the relatively high expectations on any of the surveyed factors. This finding begs the question of whether the students' expectations are unrealistically high, or whether the university has failed to deliver a consistently high quality of service to their students. Either way, the service quality gap across all five factors indicates an existing service quality gap, wherein the perceived service quality is either rated as fair or poor, indicating that there is room for improvement, but no acute service failure is being recorded through the means of the survey.

Table 4: Verbal interpretation of mean expected and mean perceived service scores

Factors	Mean expected service score	Verbal interpretation	Mean perceived service score	Verbal interpretation
Tangibles	3.93	Good	3.42	Average
Reliability	3.97	Good	3.14	Average
Responsiveness	3.98	Good	3.22	Average
Assurance	3.97	Good	3.16	Average
Empathy	3.90	Good	3.11	Average

3.4. Demographic Profiling

Analysis was also performed to identify the perception of the level of service quality in subsets of the samples across various demographic groups. For example, to explore the hypothesis that students across different years had different perceptions and expectations of the various aspects of education, mean scores were calculated for different years of study. This analysis can help illuminate the direction and magnitude of change that students experience across years concerning each service quality attribute. It can be distinguished that male students generally had a more critical view of attributes that contribute to factor tangibles, wherein female students gave a higher rating for the expected service for factors relating to empathy and assurance. Another particular finding derived from the demographic profiling was that there is a correlation between the perception score and the year of study. It can be said that as the year of study increases, the perception score decreased. This suggests that as students mature, their perception becomes more critical. Demographic profiling for the age was identical to the year of study and a comparison between Thai and foreign nationality was dismissed due to the limited sample of foreign students.
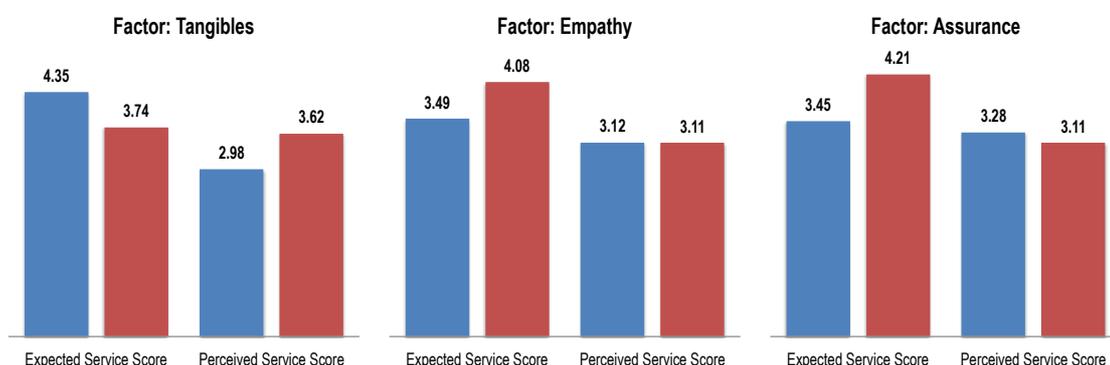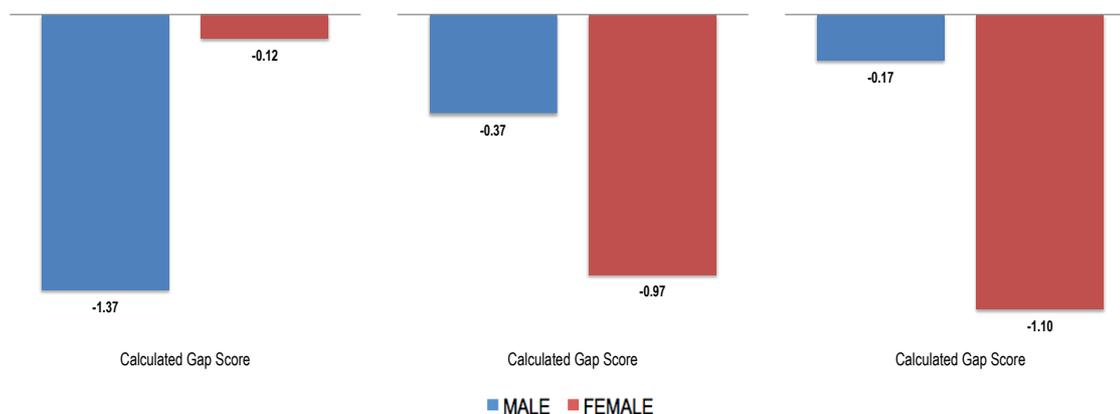
Figure 2: Gender profiling for three specific factors: Tangibles, Empathy and Assurance

4. Conclusion

As attention to service quality in higher education heightens, there needs to be a corresponding increase in the use of its assessment tools. This research began with the basic SERVQUAL survey instrument. It gathered literature about student perceptions and expectations. From surveys that have been developed and validated over the last decade, a modest amount of further customization was done to fit the survey instrument to the Thai context. From this was formed a broad-ranging survey covering service quality in 25 different areas. The use of the Internet for sending out and receiving returns provided an efficient means of administering the survey. Data collation for later analysis was also greatly aided. The main purpose of the survey was to provide information on service quality gaps. A range of demographic profiling was done, such as comparing first- to final-year students or evaluating gender-based perceptions. The results from such a survey can be used to identify areas of priority. The above analyses provide information useful for university administrators in decision-making. The focus of this research had been on both the acculturated survey as well as the derived methodology.

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Future Time Perception and Examination of Depression Terms of Hope

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Abstract

The aim of this study is to examine the depression levels of university students according to their perception of future time and hope. The research is a relational screening study and it was conducted with the participation of 1st and 4th year undergraduate students studying in various departments of different universities (n = 368). The data of the study were collected using the Future Time Perception Scale (FTPS), the Trait Hope Scale (THS) and the Beck Depression Inventory (BDI). In the analysis of the data according to the research questions; independent sample t test, correlation analysis and multiple regression analysis were used. The data of the research were analyzed with the SPSS 24.0 package program. As a result of the research, weakly significant relationships were found between future time perception scores and hope scores, while moderate and high negative significant relationships were found between hope and depression scores. According to another result of the study, when the perceptions of future time and hope levels of 1st and 4th grade students were examined to predict depression, it was concluded that while future time perception was not a predictor of depression, hope scores predicted depression. According to the results of the research, when the future time perception, hope and depression levels were compared, it was found that the future time perception and commitment scores of the 1st grade students were higher than the 4th grade students.

Keywords: Future Time Perception, Trait Hope, Depression, University Students and Goal

1. Introduction

Different views have been put forward on the concept of time in different periods. While the questions about how time moves in space find answers as "linear," "circular" and "spiral," it is also classified as "physical time," "biological time," "psychological time" by some researchers. has been the subject (Avcı, 2008). However, within the scope of this research, rather than the general classifications of time, the perception of future time will be

emphasized in the context of psychological time that varies from individual to individual and is evaluated relatively. The perception of future time, which has been the subject of educational psychology for many years, is related to the effect of individuals' near or distant future expectations and goals on their current behavior (Husman & Shell, 2008; Seginer & Lens, 2015, p.287-304).

Lens (1986) defines the perception of future time as the effect of the goals that the individual wants to achieve in the near or distant future on his current behavior. Husman and Lens (1999) state that goals are future-oriented. He states that when the goals will be realized, the importance and the actions taken to achieve the goal at the moment are related to the individual's perception of the future. Future time perception has been identified in five dimensions by Husman and Shell (1996). These dimensions are: commitment, value, breadth, speed and instrumentality (Avcı & Erden, 2009).

Commitment, one of the sub-dimensions of future time perception, refers to a cognitive dimension and is the ability to establish a link between future goals and current actions (Husman & Shell, 2008). Value, one of the sub-dimensions of the future time perception, is the importance individuals attach to the goals they want to achieve in the future (Gjesme, 1975; Husman & Shell, 2008). One of the sub-dimensions of future time perception, breadth is related to how far individuals advance their goals over time, and as stated by Daltery and Langer (1984), the broader the time perception, the more important long-term goals become (as cited in Husman & Shell, 2008). As Gjesme (1983) stated, one of the sub-dimensions of future time perception, speed refers to temporal integration and the feeling perceived by the individual as time passes (as cited in Husman & Shell, 2008). Instrumentality, which is one of the sub-dimensions of the future time perception, is related to the contribution of the outputs of the actions to reach the future goals and is the focus of the individual on the current tasks for the goals he / she wants to achieve (De Volder & Lens, 1982; Lens & Tzuki, 2005). Effort of each individual who makes an effort in the present time to reach future goals is different (Avcı, 2008). This effort may be related to individuals' motivations, future expectations, the importance of the goal and the hope of the individual for the future. To hope is to anticipate that what is hoped for will come true.

Hope, which is one of the concepts of positive psychology, is a psychological structure that ensures human survival and strengthens well-being (Tarhan, 2012). Snyder (2002) suggests that while evaluating hope as a cognitive structure, it is one of the components of a structure that is based on success, which is the yield of determination and planning towards achieving the goal. Hope consists of two components, alternative routes and agency, and these components are interrelated (Tarhan, 2012).

Snyder (2002) states that hope is composed of goals, alternative paths thought, and acting thinking. In the theory of hope, 'purpose' is a cognitive structure and it is easier to support it with awareness if the value of a goal is high. Hope helps individuals to set goals and achieve those goals. Those with a high level of hope do not just concentrate their energies on one goal, they can easily switch from one goal to another. Individuals who can act in this context will have positive feelings for the future (Halama, 2010). The idea of alternative ways is to create options to achieve the desired goals. It also means that these created options are not fixed and unique. In other words, it is creating solutions when encountering obstacles while striving for goals. Acting thought includes thoughts about the past, present, and future. Acting thought is the power felt by the individual in order to achieve the goal. This power means being ready for the obstacles to be encountered while mobilizing the individual (Koç, 2008). However, failure to set goals and achieve these goals may confront the individual with depression (Feldman & Snyder, 2005). When the individual is not ready for these obstacles, they may face desperation, powerlessness or despair.

Individuals' despair for the future is closely related to depression. Individuals develop cognitive and behavioral attitudes while achieving their future goals. In other words, the deficiency or deterioration in the beliefs about himself, his environment and his future can be expressed as depression (Dilbaz & Seber, 1993). Depression is a complex syndrome with deep sadness, slowness in cognitive, emotional, and physiological functions along with a mood accompanied by sadness and anxiety at times, stagnation as well as being weak, worthless and pessimistic (Öztürk & Uuşahin, 2014, p.342). Depression defined in the mood spectrum within normal and psychopathological limits may occur with the effect of psychosocial, biological and genetic factors (Yücel, 2020).

Depression can be expressed as schemas of the individual's negative perception of himself, the world and the future, which continues with cognitive bias and distortions, which Beck calls the cognitive triad (Göller, 2010). Beck (1987) states that in the cognitive triad pattern, individuals focus on their own inadequacies and weaknesses, interpret their experiences towards the world negatively, in other words, they make selective abstraction and focus on anxiety, pessimism and failure for the future (Corey, 2005, p.317). In Beck's theory, he thinks that negative components are at the center, and that there are non-functional, rigid and extreme beliefs. However, the person often experiences these impaired functions outside the realm of awareness (Butcher, Mineka & Hooley, 2013, p.448). The basic characteristic of depression is the belief that the individual will experience his negative affect again in the future and that his pessimistic situation will not change (Dilbaz & Seher, 1993; Gençtan, 2006).

Among the relevant studies in the literature, Husman, Hilpert, and Brem (2016) examined the impact of classroom environments on career connections, emphasizing the contextual effects of future time perception, instrumentality and knowledge-building strategies. Lens and Tzuki (2005) examined conceptually the role of motivation and future time perception in education and career development in the context of future time perspective theory. The future time perception and motivation have been studied by Vazquez and Rapetti (2006) with variables of gender, locus of control, social class, and school. An overview of the development of motivation and perception of the future is provided by Simons, Vansteenkiste, Lens, and Lacante (2004). The effect of hope on assessment, coping and dysphoria by Chang and De Simone (2001) In the study by Cutcliffe and Herth (2002), the origin, background and definitions of hope in nursing The relationship between hope and academic outcomes by Marques, Gallagher, Lopez (2017). It has been revealed by a meta-analysis study. In his research Tarhan (2012) examined the prediction of hope from self-efficacy, perceived social support and personality traits in terms of demographic variables. Usta (2013) examined the relationship between hope and psychological well-being according to the variables of family income, perceived parental attitudes, gender, and perceived academic success. The relationship between the locus of control and parental attitudes of university students and the effects of individuals on feelings of depression and anxiety were investigated by Çaylar (2010). In his study, Çöpür (2020) examined the relationship between depression and leisure time with variables of gender, age, class, wealth level, success in lessons, income level, leisure time competence and leisure time evaluation variables.

The aim of this study is to examine the depression levels of 1st and 4th grade university students according to their future time perception and hope. In this study, it is the opinion that there may be personal, social and academic differences between the students who are new to university and who will graduate, which is effective in the selection of only 1st and 4th year students. Accordingly, it is observed that individuals starting university are in the stage of adapting to a new environment and new beginnings, while the senior students of the university are mostly in the stage of achieving the goals they should make for post-graduation. For this, they may be faced with options such as working in the private sector, preparing for various exams to enter public institutions, making an academic career or starting their own business. In this case, the increase in options for senior students may require them to answer the questions on which goal they should focus on. Accordingly, individuals who determine their choices in earlier grades and move forward in line with their goals may be more motivationally determined, while the individual may have difficulty in making realistic / healthy choices in the decisions left to the last moment. Therefore, for senior students who cannot decide what to do about their future, this situation can lead to negative emotions such as future anxiety, depression, and indifference. In line with these views, the study was conducted with these two groups as it was expected that the future time perceptions, hope and depression levels of the 1st and 4th grade university students might be different.

The problem statement of the research

What is the relationship between the depression levels of the 1st and 4th grade university students according to their future time perception and hope scores?

Sub problems

1.What is the relationship between the future time perception, hope and depression levels of the 1st and 4th year

university students?

2.Are the future time perceptions and hope levels of the 1st and 4th year university students predictors of their depression levels?

3. Is there a significant difference between the future time perception, hope and depression levels of the 1st and 4th year university students according to their grade level?

2. Method

2.1 Research Method

The research model is a general survey study that aims to deal with the relationships between two or more variables in quantitative research design. The purpose of screening research is to "make a description by taking a photo of the current situation" related to the research subject. It is possible to classify screening studies in different ways (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2013, pp. 177-178). One of them, the general survey model, can be expressed as the scanning arrangements made on the whole population or a group, sample or sample to be taken from the population in order to reach a general judgment about the population in a population consisting of many elements (Karasar, 2012, p. 81).

2.2 The Population and Sample of The Research

The population of the research consists of students enrolled in the programs of Sakarya University, Afyon Kocatepe University and Akdeniz University in the fall semester of 2020-2021. The sample of the study consists of students from different departments of Education, Science and Literature, Economics and Administrative Sciences, Informatics, Medicine, Health Sciences, Theology and Engineering Faculties of these universities. Appropriate sampling method was used for the research sample. The sample of the study was created by selecting university students who consented to participate in the study from the population (n = 368). There are a number of reasons that affect the selection of the study group as university students. The first of these reasons is that university students, who seriously need to create a future plan, wonder about the relationship between future time perceptions, hope and depression levels in order to create this plan. Second, the future perceptions of university students, which will be an outcome of education considered as a system, constitute the population that will make significant contributions to the social and economic functions of education. Third, it is determined that studies conducted with this group in future time perception studies in the literature are limited.

2.3 Data Collection Tools

Future Time Perception Scale (FTPS): Developed by Husman and Shell (1996), the scale was adapted to Turkish by Avcı and Erden (2009). The scale has 26 items and was developed in a Likert type with five options and has four sub-dimensions. The scores to be obtained are between 1-5 and it shows that as the scores obtained from the subscales increase, the degree of the individual to have the feature related to that dimension increases. The Cronbach alpha coefficients obtained in the reliability study of the scale were .78 for the FTPS, .82 for the commitment subscale, .72 for the value subscale, .72 for the speed subscale, and .74 for the width subscale. Factor loads in Cronbach's alpha coefficients were found to be .82, value .66, speed .67, and width .76. Test-retest reliability was found as .72, value .80, speed .71, and width .45 (Avcı & Erden, 2009). In this study, the Cronbach's alpha coefficients were found to be .82 for the FTPS, .77 for the commitment sub-dimension, .65 for the value sub-dimension, .76 for the speed sub-dimension, and .61 for the width sub-dimension.

Trait Hope Scale (THS): The scale developed by Snyder, Harris, Anderson, Holleran, Irving, Sigmon, Yoshinobu, Gibb, Langelle and Harney (1991) was adapted to Turkish by Tarhan and Bacanlı (2015). It was developed in Likert type with 12 items and eight options and has two sub-dimensions. The scores obtained range between 8 (lowest) and 64 (highest) The internal consistency coefficient of the scale was .84, the test-retest reliability coefficient was .81 for the Agent Thinking dimension, .78 for the Alternative Ways Thinking dimension, and .86 for the scale's total score (Tarhan & Bacanlı, 2015). In this study, the Cronbach alpha value was found as .92 in the Alternative Ways sub-dimension of the Continuing Hope Scale and .81 in the acting thoughts sub-dimension.

Beck Depression Inventory (BDI): Developed by Beck, Ward, Mendelson, Mock, and Erbaugh (1961), the scale was adapted to Turkish by Hisli (1989). Each item determines a behavioral pattern specific to depression and includes 21 self-evaluation sentences with four options (0-3), and the scores to be obtained from the scale range from 0 to 63. The validity of the scale was tried to be determined by the co-validity method and the MMPI-D Scale was used as a criterion and the Pearson moments correlation coefficient between the two scales was .50 the reliability of the Beck Depression Inventory was examined by item analysis and the split-half technique, and the Cronbach's alpha was .80 and the split-half reliability was found .74 (Hisli, 1989). In this study, Cronbach alpha value was found .91.

2.4 Data Analysis

In this section, firstly, how the demographic distribution of the students was examined (Table 1). In order to explain the linear relationship between the two continuous variables in accordance with the research questions (Büyüköztürk, Çokluk and Köklü, 2013, p.91), Pearson product-moment correlation coefficient analysis was used for multiple regression analysis due to the linear relationship between variables (Büyüköztürk, Çokluk & Köklü, 2013, p. 122) and to compare the mean values of two different participant groups (Pallant, 2017, p.265), independent sample t test analysis was performed. SPSS 24.0 package program was used to analyze the data in the research.

3. Results

The distribution of the students participating in the study according to their demographic information is presented in Table 1.

Table 1: Distribution of Students According to Demographic Information

		N	%
Gender	Female	229	62,2
	Male	139	37,8
Age	Age 18-19	171	46,5
	Age 20-21	41	11,1
	Age 22-23	129	35,1
	24 and over	27	7,3
Class	1st Grade	175	47,6
	4th Grade	193	52,4
Faculty	Faculty of Education	132	35,9
	Faculty of Arts and Science	85	23,1
	Faculty of Theology	21	5,7
	Faculty of Communication	25	6,8
	Faculty of Economics and Administrative Sciences	40	10,9
	Faculty of Engineering	51	13,9
	Health Sciences	14	3,8
Department	Education	132	35,9
	Science	68	18,5
	Social	168	45,7
University	Afyon Kocatepe University	115	31,3
	Sakarya University	126	34,2
	Akdeniz University	127	34,5

Income Rate	Low	28	7,6
	Medium	335	91,0
	High	5	1,4
	Total	368	100,0

When the distribution of students according to gender variable is examined, it is seen that 62.2% of them are female and 37.8% are male. 46.5% of the students are in the age group of 18-19, 11.1% in the age group of 20-21, 35.1% in the age group of 22-23, 7.3% in the age group of 24 and over. 47.6% of the students are at the 1st grade, 52.4% of them are at the 4th grade. 35.9% of the students study at the faculty of education, 23.1% at the faculty of science and literature, and 41% at the faculties of theology, communication, economics and administrative sciences, engineering and health sciences. 35.9% of the students study in education, 18.5% in science, 45.7% in social sciences departments. 31.3% of the students study at Afyon Kocatepe, 34.2% at Sakarya and 34.5% at Akdeniz University. 7.6% of students have low income, 91% have medium income and 1.4% have a high income level. Generally, the income level of the students is medium.

Correlation analysis was conducted for the first sub-problem of the study, "What is the relationship between the perception of future time, hope and depression levels of the 1st and 4th grade university students?" The results obtained accordingly are shown in Table 2.

Table 2: Relationships Between Students' Perception of Future Time, Hope and Depression Levels

		Commitment	Value	Speed	Width	FTP	Alternative Ways	Action Thoughts	THS	BDI
Value	r	,14	1							
	p	**,00***								
Speed	r	,36	,01	1						
	p	**,00***	,78							
Breadth	r	-,04	,25	-,26	1					
	p	,41	**,00***	**,00***						
FTP	r	,81	,57	,48	,29*	1				
	p	**,00***	**,00***	**,00***	**,00***					
Alternative Ways	r	-,07	-,03	-,08	-,05	-,10	1			
	p	,14	,49	,10	,30	**,04***				
Action Thoughts	r	-,06	,07	-,11	,03	-,03	,78	1		
	p	,21	,15	**,03***	,48	,46	**,00***			
THS	r	-,07	,02	-,12	-,00	-,07	,94	,94	1	
	p	,15	,69	**,04***	,87	,14	**,00***	**,00***		
BDI	r	,03	-,07	,08	-,01	,01	-,58	-,65	-,65	1
	p	,48	,13	,09	,72	,78	**,00***	**,00***	**,00***	

*: The p value is significant at the .05 level.

Correlation levels r <.20 indicate very weak correlation, .20-.39 weak relation, .40-.59 medium level relation, high level relation between .60-.79, very high level relation between .80-1.00 (Baloğlu, 2015). There is a positive, very weak and significant relationship between the values and commitment levels of the students (r: .14; p: .00 ≤.05). There is a positive, weak and significant relationship between the students' speed levels and their commitment levels (r: .36; p: .00 ≤.05). There is a positive, weak and significant relationship between the breadth and value

levels of the students (r: .25; p: .00 ≤.05). There is a negative, weak and significant relationship between the width levels of the students and their speed levels (r: -.26; p: .00 ≤.05). There are positive significant relationships between students' perceptions of future time and commitment, value, speed and breadth, which are the lower face of the Future Time Perception Scale. There is a negative, very weak and significant relationship between students' perceptions of alternative ways and future (r: -.10; p: .04 .05). There is a negative, very weak treatment and significant relationship between the students' acting thoughts and speed (r: -.11; p: .03 ≤.05). There is a positive high application and significant relationship between the students' acting thoughts and alternative ways (r: .78; p: .00 ≤.05). There is a very weak and significant relationship between the level of hope based on students and negative direction from speed (r: -.12; p: .04 .05). There is a very high level of positive and significant relationship between the trait hope level of students and alternative ways (r: .94; p: .00 ≤.05). There is a very high level of positive and significant relationship between trait hope level and agency thoughts (r: .94; p: .00 ≤.05). There are negative messages and a significant relationship between students' depression levels and alternative ways (r: -.58; p: .04 ≤.05). There is a negative high level of high level of practice and a significant relationship between students' depression level and acting thoughts (r: -.65; p: .04 .05). There is a negative, high-level and significant relationship between students' depression level and trait hope level scores (r: -.65; p: .04 .05). Multiple regression analysis was conducted for the second sub-problem of the study, "Are the future time perceptions and hope levels of the 1st and 4th grade students predictors of their depression levels?" And the results obtained are presented in Table 3.

Table 3: Examining Whether Perception of Future Time and Hope Levels Predicted Depression

	Adjusted R^2	Standart β	F	t	p
FTPS	-,003	,014	,077	2,718	.78
THS	,430	-,657	277,367	-16,654	.00*
Commitment		,017		,302	,76
Value	,004	-,089	1,360	-1,622	,10
Speed		,089		1,540	,12
Breadth		,028		,499	,61
Alternative Ways	,440	-,177	145,458	-2,826	,00*
Action Thoughts		-,519		-8,296	,00*

*: The p value is significant at the .05 level. The dependent variable: BDI Score

The effect of future time perceptions and hope levels of 1st and 4th grade students on their depression levels was tested with multiple regression analysis. As a result of the analysis, it was found that future time perception levels did not have a significant effect on depression levels (R^2: -.003; β: .014; t: 2.718; p> .05). On the other hand, it was determined that students' trait hope levels had a significant effect on their depression levels. When the values in the table were examined, it was found that increasing levels of trait hope had a decreasing effect on depression levels (R^2: .430; β: -.657; t: -16.654; p≤.05). It was found that the sub-dimensions of the future time perception scale, commitment, value, speed and breadth, did not have a significant effect on depression levels (R^2: .004; p> .05). In addition, it has been determined that the sub-dimensions of the Trait Hope Scale, alternative ways and levels of acting thoughts, have a significant effect on depression levels. When the values in the table were examined, it was found that increasing the levels of alternative ways and agency thoughts had a decreasing effect on depression levels (R^2: .440; p≤.05).

The third problem of the study, "Is there a significant difference between the future time perception, hope and depression levels of the 1st and 4th grade students according to the grade level?" was analyzed with the independent sample t test. The results obtained accordingly are shown in Table-4.

Table 4: Comparison of Students' Perception of Future Time, Hope and Depression Levels with The t-test According to the Class Variable

Score	Grade	Number of Person	Arithmetic Mean	Standard Deviation	t	sd	p
FTP	1st Grade	175	70,9771	8,24548	2,057	366	,04*
	4th Grade	193	69,2798	7,58456			
CHS	1st Grade	175	45,9429	8,41435	,869	366	,38
	4th Grade	193	45,0933	10,14487			
BDI	1st Grade	175	12,6857	8,37611	-,798	366	,42
	4th Grade	193	13,4715	10,29262			
Commitment	1st Grade	175	28,3029	5,22975	2,849	366	,00*
	4th Grade	193	26,7668	5,10642			
Value	1st Grade	175	20,4686	3,14001	1,473	366	,14
	4th Grade	193	19,9845	3,15482			
Speed	1st Grade	175	7,2171	2,52317	-1,083	366	,27
	4th Grade	193	7,4974	2,43696			
Breadth	1st Grade	175	14,9886	2,23347	-,169	366	,86
	4th Grade	193	15,0311	2,55748			
Alternative Ways	1st Grade	175	23,4000	4,55364	1,234	366	,21
	4th Grade	193	22,7668	5,22539			
Action Thoughts	1st Grade	175	22,5429	4,59599	,415	366	,67
	4th Grade	193	22,3264	5,34363			

*: The p value is significant at the .05 level.

Comparison of 1st and 4th grade students' future time perception, hope and depression levels with the t-test is given in the table above. According to the table, there was no significant difference between the scores of the Trait Hope Scale, Beck Depression Inventory, value, speed, breadth, alternative ways, and action thoughts according to the class variable (p> .05). On the other hand, it was determined that the future time perception and commitment scores of the students in the 1st grade were higher than the students in the 4th grade (p≤.05). Accordingly, students in the first grade have higher future time perception and commitment levels.

4. Discussion, Conclusion and Recommendations

4.1 Discussion and Conclusion

The perception of the future is an interesting psychological concept to study, given that the future is unknown and uncertain (Phan, Ngu & McQueen, 2020). Why do some have a long perception of the future while some don't? This situation can be explained by concepts such as motivation, academic performance, philosophical belief and / or trust, individual differences in a particular environment.

The perception of future time, which includes individual differences in the perception of long and short, is primarily defined by its relationship with learning and motivation (Lens, Paixão, Herrera & Grobler, 2012; Nuttin, 1964). Future time perception can be expressed as a theoretical structure that can help educators in learning, motivation and decision-making (Phan, 2014). Considering the related concepts, it is clear that the perception of future time is one of the characteristics that individuals should have. However, if the concepts such as goal, plan and motivation are taken into consideration, it will become more important for qualified university students to have a perception of the future time and a long future. In this context, the relationship between future time

perceptions, hope and depression levels of 1st and 4th grade university students was examined, whether the perception of future time and hope predicted depression was examined and the findings were discussed in the light of the literature.

No significant relationship was found between the future time perception and depression levels of the 1st and 4th grade university students (Table 2). Depression is a common psychiatric disorder (Bahadırlı, Tutuğ, Ceviz & Çalıyurt, 2013). Chen and Vazsonyi (2013) state that creating plans for the future and thinking about the future in real terms are protective against depressive symptoms. Tysk (1984) found that depressive mood is related to time judgment and time perception, but some of the studies in this research and literature concluded that depression and time perception are not related (Bech, 1975; Mezey & Cohen, 1961). In a study investigating the hopelessness about the future in suicidal people, it has been found that the logic errors about positive events for the future do not differ according to the near and distant future (MacLeod, Rose & Williams, 1993). A moderate and significant negative relationship between depression levels and alternative ways, a negative high-level and significant relationship between depression levels and agent thoughts, and a high-level and significant negative relationship between Beck Depression Inventory scores and Trait Hope Scale scores (Table 2) have been identified. There are studies in the literature revealing that there is a negative relationship between hope and depression (Chang, 2003). Negative relationships have been found between action thoughts and alternative ways and depression (Arnau, Rosen, Finch, Rhudy & Fortunato, 2007; Chang, 2003). Similarly, in this study, it can be said that the relationship between the scores obtained from the Beck Depression Inventory and the scores of the Trait Hope Scale is negative and significant. When looking at the studies on depression, it can be said that it is examined with different variables. For example, in a study examining the relationship of depression with conscious awareness and self-control, it has been found that conscious awareness is associated with low depression (Kara & Ceyhan, 2017). In another study, a moderate and positive relationship has been determined between the level of depression and substance addiction (San, Erensoy, Ayaç and Berkol, 2020). In this case, depression can be said to be negatively related to positive emotions and positively related to negative emotions.

When the regression analysis results (Table 3) regarding the effect of future time perception and hope levels of 1st and 4th grade students on depression levels were examined, the scores obtained from the Future Time Perception Scale were determined not to have a significant effect on the depression level, whereas the acting thoughts scores were found to have a significant effect on the model. When the difference is examined, it is seen that alternative ways and acting thoughts, sub-dimensions of the Trait Hope Scale, negatively affect depression levels. Accordingly, it can be said that the higher the hope level, the lower the depression levels. In his study with university students, Kaya (2014) dealt with loneliness and future time perception as the predictors of students 'level of life satisfaction, and found that future time perception was not a significant predictor of students' life satisfaction. On the other hand, Avcı and Erden (2013) found that the value sub-dimension predicts academic achievement in vocational courses, whereas the sub-dimension of commitment is not a significant predictor. Hope is the source of strength for the future orientation of the individual, an interest in the future and a dynamic structure that makes sense of his life (Cutcliffe & Herth 2002; Sanatani, Schreier & Stitt, 2008). Research results indicate the effect of hope on coping attitudes and psychological symptoms. Accordingly, high levels of hope are positive predictors of healthy coping attitudes and negative emotions such as depression (Bülbüloğlu, 2019). High level of hope has been associated with well-being and psychological resilience (Özer & Tezer, 2010). It was found that those with high hope levels have less self-injurious behavior and negative affect (Akman & Korkut, 1993). Therefore, it should be noticed that as the level of hope decreases, individuals tend to take risky behaviors and dysfunctional coping attitudes will increase (Bülbüloğlu, 2019). As determined as a result of this research, it is seen that alternative ways and acting thoughts, sub-dimensions of the Trait Hope Scale, negatively affect depression levels. Accordingly, it can be said that the higher the hope level, the lower the depression levels. In this context, hope can be said to be an important force for university youth and a supporter of psychological resilience.

When the future time perception, hope and depression levels of the 1st and 4th grade university students were examined according to the grade level variable (Table 4), it was found that there was a significant difference in the total score and commitment sub-dimension of the Future Time Perception Scale ($p \leq .05$). When the arithmetic mean scores regarding the difference were examined, it was seen that the future time perceptions of the first year university students were higher. The positive future expectation levels of university students were examined in a

study, and it was found that first-year university students had the highest level of expectation, as their grade level increased, their positive future expectations decreased, and it was revealed that the lowest positive future expectation was in their senior years (Yıldız, 2018). It has been determined that one of the conditions that affects individuals' perception of future time is age. Accordingly, the difference between the future time perceptions of university students according to their grade levels can be supported by the age variable. Lang and Crstensen (2002) found that increasing age levels of individuals decreases the length of their future time perception and their designs differ. In another study, Bayav (2018) found that the differentiation according to the grade levels of university students is in the value dimension, one of the sub-dimensions of future time perception. In the research conducted by Yıldız (2018), it was determined that the perception of future time differs according to the class level. The perception of the future can shape the individual's focus, can be a source of motivation and perseverance for the individual, and can enable the individual to take action. Thinking deeply for the future is motivational and can lead the individual to plan and make efforts for successive goals (Phan et. al., 2020). As Seginer and Lens (2015) stated, the individual is motivated according to these distant goals set for the future, in other words, individuals with a long time perception can make plans for much longer years than individuals with a short time perception. In this context, individuals should work on their personal scenarios and realize their own life projects in the process of creating a future perspective (Tarhan, 2020, p.201). Hence, it is possible to say that having a perception of future time is a driving force for individuals. When the literature is examined, there are studies that depression does not differ according to grade level. In his research carried out with pre-service teachers, Kara (2019) found that there was no significant difference in the depression levels of pre-service teachers according to grade level. In a study made at a university in Ankara, it was not found that depression caused significant differences according to class level (Evren, Evren, Dalbudak, Topçu & Kutlu, 2019).

Studies indicating that seniors' depression levels are not high have also been found (San et. al., 2020). In the study of Çelik (2019), the depression levels of first year university students are significantly higher. In Demirci, Acar, and Erdoğan's (2018) study with university students, it was observed that students' depression levels differ according to their grade level. In the research of Çöpür (2020) with university students, it was determined that the significant difference stems from the last years. Considering the studies in the literature, it is possible to say that the results of the research on whether depression shows a significant difference according to the grade level or not.

4.2 Recommendations

First of all, educators can benefit from the results of this research for students to prepare their future planning. School psychological counselors for students who lack motivation in vocational guidance and educational guidance may benefit from. It can also be used by career counselors to create future plans for high school students, university students and individuals involved in any exam marathon in the process. According to the results of the study, it may be beneficial for academicians to carry out awareness-raising activities, especially for senior students to gain a perspective on future time perception. Mental health professionals can benefit from the results of this research in the process of instilling hope and restructuring in the treatment of severe psychological conditions such as trauma, grief or separation. If it is necessary to talk about the drawbacks experienced in the research process, it can be expressed as a difficulty to select the sample limited. In future research, researchers may be suggested to create a larger sample that can represent the universe. This research is a relational survey and it has a quantitative pattern. In this context, qualitative research on future time perception can be included in future research. In future research, the relationship between future time perception and success orientations, future time perception and schemas can be examined.

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Smartphone Perception and Experiences of Teacher Candidates During Covid 19 Process: What is My Smartphone for Me?

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Abstract

The purpose of this study is to reveal the experiences of the teacher candidates about their personal phones, their phone usage situations and their perceptions about their smartphones during the Covid-19 process. The mixed method procedure was followed in the study. In the quantitative dimension, the survey model was used in order to reveal the smartphone usage status of the teacher candidates, while in the qualitative dimension, the phenomenology model was used to determine their perceptions about the smartphone. The sample of the study consisted of 45 teacher candidates studying in the faculty of education at a state university located in Turkey's Aegean region during the 2020-2021 fall semester. The data of the study were collected by the researcher with a questionnaire form created by taking the literature review and expert opinion. The quantitative data collected within the scope of the research were subjected to statistical analysis. The metaphors collected in qualitative dimension were analyzed with content analysis. Research findings indicated that the teacher candidates were generally aware of the technical features of their personal phones. On the other hand, it has been determined that they are indecisive in controlling themselves about their phone usage, being dependent on their phones and being aware of their phone time. It has been observed that the teacher candidates produced metaphors for their smart phones that point to the themes of "addiction, functionality, correct use, having a happy time, socialization/communication and other." It can be said that the research is important in terms of providing researchers and decision makers with new perspectives on the smartphone perception and experiences of teacher candidates in the Covid-19 process.

Keywords: Covid-19, Teacher Candidates, Smartphone, Experiences, Perceptions

1. Introduction

In today's world described as knowledge, communication and technology era, especially with the rapid development of communication technologies, different technologies affecting interpersonal communication have appeared. Computer, mobile devices, internet and smartphones can be considered at the top of these technologies.

These technologies are also seen to become indispensable elements of life (Çalışkan, et al., 2017). Today, mobile phones used nearly by everyone and are constantly developed with new generation technologies make human life much easier thanks to their various properties. It can be said that many important features such as talking, messaging and internet access, camera, calculator, flashlight, compass, notepad and bank transactions are collected in one device is the main reason why these phones are so widely used today (Yusufoğlu, 2017). A smartphone is a device that has a number of advanced features as well as talking and texting functions and can quickly perform these features. The smartphone has the functions to view photos, play games, play videos, play or record audio-video via the built-in camera, email, develop some applications for social websites, and surf on the net due to its wireless internet feature (Samwar & Soomro, 2013).

Mankind have always been impressed by the changes in technology throughout his life. Especially the acceleration of technological change in recent years is remarkable (Eren et al., 2020). These changes have certainly led to changes in human attitudes and relationships. With the use of computers, internet and smartphones, the use of these technologies have increased in our lives. While interpersonal communication previously used to be by face-to-face, today, communication channels have found a place in different environments thanks to technologies. Online environments, in particular, rank first in these communication channels. Social groups can meet not only in physical environments where they encounter with each other face-to-face, but also communicate online (Knop, 2016). Individuals agree that using social media channels for work and educational purposes has some benefits and is generally positive (Asterhan & Rosenberg, 2015; Hershkovitz & Forkosh-Baruch, 2013). From this perspective, particularly smartphones offer people a unique experience and allow them to go online with time independence. (Alan & Eyuboğlu, 2012).

It can be stated that smartphones are used by many. According to 2017 data, there are 2.32 billion smartphone users worldwide and this number is expected to rise to 2.87 billion in 2020(Statista The Statistics Portal, 2017). In the report prepared by the Turkish Statistical Institute (TUIK), the ratios of computer, internet and mobile phone use of children in the 06-15 age group are 60.5%, 50.8% and 24.3%, respectively. The average age in which children using mobile phones in the 06-15 age group's starting using mobile phones is 10, while the average starting age in the 06-10 age group is 7, and in the 11-15 age group, it is 11. Among the purposes of using the phone, conversations rank first with 92.8%, followed by gaming with 66.8%, messaging with 65.4%, and internet access with 30.7%. 80% of 06-10 age group children using mobile phones, 62.9% of 11-15 age group children playing games over mobile phones; 29.4% of 06-10 age group children and 76.2% of 11-15 age group children texted (TÜİK, 2013).

In recent years, the rates of university students' possessing mobile internet devices have been increasing (Dahlstrom, et al., 2012). It has become inevitable to encounter students in every corner of college campuses with their heads embedded in a smartphone screen. It has become a constant companion to today's university students even when walking down the street, in elevators, smartphones in classrooms (Reese & Bomhold, 2013) That it enables socializing through online communication and social network allow smartphones to be an important device among high school and university students (Hong, et. al. 2012). Moreover, smartphone use is a characteristic feature of today's young people. (Choliz, 2012; Yılmaz, et al., 2015). The fact that people use a large number of features of smartphones has also led to students taking photos of course notes with their smartphones, rather than taking notes in lessons (Aktaş &Yılmaz, 2017).

Smart phones are at the top of technologies that affect humans and make their life easier. Data concerning the use of smartphones and mobile phone make this clear. According to the data taken from the World Bank, nearly 45% of the world's population uses the internet (World Bank, 2017). When viewed the data on internet use in Europe, 8 out of every 10 people connect to the internet through a smartphone. (Eurostat, 2016). According to the Turkey Statistical Institute (2019), the rate of telephone and internet use in Turkey was determined as 98.7%. These devices offer a high level of use by providing people with a large number of opportunities such as time and space independence, speed, time saving, being portable, easy sharing of information and increasing participation (Güler & Veysikarani, 2019; Yengin, 2016). This can lead to an increase in people's dependence on these devices over time.

That the purchase rate and use periods of smart phones are increasing over time brings different problems caused by these devices. These devices lead to physical and psychological problems due to excessive use (Tamura, et al., 2017). The fact that smartphones have become a part of our lives undoubtedly causes some problems as well. At the beginning of these problems is smartphone addiction. Smartphone addiction is a type of addiction that does not contain any chemicals but when not used, people face psychologically negative situation. (Minaz &Çetinkaya Bozkurt, 2017). One of the negative consequences of excessive use of mobile phones or smartphones is a psychological disorder called nomophobia. Nomophobia", an acronym for the English phrase "no mobilephone phobia," is "fear of being without a smartphone" with a general meaning in Turkish (Türen, et al., 2017). Nomophobic individuals constantly look at the screen, use the phone regularly, constantly check for messages, and experience anxiety when they leave the phone. (Kocabaş & Korucu, 2018). Smartphone addiction can be thought to be a kind of dependence on technology (Lin, et al., 2014). Smartphone addiction can be described as excessive use of the phone, inability to prevent the desire to use it, having problems stopping or minimizing use, being stressed when it cannot be used, and not telling the truth about the duration of use (Kwon, 2013; Savcı & Aysan, 2017).

Recently, it is seen that a number of studies have been conducted on smartphone use and the addictions it creates on people. These studies have included research such as smartphone addiction (Kuyucu, 2017), problematic mobile phone use (Doğan & İlçin-Tosun, 2016) and excessive smartphone use (Lee, et al., 2014). When different studies examined in this perspective, it was observed that nomophobic people experienced stress, anxiety, and insomnia; their school life and academic success were affected negatively; they experienced sadness when (Kuyucu, 2017), they were out of coverage and their battery was run out; social network users were nomophobic in medium level, they keep their phones open 24 hours a day and they check their phones before sleeping and just after waking up. In the literature, studies concerning high school and university students where problems with smartphone use observed much more intensively. Aljomaa, et al. (2016) found that 48% of university students are addicted to smartphones. Kahyaoğlu, et al. (2016) stated that smartphone use among university students was dramatically higher. Minaz, et al. (2017), they indicated in their research investigating addiction levels of university students and their usage purpose that students use their smartphones most for accessing social networks and their smartphone addiction is high. Çalışkan, et al. (2017) carried out a research aimed at determining the addiction levels of teacher candidates. In the study, they pointed to the result that teacher candidates had a smartphone addiction level close to moderate.

When domestic and international studies on smartphone use and addiction are examined, there are not enough studies aimed at investigating the experiences and perceptions of university students about smartphone use and their smartphones though there are a number of studies in the field, especially within the sample of teacher candidates, Thus it is important to investigate the perceptions and experiences from different branches concerning smartphones, especially ones used more during the covid-19 process. Conscious use of smartphones will allow individuals, especially those teenagers to increase their existing human and social capital. Therefore, it can be said that the research within this framework can contribute to the detection of problems and determination of solutions for decision makers and practitioners. The aim of this research is to reveal the experiences of teacher candidates with their personal phones in the Covid-19 process, their phone use and their perceptions about their smartphones.

2. Method

2.1. Research Model

The mixed method procedure, in which qualitative and quantitative research methods were used together, was followed in the study. Mixed method research, in which quantitative and qualitative methods are carried out together, is a type of research used to benefit from the strengths of both methods. Using quantitative and qualitative data together provides the researcher with a better understanding of a problem (Morse, 2003; Creswell & Plano, 2011). In the quantitative dimension of the study, the descriptive survey model was used to reveal the smartphone usage status of the teacher candidates, while in the qualitative dimension, the phenomenological model was used to determine their perceptions about the smartphone. In the descriptive survey model, the subject or the individual in the research is tried to be described as it is in the circumstances (Karasar, 2015). The phenomenological model

is used to reveal common applications and to define and explain meanings/phenomena created by the participants (Annells, 2006).

2.2. Research Sample

This research was carried out with 45 teacher candidates studying at a state university's faculty of education in Turkey's Aegean region in 2020-2021 fall semester. In the study, some criteria were taken into consideration such as the voluntary willing of teacher candidates to participate in the study, easy access of the researcher, ensuring participation from different teaching branches as much as possible, and ensuring the participation of male and female teacher candidates. In this framework, the purposeful sampling method was used to eliminate problems that could adversely affect the results of the research (Given, 2008; Knight et al., 2013). With these processes, it was aimed to ensure the external validity of the research (Merriam, 2013). 25 (%55.5) of the participants are girls and 20 (44.5%) of them are boys. While 16 (36%) teacher candidates from Social Studies education participated in the research, 8 (17.7%) from Classroom education, 6 (13.3%) from Mathematics education, 5 (11%) from Turkish education, 5 (11%) from Psychological Counseling education and 5 (11%) from Science education teacher candidates have participated.

2.3. Data Collection Tool

The data of the study were collected with a questionnaire form which was created by the researcher by taking the literature review and expert opinion. The data collection tool consists of 3 parts:
- The first part includes the questions of the participants about telephone brands and mobile tariffs.
- The second part includes the question (If I were asked to make my phone look like something, I would have likened it ………………. Because …………………) aimed at determining the metaphors the participants produced about their personal phones.
- The third part consists of 5 questionnaire items in 3-point Likert-type, which were created to determine the participants' experiences with their smart phones. The responses to the questionnaire items were scored as "agree (3.00), undecided (2.00) and disagree (1.00)".

2.4. Data Collection and Analysis

In order to collect data, Google Forms online survey application was used. Before the research, teacher candidates were informed about the questionnaire form and an approval section was created where they can give their personal consent before participating in the questionnaire. The quantitative data collected within the scope of the research were subjected to statistical analysis. SPSS 22.00 package program was used in the analysis of quantitative data. In the analysis of the data, "frequency (f), percentage (%), arithmetic mean ($\overline{X}$), standard deviation (Sd.) maximum score (Max.) and minimum score (Min.)" values were examined. The metaphors collected in qualitative dimension were analyzed with content analysis. The main reason for using content analysis is that because of the lack of pre-determined conceptual dimensions (categories) of the data, it is the analysis of the evaluated data under appropriate categories by the researcher. Content analysis is a scientific approach that enables the objective and systematic examination of verbal, written and other materials and their organization according to certain categories (Bilgin, 2006; Bogdan & Biklen, 2007; Lichtman, 2010).

3. Findings

In this section, firstly, the findings regarding the smartphone usage information of the teacher candidates participating in the research are given. Then, findings are reflected regarding their personal smartphone experiences and metaphors which reflecting smartphone perceptions.

Table 1: Smartphone information used by participants

Operating System	Smartphone Brand	f	%
	Samsung	22	49
	Xiaomi	8	18
Android	Huawei	4	9
	General Mobile	2	4
	Casper	1	2
iOS	iPhone	8	18
Total		**45**	**100**

Table 1 shows that the teacher candidates participating in the study use smart phones with both Android and iOS operating systems. In general, it is understood that smartphones with andorid operating systems are preferred more intensely (82%). Teacher candidates mostly use Samsung brand (22, 49%) smartphones. This is followed by Xiaomi (8, 18%), iPhone (8, 18%), Huawei (4, 9%), General Mobile (2, 4%) and Casper (1, 2%) brand phones.

Table 2: Mobile line tariff information used by the participants

Tariffs	$\overline{X}$	Min.	Max.
Internet (GB)	10	2	25
Calls (Minute)	800	250	1000
Messages (Number)	550	100	1000
Fee (Turkish Lira*)	47	30	100

*1 Turkish Lira equals 0.12 US Dollars (13.04.2021).

Table 2 includes mobile line tariff information of teacher candidates participating in the study. It is observed that there is a tendency in tariff preferences of teacher candidates average of 10 GB internet, average of 550 SMS messaging, average of 800 minutes of speech. It is seen that teacher candidates prefer an average of 47 Turkish Lira (TL) mobile line tariffs ranging from 30 TL to 100 TL. In general, it can be said that internet and speaking packages are more determinant in the tariff preferences of teacher candidates.

Table 3: Smartphone experiences of the participants

My Smartphone and Me	$\overline{X}$	%	Sd.
*My smartphone is indispensable in my life.	2,23	74	,79
I know the technical features of my smartphone.	2,50	84	,50
My smartphone usage is under my control.	2,27	76	,75
*I am thinking that I'm addicted to my smartphone.	2,05	68	,82
I am aware of my daily smartphone screen time.	2,14	71	,92

*Reverse coding was done for negative items.

In Table 3, the personal evaluations of the teacher candidates participating in the research about their experiences with their smartphones are reflected. Three of the 5 basic questionnaire items directed to teacher candidates reflect positive smartphone usage experience, while two reflect negative smartphone usage experience. Accordingly, it is understood that personal perceptions of positive smartphone usage experiences of teacher candidates about "knowing the technical features of smart phones (2.50, 84%), the ability to control phone usage (2.27, 76%) and daily screen time awareness (2.14, 71%)" are quite high. On the other hand, it is also observed that the level of personal perceptions of negative smartphone usage experience of teacher candidates about "seeing their smartphone as an essential in their life (2.23, 74%) and thinking that they are dependent on their smartphone (2.14, 71%)" are also high.

Table 4: The metaphors of the participants regarding their smartphone perceptions

Themes	Metaphors	f	%
Addiction	My organ, Octopus, Part of my body, Engagement ring, Bread, Cigarette, Drug, Clock, Clothing, Handcuffs, Clothing pocket, Mask, A third arm, Limb, Bus, Shadow, Dried nuts.	17	36
Functionality	Medicine cabinet, My assurance, Swiss army knife, The mall, Basic need, Combination of technological tools, Car, A minimized World, The school bag, Mask, Pocket computer, Time machine.	12	25
Correct Usage	Money, Time, Rope, Car, Sea, Black box, A lockbox.	7	15
Spending Happy Time	My close friend, My favourite outfit, Chips, My room, The mall, Music box.	6	13
Socializing/Communication	The combination of my soul with technology, Hang out with my friends, Footed news agency, Coffee.	5	11
Total		47	100

In Table 4, metaphor findings reflecting the perceptions of teacher candidates participating in the study about their personal smartphones are given. In the content analysis, teacher candidates produced a total of 47 metaphors that were evaluated in five categories. According to the order of intensity, these metaphors are "addiction (17, 36%), functionality (12, 25%), correct usage (7, 15%), spending happy time (6, 13%), and socializing/communication (5, 11%). categorized under themes. In the study, the metaphors that the teacher candidates produced for their smartphones were discussed separately under these themes.

As seen in Table 4, teacher candidates mostly produced metaphors on the theme of addiction. Under this theme, they produced 17 metaphors in total; " My organ, Octopus, Part of my body, Engagement ring, Bread, Cigarette, Drug, Clock, Clothing, Handcuffs, Clothing pocket, Mask, A third arm, Limb, Bus, Shadow, Dried nuts." Some quotations from teacher candidates' metaphors pointing to the addictive aspect of their smartphones:

My Organ; *I can never separate it from my side in any way. I get uneasy even if he stays in a separate place from me for even a second. It feels like a piece of me is missing* (Participant 8).

Octopus; *When I pick up the phone, I cannot easily put it away. Just like the octopus, it surrounds you* (P3).

Cigarette; *People who smoke do not want to do anything and feel bad when they do not smoke, and they only react properly after smoking and I often feel the need to use it when I am away from the phone. I use it for a long time, although I am aware of its harms like smoking* (P33).

Dried Nut; *When I pick it up like a sunflower seed, I cannot stop. I can't leave my phone* (P15).

Engagement Ring; I *always have my phone in my hand, wondering if I receive a message, even when I don't need it. Just as the engagement ring is always on our finger, I always have my phone* (P40).

Bread; *If I don't eat bread, it will be very good for me, but I can't stop eating it. Without it, I don't feel full. I can't do without a smart phone either* (P23).

Drug; *We feel stressed, irritable and disconnected from life when we take it or not. Just like drugs, our smart phones literally create people who are dependent on them* (P41).

The second important theme regarding the metaphors produced by the teacher candidates was the theme of functionality. Under this theme, they produced 12 metaphors in total; "Medicine cabinet, My assurance, Swiss army knife, The mall, Basic need, Combination of technological tools, Car, A minimized World, The school bag, Mask, Pocket computer, Time machine." Some quotations from teacher candidates' metaphors pointing to the functionality aspect of their smartphones:

Medicine Cabinet; *It meets many of my needs, it answers all my questions, I can find what I want there, when something happens, our smart phone comes to our mind first, we take it in our hands and take care of it immediately. Just like looking at the first medicine cabinet when something happens to us* (P5).

My Assurance; *I keep a lot of notes and information in it. I set alarms, one device provides the possibility to do a lot of things. Especially in such a period when everything is being digitalized, I feel the need to control my phone at all times* (P44).

Swiss Army Knife; *I handle almost every job with my phone and it is very useful. I can listen to music, watch movies, attend live classes, pay my bill and do dozens of other things easily on my phone. Just like the Swiss army knife's scissors, screwdriver, can opener functions* (P2).

A Minimized World; *I can be informed about all the developments in the world thanks to the phone.* (P10).

Time Machine*; We can get information about both the future and the past* (P21).

Pocket Computer; *I can do almost everything the computer does with the phone* (P35).

The third important theme regarding the metaphors produced by the teacher candidates was the theme of correct usage. Under this theme, they produced 7 metaphors in total; "Money, Time, Rope, Car, Sea, Black box, A lockbox." Some quotations from teacher candidates' metaphors pointing to the correct use of smartphones:

Money; *When you have little money, you learn to share with people and help you, but when you have a lot of money, you become selfish and lonely. If we use the phone less, we are in contact with people, if we use it too much, we become lonely, we move away from people.* (P1).

Sea; *If you want, you can have fun and fish there, but if you do not know how to swim and the harmful creatures in it, it is equally dangerous. Likewise, if he/she does not know how to use the phone correctly, it can be lost in a person and harm himself.* (P9).

Car; *I can do without my own car. But if I have a car of my own, my life becomes easier and more comfortable. But if I am not careful in driving, I may encounter bad results in my over speeding.* (P12).

Black Box; *As we open up it, we get a lot of news that we do not know, good or bad. We do not know what will come out, what we will encounter every time we take it. Maybe good news, maybe an expected search or unexpected information* (P30).

Rope; *When appropriate, a swing is made and becomes a fun and useful thing. If you do not know what to do with the rope, it will get around and become an object that tries to strangle you.* (P38).

The fourth important theme regarding the metaphors produced by the teacher candidates was the theme of spending happy time. Under this theme, they produced 6 metaphors in total; "My favourite outfit, My close friend, Chips, My room, The mall, Music box." Some quotations from teacher candidates' metaphors pointing to the aspect which their smart phones enabled spending happy time:

My Favourite Outfit; *I feel very happy and peaceful that day when I wear my favourite outfit. Likewise, I am happy while browsing the videos I enjoy during the day or entertainment platforms with my phone too* (P18).

My Room; *Sometimes I retires to my own room to relax and doesn't leave for a long time; I write, draw, compose something. I leave when I pour out my feelings* (P19).

Music Box; *I love listening to music. I use my smartphone mostly to listen to music* (P36).

Chips; *I don't need it, but a snack that I enjoy too much, I know it harmful to me, but I continue to eat it because it gives me a good pleasure.* (P42).

The last theme regarding the metaphors produced by the teacher candidates was the socialization/communication theme. Under this theme, they produced 5 metaphors in total; "The combination of my soul with technology, Hang out with my friends, Footed news agency, Coffee." Some quotations from teacher candidates' metaphors pointing to the aspect which their smart phones contributed to their socialization and communication:

Hang Out with My Friends*; We can also do the same in virtual environments.* (P26).

The Combination of My Soul with Technology*; We download our favorite music, fun apps and games to our phones. In addition, we follow people with the characters we want to be on social media, and put pictures that we are happy with. We share the photos we take in the environments we love.* (P7).

Footed News Agency; *I can get news instantly, especially from the Twitter without almost looking at the television or newspaper* (P25).

Coffee; *Because My smartphone is always with me when I gather to chat with people and spend time alone in my spare time* (P13).

4. Result, Discussion and Conclusion

According to the research, it is understood that teacher candidates mostly preferred phones with the android operating system (80%). In this category, Samsung was the most preferred phone brand (40%). On the other hand, iPhone users with Xiomi in the collocation of preferred phone brands. Although it was obtained from a small sample, this proportional finding of the study can also be said to be proportional to the 2015 World market Share [Android (81%), iOS (18%)] regarding the preferences of the respective operating systems (Wikipedia, 2021).

When the results of the research on phone tariff preferences of teacher candidates are examined, it is seen that internet and talk time are a more decisive factor in tariff package preferences, and the preferred tariff fees are also high within this framework. According to research findings, it is understood that teacher candidates tend to prefer internet packages of 10GB on average, ranging from 2 GB to 25 GB. It can be said that this condition is in line with the growing internet package preference tendency of general consumers especially during the Covid-19 process. (Fauzi & Sastra, 2020; Whitelaw et al., 2020; İnce & Kadıoğlu, 2020; Baltacı, et. al., 2021). It is an interesting phenomenon in some studies that teacher candidates mostly followed their distance education lessons through their personal phones (Kırmızıgül, 2020; Warren & Jean, 2020; Tejedor, et al., 2020). Although they utilize fixed internet at home, it can be said that teacher candidates are also turning to tariffs where more internet services are offered in mobile line packages in the process. Research findings show that teacher candidates are tending to mobile tariff fees, which can be considered as high as 47 TL on average, ranging from 30 TL to 100 TL.

In the scope of research, it has also been tried to determine the smartphone experiences of teacher candidates. In this regard, teacher candidates stated that they know the technical features of their smartphones (84%), have high smartphone self-control skills (76%) and are aware of daily screening time (71%). On the other hand, it is understood that their opinion that their smartphones are essential in their lives (74%) and that they are addicted to their smartphones (68%) stands out in the same way. This result of the study points out to the existence of a dilemma about teacher candidates' experiences with their personal smartphones. On the one hand, teacher candidates express that they can control themselves about their smartphones. On the other hand, they indicate that they are dependent on their smartphones. This result can also be interpreted in such a way that teacher candidates do not have high self-consciousness/awareness of smartphone use. The research conducted by Kana (2020) also draws attention to this dilemma. In the study, while Turkish teacher candidates mention about the positive aspects of mobile phones, making life easier on the one hand, they address its respects that are addictive and affect their pyschology negatively on the other. Geçgel (2020) pointed out in their research that teacher candidates stated they were uncomfortable with excessive smartphone usage times, trying to control it, but mostly failing.

Within the scope of the research, teacher candidates have produced 47 metaphors that reflect their perception of their personal smartphones. On examining these metaphors, it has been determined that there were perceptions pointing to the themes of "addiction, functionality, proper use, happy time, socialization/communication and other." Research results pointed that teacher candidates' perceptions of their personal smartphones are most shaped by the fact that their smartphones are addictive and functional. Under the addiction theme, they produced 17 metaphors in total. These are: "My organ, Octopus, Part of my body, Engagement ring, Bread, Cigarette, Drug, Clock, Clothing, Handcuffs, Clothing pocket, Mask, A third arm, Limb, Bus, Shadow, Dried nuts.". When their explanations for these metaphors were examined, it was observed that perceptions indicating its existence "fear of being without a smartphone," known as "nomophobia," such as the inability to leave his smartphone, feeling restless in its absence, and not being able to break away from it even if he knows it is harmful, stood out as a rather dominant factor. Similarly, some studies also indicate that smartphones, social media and the Internet negatively affect the communication of individuals, are addictive applications and create psychological problems in individuals (Tang & Lee, 2013; Boulianne, 2015). On the other hand, under the theme of functionality, pointing that smartphones of teacher candidates are functional, they produce 12 metaphors including "Medicine cabinet, My assurance, Swiss army knife, The mall, Basic need, Combination of technological tools, Car, A minimized World, The school bag, Mask, Pocket computer, Time machine." Upon examining their explanations concerning metaphors in this category, it can be said that their perceptions regarding functionality of smartphones also stand out in terms of features such as the facility to quickly and rapidly access to the desired information via internet;

being aware of all the developments in the world; listening to music, watching movies, following live lessons, having multi-purpose and multi-faceted functions such as digital banking and make their users' work easier. Bulduklu and Özer (2016) have stated in their study that attitudes of young people towards their smartphones are positive due to their features such as accessing information, facilitating communication, mobility, simplifying life, spending time, social relationship, saving time and sharing. In this study; Money, Time, Rope, Car, Sea, Black box, a lockbox, which points out that the teacher candidates should use smartphones correctly and consciously, apart from the themes of addiction and functionality featured in this study "a total of 7 metaphors, including " My favorite outfit, My close friend, Chips, my room, the mall, music box, indicating that their smartphones allow them to have a happy and fun time. "a total of 6 metaphors, including;" the combination of my soul with technology, Hang out with my friends, Footed news agency, Coffee," which points to the perspective that their smartphones contribute to socialization and communication, they produced a total of 5 metaphors. It can be said that these results of the study also overlap with the results of some studies conducted in the literature. Teacher candidates pointed out that smartphones should be used as properly and competently besides their functionality, and that if they are not used in this way, there will be negative consequences for them. On the other hand, they have also indicated that smartphones have a significant part in many fun activities that give them happiness in their personal lives and can contribute to building closer and social relationships with their environment and friends. In the study, when metaphors which teacher candidates put forward so as to reflect their perceptions regarding their personal smartphones and metaphors that are thought to represent the 5 separate themes are evaluated in a holistic manner, it can be claimed that these themes are linked with each other and that these young individuals should be addressed in a holistic way in understanding their smartphone perceptions. Because in this study, it has been observed that teacher candidates have both positive and negative perceptions about their personal smartphones and do not evaluate their smartphones in only one single aspect. This situation is reflected in figure1. However, given both the sample of the research and the limitations of the research, it is thought that this situation should be handled as a more deeply and comprehensive research topic.

Figure 1: The holistic structure of teacher candidates' perceptions of smart phones.

5. Suggestions

Within the framework of the findings and results obtained within the scope of the research, a number of recommendations for researchers, practitioners and decision makers can be shared: Class hours of media literacy elective courses given to teacher candidates through undergraduate education may be increased. Course content can be diversified, especially for effective and productive smartphone use and smartphone management. The

number and variety of activities such as conferences, workshops and seminars can be increased in themes such as media literacy, digital literacy, media and communication tools, smart phones and mobile applications conducted by universities and non-governmental organizations. Workshops and competitions for creating ideas for functional smartphone applications (mobile applications/app) can be organized between universities/ faculties of education. Different studies can be conducted in which the smartphone perception, attitude, tendency, experiences of teacher candidates is examined more profoundly. More far-reaching research can be done in teacher, candidate and student samples.

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Investigation of Mathematics Teachers' Self-Efficacy in Teaching Mathematics in the COVID-19 Pandemic Process

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Abstract

Teachers' beliefs about teaching mathematics have a great influence on students' success in mathematics. In addition, teachers with high teaching efficacy beliefs create classroom environments where students can be more successful. In the light of this information, the importance of understanding mathematics teachers' beliefs about their competence has to be considered in mathematics teaching. In this study, a relational survey model was used to examine secondary mathematics teachers' efficacy beliefs about teaching mathematics in terms of some variables. The sample of the study consists of 165 mathematics teachers selected with the stratified sampling method. In this study, Mathematics Teaching Efficacy Belief Scale, developed by Enochs, Smith, and Huinker (2000) and adapted to Turkish by Takunyacı and Aydın (2013) was used. The first finding of our study is mathematics teachers' beliefs about mathematics teaching were medium level. The second finding of our study is the personal mathematics teaching efficacy beliefs of male teachers were significantly higher than female teachers, while female teachers' efficacy beliefs about outcome expectations in mathematics teaching were significantly higher than male teachers. The third finding of our study is efficacy beliefs of mathematics teachers working in private high schools about the outcome expectation in mathematics teaching were significantly higher than the mathematics teachers working in public high schools. In the last finding of our study, it was found that the personal mathematics teaching efficacy beliefs of mathematics teachers with professional seniority of 11 years or more were significantly higher than teachers with professional seniority of 0-5 years.

Keywords: Self-Efficacy, Teacher Efficacy, Teaching Efficacy, Efficacy Belief

1. Introduction

Self-efficacy is a person's belief in the ability to perform a certain task or to perform a certain action (Bandura, 1977). The level of competence for a particular task or action determines whether a person will perform the task or action, and the amount of effort spent to overcome the task or any challenge (Bandura, 1977; Hackett & Betz, 1989). Self-efficacy is not static, and an individual's level of competence may also change depending on new experiences or actions (Bandura, 1986; Pajares, 1996; Pajares & Miller, 1994). Self-efficacy beliefs also affect individuals' emotions and cognitive processes when doing a task. For example, people with low self-efficacy for

a particular task may believe that the task is more difficult than it actually is. Such beliefs will feed stress, fear, and disrupt the cognitive process of the person in finding a solution rearding the task.

Bandura (1977) grouped self-efficacy under two headings as outcome expectation and efficacy expectation. Outcome expectation is a person's assessment of what behavior is necessary to achieve the desired outcome. An Efficacy expectation is a belief that the behavior required to achieve the desired result can be applied. Outcome expectancy, individuals can determine the course of action required to produce the desired outcome (Bandura 1986; Guskey & Passaro, 1994; Hackett & Betz, 1989; Zimmerman, 2000). However, if individuals do not believe that they can perform the action, knowing the course of the action does not affect their behavior towards the action. Expectations of efficacy will determine the person's behavior towards performing the action, the amount of effort and even the time spent to realize the flow of the action (Bandura, 1986; Maddux, Norton, & Stoltenber, 1986; Pajares, 1996; Pajares & Miller, 1994; Schunk, 1991; Zimmerman, 2000). Self-efficacy beliefs can be modified or reinforced by performance achievements, indirect experiences (seeing a peer or adult complete a task successfully), verbal persuasion (encouraged by peers and adults), and physiological states (excited about the task) (Bandura 1977, 1986; Zimmerman, 2000). The adverse effect may prevail if the student fails repeatedly, sees unsuccessful models on the task, does not receive positive feedback, or is discouraged, or experiences stress or fear as part of the task.

Studies on self-efficacy beliefs especially teacher efficacy (Ashton & Webb, 1986; Bandura, 1986; Guskey & Passaro, 1994), mathematics self-efficacy (Hackett & Betz, 1989; Pajares, 1996; Pajares & Miller, 1994; Kranzler and Pajares, 1997), and mathematics teaching proficiency (Bates, Kim, & Latham, 2011; Enochs, Smith, & Huinker, 2000; Swars, 2005) have gained a lot of attention in the field of education in recent years.

Existing research point out many factors including students' achievement in mathematics, socio-economic status, and attitude towards mathematics (Keith & Cool, 1992; Secada, 1992). Mathematical beliefs (Schoenfeld, 1985), teacher self-efficacy (Bandura, 1993; Gibson & Dembo, 1984; Knapp, Copland & Talbert, 2003), and teacher math competence (Ball, 1990; Charalambous, Philippou, & Kyriades, 2008; Hill, Rowan and Ball, 2005; Glidden, 2008), which are also defined as having an impact on student performance. Among all the factors involved in student achievement, high-quality teacher training and teaching efficacy, which is defined as the teacher's self-esteem towards the subject taught, are defined as potential reasons for increasing student success (Knapp, Copland, & Talbert, 2003). In addition, teacher self-efficacy affects teachers' behavior in the classroom, the classroom environment, teaching techniques, and thus the success of their students (Bandura, 1993; Ross, 1994; Pajares, 1996).

Teacher competence has been studied extensively since the early 1970s and has been expressed as the degree of belief that the teacher's effort will have a positive effect on student learning and success. Bandura (1977) defined teacher efficacy as a belief in a particular type of self-efficacy or in teachers' capacity to perform at a certain level (low or high). The indicator of teacher efficacy can be explained by the teaching methods and strategies teachers prefer for effective teaching (Gibson & Dembo, 1984; Ross, 1994). The efficacy level of the teacher determines the amount of effort made, the duration of encountering obstacles, the level of resilience in coping with failures, and the level of stress or depression teachers experience when faced with difficult situations (Bandura, 1977; Ashton & Webb, 1986). Teachers who have a low sense of teaching efficacy or a low sense of personal teaching efficacy strive to look for the reasons for their students' failure, low motivation and attitudes (Gibson & Dembo, 1984). Teachers with a high sense of teaching efficacy have firm beliefs that they can take personal responsibility for student learning in reaching students who have difficulties in learning (Bandura, 1997; Gibson & Dembo, 1984; Ashton & Webb, 1986).

Teacher self-efficacy consists of personal teaching efficacy and teacher outcome efficacy (Allinder, 1995; Swars, 2005). Personal teaching efficacy is a teacher's belief in their ability and ability to positively affect student achievement, while teacher outcome efficacy is a teacher's belief that the education system can produce results for all students regardless of external influences as socio-economic status, family life, motivation or other personal circumstances that may be influential (Swackhamer, Koellner, Basile, & Kimbrough, 2009; Swars, 2005).

Teaching efficacy belief is a motivational concept that defines the beliefs a person has about their ability to accomplish a specific task (Bandura, 1977; Bong & Skaalvik, 2003). Social cognitive theory states that self-efficacy beliefs are among the strongest predictors of human motivation for behaviors (Bandura, 1993). It is known that belief in teaching efficacy is a key factor in teacher development and has a strong influence on teachers' practices, student achievement, and implementation of new teaching strategies (Allinder, 1995; Klassen & Tze, 2014; Moore & Esselman, 1992; Putman, 2012; Swackhamer et al., 2009; Tschannen-Moran, Woolfork Hoy & Hoy, 1998; Watson, 1991; Velthuis, Fiser, & Pieters, 2014). Teachers with high teaching efficacy beliefs create classroom environments in which students have the opportunity to be more successful, teachers with low teaching efficacy beliefs are not very dependent on teaching, avoid teaching-centered problems and are more likely to be exhausted (Bandura, 1993; Czerniak, 1990; Guskey, 1985; Swackhamer et al., 2009).

Mathematics self-efficacy is a person's perceived ability in the context of mathematics (Pajares, 1996). Hackett and Betz (1989) defined it as a self-assessment of one's self-confidence to perform a specific math task or solve a math problem. Mathematics self-efficacy is different from a person's attitude towards mathematics, self-concept, or belief in mathematics. Mathematics self-efficacy is specific to a certain area and the person who says "I can solve algebraic equations" shows a high sense of self-efficacy in this area. The expression "I am good at mathematics" is related to the self-concept towards mathematics in general, that is, to what extent a person is confident of himself without performing well in mathematics (Pehlivan & Köseoğlu, 2011).

Teachers have mathematics self-efficacy at various levels such as mathematics content knowledge, teacher preparation, student achievement results, individual's personal efficacy level and their own mastery level (Bandura, 1986; Gresham, 2008). Mathematics self-efficacy is an important factor in mathematics education, and the level of mathematics self-efficacy a teacher brings to the classroom will also determine the quality of mathematics instruction students receive (Berger & Karabenick, 2011; Rosário, Lourenco, Paiva, Rodrigues, Valle, & Tuero-Herrero, 2012). According to Swars (2005), mathematics self-efficacy is an important predictor of mathematics teaching strategies, and teachers with high mathematics self-efficacy are more effective mathematics teachers than teachers with lower efficacy beliefs.

Mathematics teaching self-efficacy can be explained as teachers' personal beliefs about their own efficacy beliefs in mathematics teaching and an individual's personal perception of their ability to teach mathematics to others (Enochs, Smith, & Huinker, 2000). Teaching mathematics self-efficacy is defined not as an attitude of teachers towards teaching mathematics, but as a belief that the teacher can help their students learn mathematics (Bates, Latham, & Kim, 2011; Swars, Hart, Smith, Smith, & Tolar 2007). Teachers who have higher mathematics teaching self-efficacy tend to rely more on trying different strategies and teaching mathematics skills during teaching (Bates, Kim, & Latham, 2011). Mathematics ability alone is not enough for an individual to become an effective teacher, and pre-existing beliefs about learning and teaching, as well as mathematics ability, play an important role in planning and implementing mathematics lessons for prospective teachers and those new to the teaching profession (Benbow, 1995).

In studies on teachers' mathematics teaching efficacy beliefs, it has been revealed that despite the numerous professional development programs and guidelines prepared on mathematics teaching, teachers consider themselves inadequate in mathematics teaching (Marrongelle, Sztajn & Smith, 2013; Swars, Hart, Smith, Smith, & Tolar, 2007). In addition, Borko and Whitcomb (2008) stated that the negative views and beliefs of primary school teachers who work in the first level of education indirectly affect the quality of teaching and student achievement. It has also been observed in studies that beliefs have a strong effect on students' achievement in planning, implementing and decision-making processes of teachers' teaching (Fives & Buehl, 2016; Kitsantas, Ware & Cheema, 2010; Klassen & Tze, 2014; Mansour, 2009; Peters-Burton & Frazier, 2012; Schoenfeld, 2015; Skott, 2015; Thomson & Gregory, 2013; Tschannen-Moran & Woolfolk Hoy, 2001).

Studies on mathematics teaching efficacy beliefs (Charalambous, Philippou ve Kyriakides, 2008; Richardson ve Liang, 2008; Swars et al., 2007; Utley, Moseley & Bryant, 2005) show that teachers with high levels of proficiency are more likely to apply new teaching and adopt innovations and set higher goals for themselves and their students

(Schunk, Pintrich, & Meece, 2008). Therefore, the importance of teachers' efficacy beliefs in influencing teaching goals and classroom practices draws attention (Velthuis, Fisser, & Pieters, 2014).

Considering the importance of understanding mathematics teachers' beliefs about their efficacy beliefs in mathematics teaching; This study is thought to make a significant contribution to the field in determining the efficacy beliefs of secondary school mathematics teachers in teaching mathematics. For this purpose, the following questions were sought in the study:

1. What is the level of mathematics teachers' mathematics teaching efficacy beliefs?
2. Is there a significant difference on mathematics teachers' mathematics teaching efficacy beliefs according to some demographic variables such as gender, school type, and professional seniority?

2.Method

2.1. Research Design

In this study, a relational screening model, one of the quantitative research methods, was used to examine the efficacy beliefs of secondary school mathematics teachers in teaching mathematics in terms of some variables. Relational scanning is defined as an approach that aims to determine the existence of change between two or more variables (Karasar, 2003).

2.2. Study Population and Sample

The universe of our research consists of teachers working in public and private secondary schools affiliated to the Ministry of National Education in Turkey. The sample of the study consists of 165 mathematics teachers selected by stratified sampling method at 95% confidence level. Stratified sampling is a sampling method that aims to identify subgroups in the universe and represent them with their ratio within the size of the universe (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2010). Demographic characteristics of the participants are summarized in Table 1.

Table 1: Demographic Characteristics of Mathematics Teachers

Variable		%	N
Gender	Male	58.2	96
	Female	41.8	69
School Type	Public Secondary School	67.9	112
	Private Secondary School	32.1	53
Professional Seniority (years)	0-5	17.0	28
	6-10	17.6	29
	11-15	18.8	31
	16-20	20.0	33
	21 and +	26.0	44

According to the information given in Table 1, approximately 58.2% of the teachers are male and 41.8% are female. 67.9% of the teachers work in public schools and 32.1% in private schools and the category in which teachers have the highest rate in terms of time spent in the profession seniority is between 21 and + years (26.0%) and this is between 16-20 years (20%) is following.

2.3. Data Collection Tools

Mathematics Teaching Efficacy Belief Scale: The scale that was used in the study was developed by Enochs, Smith, and Huinker (2000) and was adapted into Turkish by Takunyacı and Aydın (2013). The scale was designed in a 5-point Likert type (from "Strongly Disagree" to "Strongly Agree"). The scale consisted of 21 items and two factors; first factor is called Personal Mathematics Teaching Efficacy (PMTE) consisting 13 items and second factor is called Mathematics Teaching Outcome Expectancy (MTOE) consisting 8 items. The highest score that can be obtained from this scale is 105, and the lowest score is 21. High scores indicate high efficacy beliefs in teaching mathematics.

2.4. Data Analysis

The descriptive statistics (arithmetic mean and standard deviation etc.) of the answers given by mathematics teachers regarding the items in the *Mathematics Teaching Efficacy Belief Scale* were calculated in order to reveal their self-efficacy in teaching mathematics. The normality values of the data obtained from the scale were tested with Kolmogorov-Smirnov and Kurtosis-Skewness values. It is accepted by Tabachnik and Fidell (2013) that if the skewness and kurtosis values are between -1.5 or +1.5, the distribution shows a normal distribution. In our study, parametric tests (t-test for independent groups) were used in the analysis of the data, since the scale data provided the assumptions of normality according to gender and school type (kurtosis between -.367 and .501; skewness values between -.211 and .712). Nonparametric tests (Kruskall Wallis, Mann Whitney U) were used in the analysis of the data, since the scale data did not provide normality assumptions in the distribution of teachers according to their professional seniority (kurtosis between -3.341 and 2.101; skewness values between -2.523 and 1.723).

3. Results

In this section, the data obtained in the research are presented and interpreted according to the sub-problems.

First sub-problem:
What is the level of mathematics teachers' mathematics teaching efficacy beliefs?
The average of the total scores obtained from the Mathematics Teaching Efficacy Belief scale are given in Table 2.

Table 2: Descriptive statistics for scores

	N	$\overline{X}$	SD	$\overline{X}_a$
Personal Mathematics Teaching Efficacy	165	43.30	4.12	3.72
Mathematics Teaching Outcome Expectancy	165	20.12	5.88	3.32
Total	165	63.42	3.67	3.59

Average of the total scores ($\overline{X}$), Standard deviations (sd), and Arithmetic means ($\overline{X}_a$)

The average of the total scores obtained from the Mathematics Teaching Proficiency Belief Scale was $\overline{X}$= 63.42. According to this value, mathematics teachers' beliefs about mathematics teaching are at a medium level. When the arithmetic average of the scores obtained from the sub-factors of the scale ($\overline{X}_a$= average score from the relevant sub-factor / number of items) are examined, it is seen that the beliefs of mathematics teachers about personal mathematics teaching ($\overline{X}_a$= 3.72) are higher than their beliefs about the result expectation in mathematics teaching ($\overline{X}_a$= 3.32).

Second sub-problem:
Is there a significant difference on mathematics teachers' mathematics teaching efficacy beliefs according to the variables of gender, school type, and professional seniority?

➤ Independent t-Test was conducted for independent groups to determine whether there is a significant difference on the average of the total scores obtained from scale according to the gender variable. The results of these analyzes are given in Table 3.

Table 3: Independent t-Test results for gender

	Gender	N	$\overline{X}$	Sd	t	p
Personal Mathematics Teaching Efficacy	Male	96	45.19	3.44	4.245	.043*
	Female	69	36.64	3.12		
Mathematics Teaching Outcome Expectancy	Male	96	19.93	4.35	3.657	.038*
	Female	69	25.08	5.76		
Total	Male	96	65.12	4.45	1.012	.405
	Female	69	61.72	3.76		

*p < .05

It was determined that the total scores obtained from the replies given by the female and male teachers regarding the Mathematics Teaching Efficacy Belief Scale did not differ statistically according to the gender (t = 1.012, p> .05). In Table 3, the average of male teachers' mathematics teaching efficacy belief scores was found to be $\overline{X}$ = 65.12, while it was found to be $\overline{X}$ = 61.72 for female teachers. Here, although the scores of male teachers in mathematics teaching efficacy belief were found to be high, it was found that this was not statistically significant. According to this finding, it can be said that teachers' mathematics teaching efficacy beliefs do not change according to the teachers' gender.

It was observed that there was a significant increase in the efficacy scores of male teachers (t = 4.245, p <.05) in the factor of "Personal Mathematics Teaching Efficacy" which is the sub-factor of the scale. According to this finding, it was found that male teachers' *personal mathematics teaching efficacy beliefs* ($\overline{X}$ = 45.19) were significantly higher than female teachers' beliefs ($\overline{X}$ = 36.64). As a result, it can be said that teachers' *personal mathematics teaching efficacy beliefs* vary according to teachers' gender.

We can see in Table 3, a significant increase was found in the efficacy scores of female teachers (t = 3.657, p <.05) in the factor of "Mathematics Teaching Outcome Expectation" which is the sub-factor of the scale. According to this finding, it was found that female teachers' beliefs about *outcome expectations in mathematics* teaching ($\overline{X}$ = 25.08) were significantly higher than that of male teachers ($\overline{X}$ = 19.93). As a result, it can be said that teachers' beliefs about *outcome expectations in mathematics teaching* vary according to teachers' gender.

➤ Independent t-Test was conducted for independent groups to determine whether there is a significant difference on the average of the total scores obtained from scale according to the school type variable. The results of these analyzes are given in Table 4.

Table 4: Independent t-Test results for school type

	School Type	N	$\overline{X}$	Sd	t	p
Personal Mathematics Teaching Efficacy	Public high school	112	46.28	3.71	1.721	.453
	Private high school	53	42.65	3.02		
Mathematics Teaching Outcome	Public high school	112	16.20	3.55	4.512	.012*
	Private high	53	21.71	3.82		

Expectancy	school					
Total	Public high school	112	62.48	3.55	1.430	.412
	Private high school	53	64.36	2.82		

*p < .05

It was determined that the total scores obtained from the answers given by the teachers regarding the Mathematics Teaching Efficacy Belief Scale did not differ statistically according to the public ($\bar{X}$ = 62.48) and private high schools ($\bar{X}$ = 64.36) in which the teachers worked (t = 1.430, p> .05). According to this finding, it can be said that the mathematics teaching efficacy beliefs of the mathematics teachers working in public and private high schools are similar.

It was found that there was no statistically significant difference between private ($\bar{X}$ = 42.65) and public ($\bar{X}$ = 46.28) high schools teachers' scores obtained from the factor of "Personal Mathematics Teaching Competence" (t = 1.721, p> .05). According to this finding, it can be said that public and private high school teachers' personal mathematics teaching efficacy beliefs are similar.

We can see in Table 4, a significant increase was found in the efficacy scores of teachers working in private high schools (t = 4.512, p <.05) in the factor of "Mathematics Teaching Outcome Expectation." According to this finding, it was found that private high school teachers' beliefs about *outcome expectations in mathematics* teaching ($\bar{X}$ = 21.71) were significantly higher than that of public high school teachers ($\bar{X}$ = 16.20). As a result, it can be said that teachers' beliefs about outcome expectations in mathematics teaching vary according to the variable of school type.

➤ Kruskal Wallis H Test was conducted for independent groups to determine whether there is a significant difference on the average of the total scores obtained from scale according to the professional seniority variable. The results of these analyzes are given in Table 5.

Table 5: Kruskal Wallis H Test results for professional seniority

	Professional Seniority (year)	N	Mean rank	X^2	p
Personal Mathematics Teaching Efficacy	0-5	28	33.42	6.533	.032*
	6-10	29	35.48		
	11-15	31	39.71		
	16 -20	33	38.66		
	21 and +	44	37.55		
Mathematics Teaching Outcome Expectancy	0-5	28	28.02	7.812	.422
	6-10	29	29.75		
	11-15	31	28.84		
	16 -20	33	28.66		
	21 and +	44	23.65		
Total	0-5	28	61.44	9.186	.401
	6-10	29	65.23		
	11-15	31	68.55		
	16 -20	33	67.32		
	21 and +	44	61.20		

*p < .05

The findings in Table 5 show that there is no significant difference between the total scores of mathematics teachers obtained from the whole scale according to their professional seniority and the total scores they got from the sub-

factor of "Mathematics Teaching Results Expectation." This finding revealed that teachers have similar beliefs (p> .05).

When the scores obtained by mathematics teachers from the sub-factor of "Personal Mathematics Teaching Efficacy" were examined, it was found that there was a statistically significant difference between the scores of the teachers according to their professional seniority. According to the results of the Mann-Whitney U test conducted to find out which professional seniority this significant difference is; it was found that teachers whose professional seniority was 11 years and above had significantly higher personal mathematics teaching efficacy beliefs than teachers with professional seniority of 0-5 years.

4. Discussion and Conclusion

Scarpello (2010) stated that teachers at all levels of education have many different backgrounds, especially primary school teachers' beliefs about teaching mathematics and their ability to successfully guide students in teaching mathematics. The mathematics education students receive in primary school forms the basis of their future mathematics-related academic careers, which shows the importance of an efficient mathematics education (Jordan, Glutting, & Ramineni, 2010).

Studies have shown that the better a teacher understands mathematics, the higher their self-efficacy beliefs in teaching mathematics are (Enochs, Smith, & Huinker, 2000; Newton, Leonard, Evans & Eastburn, 2012). In addition, the expectation that teaching will result in learning (Enochs, Smith & Huinker, 2000) and teaching competence directly affects student performance in mathematics was explained by teachers' mathematics teaching efficacy beliefs (Bandura, 2012; Bates, Kim & Latham, 2011; Bong & Clark, 1999; Vadahi & Lesha, 2015; Varghese, Garwood, Bratsch-Hines, & Vernon-Feagans, 2016).

Considering the importance of determining mathematics teachers' beliefs about their efficacy in mathematics teaching, it is thought that this study will make a significant contribution to the field. In the first finding of our study, it was found that mathematics teachers' beliefs about mathematics teaching were medium level, and mathematics teachers' *beliefs about personal mathematics teaching* were higher than their *beliefs about outcome expectancy in mathematics teaching*. In the study performed by Dede (2008) on thirty mathematics teachers, it was found that self-efficacy beliefs towards the teaching of mathematics teachers were at a high level.

In the second finding of our study, it was found that teachers' mathematics teaching efficacy beliefs did not change according to the teachers' gender, in other words, female and male teachers' mathematics teaching efficacy beliefs were similar. Hacıömeroğlu and Şahin-Taşkın (2010) showed similarities with the findings of the study they conducted with prospective classroom teachers, and it was stated that female and male teacher candidates' efficacy beliefs for teaching mathematics did not differ. It was found that male teachers' personal mathematics teaching efficacy beliefs were significantly higher than female teachers. However, Hacıömeroğlu and Şahin-Taşkın (2010) stated that female teacher candidates' beliefs that they could perform more effective practices in the process of teaching mathematics in the classroom were significantly higher and sufficient than male candidates. This situation ensures that female teacher candidates have high beliefs about outcome expectations in teaching (Akbaş & Çelikkaleli, 2006). For this reason, in our study, it was found that female teachers' beliefs about outcome expectations in mathematics teaching were significantly higher than that of male teachers.

In the third finding of our study, it can be said that mathematics teachers', working in public and private high schools, mathematics teaching efficacy beliefs, and *personal mathematics teaching efficacy beliefs* are similar. However, it was found that mathematics teachers' *beliefs about the outcome expectations in mathematics teaching* working in private high schools were significantly higher than mathematics teachers' working in public high schools.

In the last finding of our study, when mathematics teachers' self-efficacy beliefs about teaching mathematics according to their professional seniority were examined; It was found that teachers' beliefs about mathematics

teaching efficacy beliefs and mathematics teaching outcome expectations did not change according to the seniority variable, in other words, teachers' mathematics teaching efficacy beliefs of different professional seniority years were found to be similar. This finding does not coincide with the outcome expectancy theory expressed as Bandura's (1997) belief that a teacher's outcome expectancy in teaching will improve with his experience. In addition, personality differences between teachers with different years of experience were explained by Ryan (1981), Newman (1979), and Burden (1979) and stated that teachers with similar experiences have common teaching beliefs and attitudes. However, in our study, it was found that mathematics teachers' personal mathematics teaching efficacy beliefs with professional seniority of 11 years or more were significantly higher than teachers with professional seniority of 0-5 years. Similarly, Ginns and Watters (1994) stated in their study that the self-efficacy beliefs of teachers who are new to the profession are low and that there should be cooperation between teacher trainers and experienced teachers in order to develop these beliefs. Stuart (2017) stated that as the experience of teachers increased, their teaching efficacy levels in mathematics also improved as a result of his doctoral study. In addition, as teachers gain more experience in teaching, they improve their teaching skills and math performance (Huang, Li, Kulm, & Willson, 2014).

5. Suggestions

Vadahi and Lesha (2015) point out that it can be difficult to change teachers' beliefs about their teaching without appropriate support and development programs. In order to ensure those prospective teachers, who will become future mathematics teachers, develop their beliefs about their personal and teaching efficacy, they should gain more experience in teaching mathematics lessons and contribute to their development by observing teachers who can set an example for them.

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Applying Universal Design for Learning to Center for English as a Second Language

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Abstract
This paper investigated the possibility of applying Universal Design for English Language Learning. Throughout the paper, both quantitative and qualitative methods were used for data collection. The students were first asked to critique the ESL program using a methodology created by Paulo Freire to ascertain how much freedom students have in creating their learning environments and establishing their own learning goals and objectives. The results showed that the majority of students rated the ESL program very low regarding their ability to influence the program's curriculum materials or learning outcomes. Moreover, the research shows that the majority of students did not believe they were adequately prepared for graduate-level studies in the University upon completion of the ESL program. As a result of these findings, several recommendations are made about creating more opportunities for individual students to use UDL principles to control their learning environments and establish their own learning goals and objectives.

Keywords: ESL, UDL, English Language Learning

I. Introduction & RationalE

During the past four years, a growing number of Kurdish Iraqi students have been coming to SIU to both learn the English language and pursue graduate-level education based on an American educational system model. All of the students who were involved in this study and research were enrolled in the Center for English as a Second Language or CESL at SIU and participated in over a year of intensive English language instruction. Unfortunately, almost universally, most of the Kurdish Iraqi students who have completed this program have confessed that they believe the program did not adequately prepare them for graduate-level studies in the University. Furthermore, because the pedagogy was almost exclusively focused on grammar and writing skills, few of these students believe they adequately possess the verbal or listening skills to achieve a high level of genuine excellence in their respective graduate programs.

As a result of these personal observations and conversations with CESL students, the researchers became increasingly concerned and interested in how CESL taught English. Moreover, the researchers were interested in

the students ideas, who were directly involved in the program about how to improve the curriculum and learning methodologies.   Consequently, the researchers had many conversations with international students studying linguistics and TESOL (Teaching English as a Second Language) at SIU. Moreover, this research looked at new and innovative ideas and strategies for learning English and discovered many new ideas about student-centered learning mentioned by John Dewey and others as early as 1916 (Dewy, 1916). These ideas are fundamental because they offer an alternative, and perhaps, better ways to teach English in our country in the future and better prepare students for coming to the United States to attend graduate student programs. This is very important because our country of Kurdistan Region of Iraq is interested in sending several more students to the USA and is interested in improving the English speaking skills of thousands of Kurdish students in the coming years.

With these ideas in mind, the researchers conducted an extensive survey of CESL students about their attitudes and ideas about the program. They conducted several in-depth interviews with CESL graduates. The results of this research clearly indicate that CESL students believe there is serious room for improvement in how the program is operated, and almost everyone surveyed had many important suggestions or recommendations for the CESL program to consider. The researchers also discovered that many of the students have tried to get the CESL program to consider their ideas and positive criticisms. However, all too often, when students and graduates of the CESL program have made suggestions or recommendations to the program for changing or even discussing changing parts of their curriculum these ideas are simply ignored.

This paper will discuss the Universal Design for Learning concepts and strategies developed by David H. Rose and Anne Meyer in their book" Teaching Every Student in the Digital Age: Universal Design for Learning." In this book, these UDL concepts and principles are discussed at great length. According to the authors UDL principles are fundamental or basic to new American educational thinking, curriculums, and programs. They write that these ideas must be accessible and appropriate for individuals from different backgrounds, learning styles, abilities, and disabilities. This textbook actually states that there is no one simple "optimal solution for everyone" and that programs should recognize the "unique nature of each learner and the need to accommodate differences, creating learning experiences that suit the learner and maximize his or her progress." Therefore, it was very disturbing to discover from the research that the vast majority of CESL students think the program is the complete opposite of this UDL thinking and strategy (Rose & Meyer, 2002).

Although this research clearly suggests that the entire CESL program needs to be reevaluated or redesigned from top to bottom, this paper will only look at how CESL and other programs like it could implement a section or method designed to give students greater autonomy or control over some aspects of their instruction. The researchers were amazed to discover how much information and material is available that addresses student-centered or autonomous teaching methods and how long many enlightened educators have used these ideas. Therefore, with this "good faith" attitude toward making programs like CESL better and more inclusive of students' attitudes and improving the language teaching strategies used with Kurdish Iraqi students, this research intends to discover.

On a larger level, this research may be of interest to teachers or students in other programs around the United States and other parts of the world that have similar curriculums to the one used by CESL. In the United States alone, there are several thousand such programs at all major universities, junior colleges, and independent learning centers. As a result, some of the findings from this research may be applicable to these others programs. Moreover, this research needs to be compared and contrasted with other ESL programs to see if these findings are representative of other programs across the world. If the findings of this research indicate the other programs, then there is serious room for improvement across the entire ESL teaching spectrum.

Research Design

The design of this study was both quantitative and qualitative. This research was qualitative in nature and utilized information obtained from literature reviews, books and also the CAST website Camic (2003). Also, in this research, the qualitative method is used to interview students face to face. Finally, the quantitative method was used on a survey of questions given to students originally designed by Paulo Freire and discussed in his book

Pedagogy of the Oppressed. These questions were used to find out if the CESL program uses old-fashioned ways of teaching in the classrooms that Freire defined as Banking.

Research questions

Null Hypotheses: The UDL principles and techniques would not improve ESL programs abroad, and students will not get any educational benefit out of UDL principles.

The alternative hypothesis: The UDL principles and techniques would improve ESL programs abroad, and students will get educational benefits out of UDL principles.

Purpose of this study

A: Goals: The major goal of this project would be for CESL to implement some type of independent, student-centered or autonomous methodologies into their existing curriculum based on UDL principles and philosophy. This topic has been selected because the vast majority of current CESL students and graduates of the program have identified the need for the program to initiate such strategies. The CESL program is widely perceived by students as being based on a strict and rigid top-down methodology, which is both incapable of and unwilling to adapt to their individual student needs and concerns.

B: Need: According to both survey data and interview testimonies, students have themselves recognized the "need" for the CESL program to adopt UDL type principles which would enable students to have greater control or autonomy over their individual educational goals and needs. For this project, the researchers used a survey proposed by the educator Paulo Freire in the year 1970. He includes the following survey in his groundbreaking work *Pedagogy of the Oppressed.*

Table 1: Banking system

	N	Mean	Std. Deviation	Std. Error Mean
Banking system	50	41.8200	2.32721	.32912

	Test Value = 27					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Banking system	45.030	49	.000	14.82000	14.1586	15.4814

One sample t-test was conducted to compare the statistical differences between the Population mean and the hypothesized mean. There was a significant difference in scores between them (M= 41.82, M 0= 27, SD= 2.32 ; t (49)= 45.03 , p=0.00 , two tailed). The magnitude of the difference in the means (mean differences=14.82, 95% *CI*: 14.15 to 15.48).

Survey results show that students surveyed view the CESL program as being operated from a top-down, completely teacher-controlled perspective. Furthermore, they believe that they have no control or say in the educational process and often feel isolated and powerless over their instruction. Also, many students believe that the instructors are not adequately informed about the differences in how many international students learn and approach educational situations.

C: Time: The CESL program normally lasts for up to 16 months and contains seven separate levels which students must progress through before graduating from the program. This project could be structured as part of the entire

16-month program or become a one-term or roughly three-month part of the program. In other words, the project could be part of the daily or weekly activity as a unit of instruction or structured as a three-month course where students work to direct their own independent or autonomous program with limited help and support from the CESL faculty.

D: Handling Instruction: This part of the project could be handled in several different ways depending on how the individual students want to proceed. First of all, it is important for the CESL faculty to teach and support independent learning techniques and strategies to the students before they begin to identify their own individual directions and focuses. Once this has occurred, students would be supported throughout the CESL faculty or staff program in monitoring and assisting the student-centered/directed activity.

II. Relevant Learner and Context Characteristics

A. Target Population: The target population for this project is the entire CESL student body. CESL students are from all over the world and from an age group ranging from 18 years old to a high of around 40 years old. CESL students come from a wide socioeconomic, religious, ethnic, and cultural background. There are students in the program from villages in Saudi Arabia, large cities in China, remote islands in the Maldives, the mountains of Kurdistan, and the jungles of Colombia. Some of the students have never left their country before, and some have traveled all over the world. Furthermore, some have experienced American education systems and are familiar with many things about western culture, and some have never been exposed to educational ideas outside of the system of their home country.

Many of the students arriving at CESL have little background with the English language, and when they enter the program start at a language level of zero (0). Other students have been studying English for over a decade and are very proficient in the language. Also, some students are multilingual and can speak five or more languages and several dialects, whereas others can only speak their native tongue. Moreover, some of these students want to study art and sciences, while others wish to learn computer systems and engineering skills. One could argue, that this broad and diverse population of students represents a very special education type population and that the ideas of UDL are especially suited to address the many varied needs and differences of this vibrant student community.

B. Entry Level Skills: The only requirements for CESL students are that they have graduated from High School in their respective countries and that they plan on going to college or University. When the students arrive at CESL, they are given the TOEFL test. This test, called the Test of English Foreign Language, is a test designed by the Educational Testing Service and is given to all language students worldwide. There is also another test called the ILETS, and students are given this test. Depending on the score you achieve on this initial test, you are then placed in a special level at CESL, raging from an introductory program or level one to an advanced language level, culminating in level 7. Once the student graduates from CESL and achieves a score of 500 on the TOEFL or 6.5on the ILETS, the student can then enroll in university classes and begin their academic career. If students do not pass a level, they have to take that level over and over again. Oftentimes, students are held back in a level over as little as .05 on a test. Many students reportedly leave the program and go to other programs at other universities because of these types of scoring decisions (Britt, 2002).

C. Performance Setting: At the present time, all of the CESL learning activity is primarily conducted in classrooms in Faner Hall, the language laboratory, and the library. Also, CESL students go on a few field trips to places like Saint Louis and Memphis for cultural experiences. And, most students leave the classroom and go home and spend many hours in their homes studying and writing. However, in the independent and student-centered activities and methods that this project proposes, students would have the flexibility to study anywhere they might choose. These learning experiences could take place in any conceivable place, such as outside in parks, at coffee shops or museums, touring southern Illinois or the junior colleges in the area, spending time with American English-speaking students and families in many places off-campus. Students would also be able to go to the programs they wish to attend in the future and sit in on classes or talk with students and faculty. This idea will require much new thinking in CESL and more cooperation from the SIU community. Therefore, the performance setting could be held in almost any place.

III. Subordinate Skills Analysis

For this project, students would need some type of instruction or background information in areas like strategies on how we learn, independent study ideas, and how to structure independent student centered programs. In essence, students would need to be taught about the basic principles of UDL and encouraged to spend time thinking about their own educations and educational needs. This would require such skills as creative and reflexive thinking. It would also require students to have the skills to critically think about their own educational needs and the ability to evaluate their own educational shortcomings. In other words, if the student wants to learn more about speaking or conversational language acquisition, the student would need to identify strategies and ways for learning more about and creating environments for speaking English with native speakers. If a student believes they need to improve their listening skills, they need to think about ideas and strategies for improving these skill sets. The UDL framework would really give the student the power to create their own learning strategies and individual curriculum.

In order for the student to set up such a UDL student/learner-centered strategy or individual curriculum, the CESL staff, faculty, and graduate assistants would have to help students in this process. They would have to be informed about how they can help in this process and the skills they need as "advisers" to help the students. This will require these CESL staff to have to experience some level of training in these fields.

Within the framework of this project, students would submit proposals or ideas to the CESL faculty outlining their individual program ideas and the avenues they want to pursue. This will require them to have the necessary subordinate skills of reflexive and critical thinking necessary for this task. This idea also would require students to be self-motivated, self-efficient and responsible for meeting and monitoring their own program goals. Listed below are some of the subordinate skills which students would need to develop their own independent or self-centered curriculum or programs.

1) Students should be able to identify their specific educational goals and recognize the language skills they need in order to achieve these goals.
2) Students should be able to identify what areas they need to improve to meet their academic goals. For example, listening skills, reading, writing skills, conversation skills, grammar skills, etc. This will require students to be "reflexive" or self-aware of what language skills they need to improve.
3) Students should understand some fundamental ideas of UDL and be able to critically think about how to develop specific tasks or objectives to meet their goals. Students should have some knowledge of successful independent learning strategies designed by other students.

IV. Performance Objectives

A. When students define their individual educational goals and have identified the types of skills they will need to acquire, they will adopt or decide on many different types of objectives to reach these goals.

B. Examples of Different Objective Strategies:

1) If students want to improve the conversational skills, they might choose from many different kinds of exercises or strategies. For example, Some students might work with native English speakers in regular intensive conversation sessions. Others might also watch English speaking movies or go to places like coffee shops, bars, rec center, etc. where people have conversations. Moreover, the student might use a strategy that uses more than one type of idea.
2) If a student wants to improve their writing skills they might choose to take an English composition class designed for freshman college students and be in class with native English speakers. This program is already available at SIUC, and it is not utilized by CESL. They also might choose to use the language laboratory and the many types of online resources that are available. They may also regularly write about topics of interest and have this work corrected by the writing center in Morris Library. They also might wish to read English

writers to see their styles and study their grammar.

3) A student who wants to improve their listening skills might choose objectives like listening to news, music, movies, radio programs, or native English speakers having conversations. There are many online resources that can be used as part of a strategy for making objectives that will help students reach their goals to improve their listening skills.

C. Psycho-Motor Skills: In the course of doing research on new ideas for language learning, the researchers discovered a language learning program/methodology called the Total Physical Response method. This method was developed by Dr. James Asher at San Jose State University in California and has been utilized by ESL teachers since the 1970s. According to Asher, "TPR is based on the premise that the human brain has a biological program for acquiring any natural language on earth" (Krashen, 1998). This method combines communicative language acquisition with physical activities, such as exercises, walks, or playing the game Simon Says. The theory is that students will better remember lessons when they are done in conjunction with other types of activities. The researchers would think about using this method and also informing teachers about this method. Although this psychomotor type of instruction has been used in language learning since the 1970's, CESL does not use any of its ideas or methods.

Another strategy that should be taught to the students are the general ideas of Bloom's Taxonomy so they would be in a good position to evaluate their own learning and analyze their own learning methods and ideas. The categories of Evaluation, synthesis, analysis, application and comprehension are all important considerations for students working on their own programs and self-centered curriculum. If students understand these ideas, they will be better able to "reflect" on their instruction and make necessary improvements and be in a position to better access their own progress .

V. Criterion Referenced Assessments

A. According to Meo (2008), establishing a good criterion for assessing the success of an educational program and educational goals is a very important part of the entire design process. For this reason, it is very important that students be able to critically think about how they will judge or grade the success of their individual programs/curriculum. For this to work, students will need to have the necessary subordinate skills to make such critical judgments. This can be done as part of the process of setting up their individual programs with assistance from CESL staff and instructors. In the next three examples some possible assessment criterion students can use for each objective are proposed.

1) If students want to improve the conversational skills, they might choose from many different kinds of exercises or strategies. For example Some students might work with native English speakers in regular intensive conversation sessions. Others might also watch English-speaking movies or go to places like coffee shops or bars where people have conversations. Moreover, the student might use a strategy that uses more than one type of idea. To access their success with this objective the student could show to a CESL faculty member or observer their conversational skills by having a conversation with them. The student could also keep a journal or video journal showing their speaking and conversational skills improving over the course of the term. Moreover, the student could work with a CESL adviser at the beginning of the project to set a format for a learner evaluation that would be conducted at the end of the term.

2) If a student wants to improve their writing skills they might choose to take an English composition class designed for freshman college students and be in class with native American speakers. They also might choose to use the language laboratory and the many types of online resources that are available. They may also regularly write about topics of interest and have this work corrected by the writing center in Morris Library. They also might wish to read English writers to see their styles and study their grammar. The student could pick from many assessment tools to evaluate their improvement in this area. The student could write several short stories or essays or a research paper and have it "graded" by an English teacher in the composition department. Some students might not want to be tested, but choose another possibility like writing letters or detailed emails to people on specific topics or issues. The student could devise their own

"reflexive" or evaluation for grading their improvement in writing skills by writing an evaluation the experience and producing a report about it for the program.

3) A student who wants to improve their listening skills might choose objectives like listening to news, music, movies, radio programs, or native English speakers having conversations. There are many online resources that can be used as part of a strategy for making objectives that will help students reach their goals to improve their listening skills. The student could use a variety of forms or tools to show their improvement with listening skills, such as responding to questions from classmates or friends. Listening to a lecture and taking notes, and then telling someone about the lecture. The student might watch a difficult movie with a lot of dialogue and have to explain certain areas of the movie to a native English speaker. There are many types of assessments that can be done to show the students' progress (Berquist, 2014).

VI. Selected Instructional Strategies (Decoste, 2014)

A. Almost all students who learn about UDL and independent study or student-centered directed ideas and language learning show enthusiasm and interest in these ideas. Almost every student who was interviewed for this research who has been in an ESL program has many ideas about how to make language learning better, more interesting, and more productive. In other words, students really understand the ideas basic to UDL and say they would be really excited and interested in directing some of their own language instruction. Here are some ideas students have discussed in the qualitative interviews that could be used to "engage the learners and maintain their interests." These ideas show how creative students can be when asked what kind of projects or ideas they would initiate if they had control or the opportunity to do so.

1) Two students said they would like to take a three-month period and travel across the United States and Canada with an American English-speaking friend, and see the country and have to speak and communicate in the language every day. They even said they would pay for their friends three-month "trip" or vacation. This is an amazing idea and one incredible way to learn the language. Is this better than sitting in a classroom for 6 hours a day?

2) One student said she would like to be able to spend more time watching American movies, news, and television. She said that with her schedule at CESL she has no time to actually spend listening to the language, because she is so busy studying for tests and doing assignments. She talked about having a regular movie watching class or news watching in a relaxed non-school type environment where students could listen and then talk about the movie.

3) Many students said they wish they had English-speaking friends or a host family to live with or meet on a regular basis. Many students said they were sad that they had been here for over a year and did not know any Americans except some students in class or their teachers. Could some methods be used to improve SIU programs to encourage American students to meet and get to know international students. There are no really good efforts being made at SIU to build relationships between international students and American students. This should be a big focus of the University and CESL.

4) One student suggested that there should be meetings of ESL students to talk about language learning ideas outside of class that could be used to make learning more interesting. He said that many classroom activities do not help him learn and cause him many problems that make him think about leaving the program and giving up on learning English. He thought the independent idea was great and he had many ideas. One idea was just having the time to try and make American friends and hanging out with American speakers and listening to others speak English. He said if he had the time to do this, he thought he could learn much more English.

5) One student from Afghanistan wants to start a United Nations simulation project at SIU and work with all international students and programs from Political Science, the Paul Simon Center, and others. He wants to make it a class where students would work for a semester in a UN model setting. This idea is really amazing and would make international students directly involved with American and English-speaking students. Moreover, there are many English speaking students at SIU from Canada, England, Australia, and Ireland. He also said there are some students from France, Germany, Russia, Italy, Greece and other countries.

The following ideas are from students who listed their comments in their own writing. These are further evidence that students are more than capable of thinking of ideas and strategies to improve their own instruction.

1) Having opportunity to chat with Native English speakers on Skype, because some students feel kind of shy and they cannot talk to others directly. This will be a good opportunity to improve their speaking and writing skills. Also, it is important for them to improve their listening skills.
2) Having good teachers and professors for teaching English as a second language is really essential. Good teacher and professors have a better knowledge and they have good examples in order to teach students on the right path.
3) Going to shopping with American people to improve their daily live vocabularies.
4) Improving students' vocabulary in their fields means students should memorize these vocabularies that they are going to use in their graduate school.

B. How to Gain The Attention Of Learners? This is very easy to do. All you have to do is ask the student what ideas they have that would make learning easier and more fun. All of the students have many ideas and really get excited about talking about this idea. They all have very good ideas and this would be very easy to make happen.

C. Describe Five Ways You Will Make The Instruction Relevant to Your Learners.

The examples stated above show that students have the ideas and ability to think of specifically relevant ideas. If the students are given the opportunity, they can decide on programs or strategies that will improve their English speaking abilities and make learning fun. Many students think that they need to have more relaxed or fun ways of learning besides the classroom and test structures of normal ESL programs. Some ideas could be initiated within the independent study project. Some of these may include the following:

1) Students involved in the independent study program would meet regularly to discuss their projects and progress with other students.
2) Students could have a website or chat room to talk about their ideas and report on their programs.
3) Some graduate students in linguistics or TESOL could do research projects on this independent study program and maybe publish their research.
4) The program could give awards or prizes to students for the most creative ideas or some type of other reward. Or, the program could have meetings with new students and discuss the success of other students in this idea.
5) The program would have a conference to talk about these ideas and get other students interested in UDL or independent type programs. The conference could have speakers, movies, and other information seminars or classes.

D. Follow Through Activities:

Upon graduating from the CESL program, students would evaluate and critique the success of their individual programs. Also, students could present their ideas to new students and discuss their various approaches and tell their experiences. Theoretically, the longer the program continues, the better students would be at acting as peers to new students. The students would also be encouraged to help "teach" the teachers in the CESL program about their successes and difficulties in setting up their independent studies

Many CESL students go into the University and study Linguistics and TESOL and these activates could be made a part of their future curriculum and become part of the program in the CESL system. In other words, students would become teachers. The research shows that CESL graduates would be very good teachers and supporters of new students and that by this method the "follow-through" activity would be perpetual.

Conclusions and Recommendations

The results of this study and the accompanying surveys clearly show that the vast majority of the students directly involved in the CESL program at SIU believe the program did not adequately prepare them for continuing their studies at the university in their respective career departments. Moreover, the research clearly shows that the program is deeply entrenched in a proscriptive curriculum and has little interest in exploring different teaching methods and strategies like UDL or developing Individual Differences types of learning strategies. Also, it has been shown to some extent that the CESL program is similar in character and methodology to many other ESL programs around the world.

This paper has briefly shown that there are many types of alternative learning methods and strategies available for programs like CESL to incorporate into their curriculums, giving students greater autonomy and control over their own learning courses and learning outcomes. The research has shown that such ideas as applying UDL and ID or Individual Differences learning strategies have been used successfully by many programs around the world for several years. In addition, other strategies and methods like giving students greater autonomy or control over directing their own curriculums into areas they believe will strengthen many innovative programs that have used their learning outcomes.

In conclusion, it seems clear that there are available programs, strategies, and methods that programs like CESL can use to give students greater control over their own learning if they choose to do so. Consequently, if programs like CESL survey their students and discover that the program is failing to meet their learner's expectations or fulfill their learner's desires for more autonomy they can turn to already existing strategies like UDL and ID to address these problems. In short, the decision to change programs like CESL to meet the needs of their students is one within the capability of the administrators of the program. If programs like CESL are truly interested in improving their learning outcomes, they have the power to begin implementing alternatives.

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Predictors of the Level of Knowledge about Sexual Harassment and Assault among College Students: A Chi-Squared Automatic Interaction Detection Analysis

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Abstract
This study aims to determine college students' levels of knowledge about sexual harassment and assault, and to identify the predictors of this level of knowledge. Participants have been selected using a multi-stage sampling method and consist of 7,302 college students from a state college in Turkey. The age of participants ranged from 17 years to 29 years with a mean age of 21.33 years (SD = 2.04). The Sexual Harassment and Assault Knowledge Test, the Survey of College Students' Exposure to Sexual Harassment and Assault, and a socio-demographic form were used to obtain data from the sample. The two-steps cluster analysis revealed that 70.2 % of the all participants had moderate level of knowledge about sexual harassment and assault, while 13.6 % had a low level of knowledge and 16.2 % had high level of knowledge. The CHAID analysis indicated that sex was the main predictor of level of knowledge about sexual harassment and assault. Also, exposure to sexual harassment or assault, dating experience, and having gender-equality education were found as other predictor variables. Finally, classification accuracy of the CHAID model was found 79.5 % within the sample.

Keywords: Sexual Assault, Sexual Harassment, Level of Knowledge, College Students, CHAID

1. Introduction

Of the 1,761,394 students that graduated high school in Turkey in 2019, only 42 % successfully passed the two-stage national exams and won places in four-year degree programs (Higher Education Council, 2019). Despite differences between college admission processes in different countries, it is a great achievement for students to be accepted into colleges in every country. However, some college students that have managed to overcome this challenging process have subsequently dropped out of college education, and this happens for different reasons. One such reason is sexual harassment and assault (Coulter & Rankin, 2020), which is one of most traumatic events

that individuals may experience in their lives. Sexual harassment is defined as unwanted, sexually explicit, and disturbing statements, attitudes, or other forms of behaviors that do not involve bodily contact (Committee on the Elimination of Discrimination against Women [CEDAW], 1992) and sexual assault is defined as the violation of physical integrity through the uninvited and unwelcome actions, including bodily contact (Bennett, Manderson, & Astbury, 2000).

As a group, young adults aged 16–24 are the group most exposed to sexual harassment and assault (Gross, Winslett, Roberts, & Gohm, 2006; Sinozich & Langton, 2014). These traumatic situations may occur on campuses that are generally perceived as safe areas, in which the rate of sexual assaulters among peers and teachers is remarkable (World Health Organization [WHO], 2017). Studies conducted in Turkey and in a range of diverse cultures have demonstrated that female and LGBTI+ college students are exposed to sexual harassment and assault more frequently than male college students (Apaak & Sarpong, 2015; Cantor et al., 2015; Coulter et al., 2017; Coulter & Rankin, 2020; Eroğlu, Seven, Abalı, Çetin, & Önok, 2017). Although the incidence of sexual assault and harassment may vary, depending on the definitions and criteria used by researchers, approximately one out of every five college students in USA, the majority of whom are female, have been exposed to sexual harassment or assault during their college life (Fedina, Holmes, & Backes, 2018; Fisher, Cullen, & Turner 2000; Mellins et al., 2017). In Turkey, there are remarkably few studies that focus on experiences of college students in relation to sexual harassment and assault. The prevalence of sexual assault among female college students ranged between 1.2 % and 14.7 %, however men college students did not report any exposure to sexual assault (Dikmen, Özaydın, & Yılmaz, 2018; Kayı, Yavuz, & Arıcan, 2000; Yiğitalp, Ertem & Özkaynak, 2007). In another study conducted with Turkish college students, 14.2% of women and 28.9 % of men stated that they had made or tried to make another person part of nonconsensual sexual activities on at least one occasion (Schuster, Krahé, & Toplu-Demirtaş, 2016).

The wide range in the prevalence estimates for sexual assault may be linked to several methodological limitations such as included behaviors, screening items and sampling methods. Moreover, there is a high degree of consensus among experts that many victims do not report sexual harassment and assault, and avoid taking legal action against assaulters (Fisher et al., 2000; Gross et al., 2006; Kayı et al., 2000). According to Sinozich and Langton (2014), only one in five victims of sexual assault reports the assaults in college campuses. Thus, incidences of sexual harassment and assault that are reported are only the visible part of the metaphorical iceberg.

The factors that inhibit victims reporting sexual harassment and assault to legal authorities are victims' concerns about the violation of confidentiality, prejudicial attitudes towards victims, a sense of guilt, and feelings of shame or embarrassment (Bachman, 1998; Sable, Danis, Mauzy, & Gallagher, 2006). These findings are consistent with the perspective that stereotypes about sexual harassment and assault remain influential, despite awareness campaigns and legal reforms (Temkin & Krahé, 2008). "Sexual assault is caused by men's sexual drives," "women victims provoke assaulters by wearing short skirts and tight tops," "women are just being hyper-sensitive to sexual matter," "it only happens to women who look and act sexy," "she wanted or enjoyed it," "he didn't mean to do it" are some of the common stereotypes in almost every culture (Aydemir, 2019; Cowan, 2000; Kennedy & Gorzalka, 2002; Lonsway, Cortina, & Magley, 2008). When sexual assault survivors internalize the stereotypes into a belief system, they may resort to self-blame and avoid reporting incidents to police, particularly because these stereotypes suggest that women are responsible for their own sexual behavior (Suarez & Gadalla, 2010).

According to an intercultural study on sexual harassment and assault stereotypes in the college settings, Turkey is among the countries where these stereotypes are common (Ward et al., 1988). Research findings suggest that Turkish women are more tolerant of sexual harassment due to cultural factors, such as traditional gender stereotypes, double standards regarding gender and pervasive rape myhts (Luthar & Luthar, 2002). A study based on cross-cultural comparison also found that Turkish women seeking social support after sexual harassment and assault had lower levels of avoidance and denial than Anglo American women (Wasti & Cortina, 2002). In another study conducted in Turkey with female college students, 66 % of students who were exposed to sexual harassment and assault preferred to remain silent (Timur &Yılmaz, 2013).

Lack of information about sexual harassment, is another factor affecting these low reporting rates. Some victims may not even be aware that they have been sexually harassed, due to their lack of knowledge about the behaviors that constitute sexual harassment (Leung, 2017; Tang, Yik, Cheung, Choi, & Au, 1996). Studies examining the knowledge level of college students regarding sexual harassment and assault reveal that majority of the college students' knowledge level is not adequate in developing countries (Abe, 2012; Menon et al., 2014). Additionally, when the studies studies that explore individuals' views on sexual harassment and assault assess attitudes rather than levels of knowledge. In other words, the number of studies involving the level of knowledge on the subject is very limited. While there are many measurement tools that assess the attitudes of individuals towards sexual harassment and assault (rape myth acceptance scale, the attitudes toward rape victims scale, perceived causes of rape scale, sexual harassment myth scale, sexual harassment attitudes questionnaire, the rape empathy scale etc.), the very limited number of tests that measure the level of knowledge is an indicator of this situation (Fisher, Davis, Yarber, & Davis, 2011). Considering that knowledge has a key role in shaping attitudes (Ajzen, 1991; Clarke & Crewe, 2000), it is thought that it is important and necessary to examine individuals' knowledge of sexual harassment and assault as much as attitudes.

Increasing students' awareness and knowledge about these mostly traumatic experiences is at the core of efforts to reduce the incidence of sexual violence in colleges (Becker, 2015; Mellins et al., 2017). Therefore, equipped with such knowledge, students will the be able to easily identify sexually harassing and assaulting behaviors, clarify boundaries in relationships, and seek help from professionals (Gurung, Priyadarshini, & Margaret, 2016; Leung, 2017). Moreover, increasing students' awareness and knowledge causes undermining of stereotypes about sexual harassment and assault (Matusitz, 2012). In Turkey, where this current study was carried out, issues related to sexuality are still difficult to discuss; courses on gender issues or sexual health are not taught in secondary or high schools, and only a limited number of courses are included at college level (Esen, 2016).

Gender and taking education about sexual harassment and assault are among the most frequently studied variables related to the level of knowledge of college students. These studies showed that women college students have a higher level of knowledge than their men counterparts (Apaak & Sarpong, 2015; Becker 2015; Menon et al., 2014). Also, it is reported that the college students who had received education about sexual harassment and assault, have a higher level of knowledge than others (Kimberly & Hardman, 2019; Roehling & Huang, 2018).

The inadequate level of knowledge, high incidence rate, and negative effects of sexual harassment and assault all emphasize the need for prevention studies on the subject. Therefore, investigating students' levels of knowledge about sexual harassment and assault is a crucial aspect of configuring necessary interventions (Gurung et al., 2016). It is thought that addressing different socio-demographic variables other than gender and taking gender-equality education variables regarding the level of knowledge will shed light especially on prevention studies. At this point, Chi-Square Automatic Interaction Detection (CHAID) analysis, which is not commonly used in counseling or in the social sciences (Hoare, 2004), can be used to find interaction or combinations between variables and to identify the strongest associations between predictors and outcome variables (Dalton, 2007; Pigeot, Ahrens, Foraita, Jahn, & Pohlabeln, 2007) in large sample sizes (Kosciulek, 2004). It can be said that CHAID has several advantages in the context of mixed analysis. In particular, determining whether group level variables are justified in segmenting the sample into subgroups CHAID analysis allow for the inclusion of cluster variables (Collins, Onwuegbuzie, & Jiao, 2010).

In this context, this study aims to determine levels of knowledge about sexual harassment and assault among college students and to identify predictors of these levels of knowledge.
Research questions:

1. What level of knowledge do college students have about sexual harassment and assault?
2. Which socio-demographic factors predict college student's level of knowledge about sexual harassment and assault?
3. How accurate is predictive classification (i.e., what is the risk of false classification) in each of the CHAID analyses?

2. Methods

2.1. Participants

A multi-stage sampling method was used, which meant that first, according to the stratified sampling method, each campus was accepted as a stratum. Then, the number of students from each stratum was determined, based on the ratio of the population. Secondly, random sampling with a random number table was used to select faculties, classrooms, and departments. Although data were collected from 7,415 students, the data of 113 participants over 30 years of age were not included in the analysis. As a result, the sample for this research consists of 7,302 college students (3,566 women and 3,736 men) from a state college in western Turkey. Participants' ages ranged from 17 to 29 (M_{age} = 21.33, SD = 2.04). Other socio-demographic characteristics of the participants are presented in Table 1.

Table 1: The Socio-demographic Characteristics of the Participants

Socio-demographic Variables	n	%
Grade level		
Freshman	2454	33.6
Sophomores	2004	27.4
Juniors	1414	19.4
Seniors	1430	19.6
Residential Type		
Lives in a family house	2571	35.2
Lives in a house (alone or with a friend)	2404	32.9
Lives in dorm, boarding house, student residence	2300	31.4
Monthly Income		
Below 90$	2497	34.2
91 to 180$	2671	36.6
181 to 270$	1172	16.1
Above 270$	721	9.9
Exposure to Sexual Harassment or Assault		
Never	4934	67.8
At least once	2344	32.2

2.2. Measures

The Sexual Harassment and Assault Knowledge Test. The Sexual Harassment and Assault Knowledge Test (SHAKT), which was developed to determine levels of knowledge about sexual harassment and assault, consists of 16 items. Due to the fact that there is not any knowledge test developed in Turkey or adapted in Turkish on the issue, SHAKT was used in this study. Five of the items in the test are straight ("Asking for a date persistently is a sexual harassment." e.g.) and 11 are reverse-coded (Sexual intercourse is essential for the crime of sexual assault." e.g.). Respondents were asked to indicate whether the items were "True," "False," or they "Do not know." Correct responses were given a score of 1 and incorrect or "I don't know" responses given a score of 0. The number of correct responses was calculated with higher scores on the SHAKT indicating a greater level of knowledge about sexual harassment and assault.

In the development process of SHAKT, content validity was evaluated first. To evaluate the content validity, five experts opinions' about test items was gathered. Content validity index was calculated in line with expert opinions. As Davis (1992) suggests a limit of .80 for the content validity index, it is seen that each item of the SHAKT is over the threshold value. In the next step, the discriminant validity and reliability of the SHAKT were tested and also item analysis were performed with 499 college students. To evaluate the discriminant validity t-tests were performed between the 27 % upper and 27 % lower criterion groups. Results indicated that each item of the test could discriminate the upper and lower groups properly. The KR-20 reliability coefficient of the SHAKT was calculated as .65, which is an acceptable value for short tests with few items (Mangal & Mangal, 2013). Item analysis showed that the average difficulty index of the test items ranged .21 to .97 and the the overall average difficulty index was .78. Content validity, discriminant validity, and the KR-20 reliability analyses

revealed that SHAKT is a valid and reliable measurement of college students' knowledge about sexual harassment and assault (Esen et al., 2018).

Survey of College Students' Exposure to Sexual Harassment and Assault. The Survey of College Students' Exposure to Sexual Harassment and Assault (SCSESHA) is a list of 15 items that are related to sexual harassment and assault. This was used to determine the frequency with which participants were exposed to sexual harassment and assault from a friend, partner (e.g., a lover or spouse), academician, or employee of the college ("Have you been asked questions about your sexual life in a way that will disturb you by your friend, partner (lover, spouse), teacher or employee in your college life?", "Has your friend, partner (lover, spouse), teacher or employee touched any part of your body without your consent in your college life?" e.g.). Responses were gauged by a four-point scale ("Never," "Once," "Two or three times," or "More than four times"). According to the results of the survey, participants were divided into two groups: those that marked "never" for all of these items were categorized as "non-assaulted and harassed," while those that marked "Once," "Two or three times," or "More than four times" for any of the items were categorized as "assaulted and harassed at least once."

Socio-demographic form. A socio-demographic survey was also distributed, to gather information about gender, age, dating experience, grade level, residential type, monthly income, and gender-equality training.

2.3. Procedure

Ethical permission was obtained from the Ethical Review Board of a state college. Additionally, application permission was gained from each department and faculty. The data were collected by the researchers in the spring semester of 2018 by the paper / pencil method in the classroom setting. Before the administration of the scales, participants were informed about the study and informed consent was obtained. All participants agreed to participate in the study after being informed about the purpose of the study. The questions in the SCSESHA can trigger trauma for those that had previously been exposed to sexual harassment or assault. For this reason, researchers informed participants that they could access psychological support if they felt uncomfortable with the questions in the survey. This was reinforced in writing and verbally. These measures took approximately 25–30 minutes to complete.

2.4. Data Analysis

Firstly, descriptive analyses were conducted to assess the sociodemographic characteristics of the study sample and to determine the frequency distribution of participants response of SHAKT items. Secondly, CHAID analysis was used to determine the variables that predict the level of knowledge about sexual harassment and assault. Since, CHAID analysis produces better results if the dependent variable is categorical (Kass, 1980; Magidson, 1994; Power & Xie, 2008), the SHAKT scores were converted into categorical variables using two-step clustering analysis. The two-step cluster analysis yielded three clusters, with two cut-off points at 6 and 14. Of the participants, 13.6 % (n = 994) scored between 0 and 6 (this cluster was labeled a low level of knowledge), 70.2 % (n = 5,127) of the participants scored 7–13 (this cluster was labeled a moderate level of knowledge), and 16.2 % (n = 1,181) of the participants scored 14–16 (this cluster was labeled a high level of knowledge). Thirdly, the effect size measure was calculated using Cramer's V method. For chi-square tests with degrees of freedom equal to 2, Cohen (1988) suggests that a Cramer's V value over .35 demonstrates a large effect, while a value within the range of .21 to .35 reveals a medium effect, and a value within the range of .07 to .21 demonstrates a small effect. SPSS 23.0 was used in the analysis, and the significance value was accepted as $p < .05$.

3. Results

3.1. Level of Knowledge about Sexual Harassment and Assault

The frequency distribution of the items in the SHAKT was calculated, in order to determine the participants' levels of knowledge about sexual harassment and assault (Table 2). Table 2 reveals that 92% of the participants thought that males could be sexually assaulted, 91.7 % of the participants believed that staying silent during sexual

harassment or assault does not mean that the person has given their consent, and 90.2 % of the participants believed that behaviors not involving the use of physical force could be accepted as sexual assault. Conversely, only 13.6 % of the participants believed that sexual harassment and assault are frequently committed by someone that knows the victim, 50.2 % of the participants believed that unwanted sexual conducts between partnercouldan be considered sexual harassment or assault, and 51.9 % of the participants believed that potential sexual assaultcould can not be easily identified. Also, 34.6 % of the participants had no idea about whether potential sexual assaulters can be easily identified or not, and 24.2 % of the participants had no idea about whether unwanted sconductnducts between partners can be considered sexual harassment and assault or not.

Table 2: Frequencies of Participants' Answers to Sexual Harassment and Assault Knowledge Test Items

		KNOWLEDGED		BIASED		NO IDEA	
		Men	Women	Men	Women	Men	Women
*1.	No evidence about sexual assault in the medical examination, means that there is no sexual assault.	64.8%	77.1%	6.6%	3.3%	28.6%	19.6%
*2.	Staying silent during sexual harassment and assault means that the person has given their consent.	89.6%	95.9%	6.8%	1.2%	3.7%	2.9%
*3.	Sexual harassment and assault usually occurs in marginal locations.	72.8%	85.1%	7%	1.6%	20.2%	13.4%
*4.	Men can not be sexually assaulted.	93%	94.3%	2.4%	1.1%	4.6%	4.6%
*5.	Sexual assaulters generally have low socioeconomic status.	69.2%	78.5%	12.5%	6.7%	18.3%	14.8%
#6.	Sexual haressment and assault frequently committed by someone who knows the victim.	13.7%	14.3%	59.8%	65.2%	26.5%	20.5%
*7.	Behaviors that do not involve use of physical force can't be accepted as sexual assault.	89%	94.2%	3.9%	1.1%	7.2%	4.7%
*8.	Sexual harassment and assault occurs only in dark and isolated locations.	89.2%	93.4%	4.4%	2.2%	6.4%	4.4%
#9.	Forcing someone to watch sexually explicit images is a sexual haressment.	79.2%	85.2%	12.4%	9.3%	8.5%	5.5%
#10.	Asking for a date persistently is a sexual harressment.	62.2%	78.6%	18.5%	10.2%	19.3%	11.3%
*11.	Sexual assaulters are people who can't control their sexual urges.	13.6%	16.2%	72.4%	69.5%	14%	14.2%
*12.	Potential for sexual assaulters can be easily identified.	49.6%	56.6%	17.6%	8.8%	32.7%	34.6%
#13.	After sexual harassment and assault, the victim's trauma symptoms may appear at different times	69.2%	75.2%	5.5%	4%	25.4%	20.8%
*14.	Sexual intercourse is essential for the crime of sexual assault.	86%	93.2%	5.5%	2.1%	8.5%	4.7%
*15.	Unwanted sexual conducts between partners cannot be considered sexual harassment or assault	43.3%	59.8%	31.7%	18.9%	25%	21.4%
#16.	A sexual assaulter may be of different or same gender with the victim.	88.7%	91.6%	4.9%	3.6%	6.4%	4.8%

The item is true
* The item is false

3.2. Predictors of Levels of Knowledge about Sexual Harassment and Assault

CHAID analyses identified multiple predictors of levels of knowledge about sexual harassment and assault that concern sex, dating experience, being sexually harassed or assaulted, and taking gender-equality training (Figure 1). The CHAID analysis also revealed that the strongest predictor of a student's level of knowledge about sexual harassment and assault was sex, as female participants had more knowledge than male participants, χ^2 (2, 7302) = 328.33, adj p = .000. Indeed, 21.9 % of female participants had high-level knowledge about sexual harassment and assault, whereas only 10.7 % of the male participants had high-level knowledge about sexual harassment and assault.
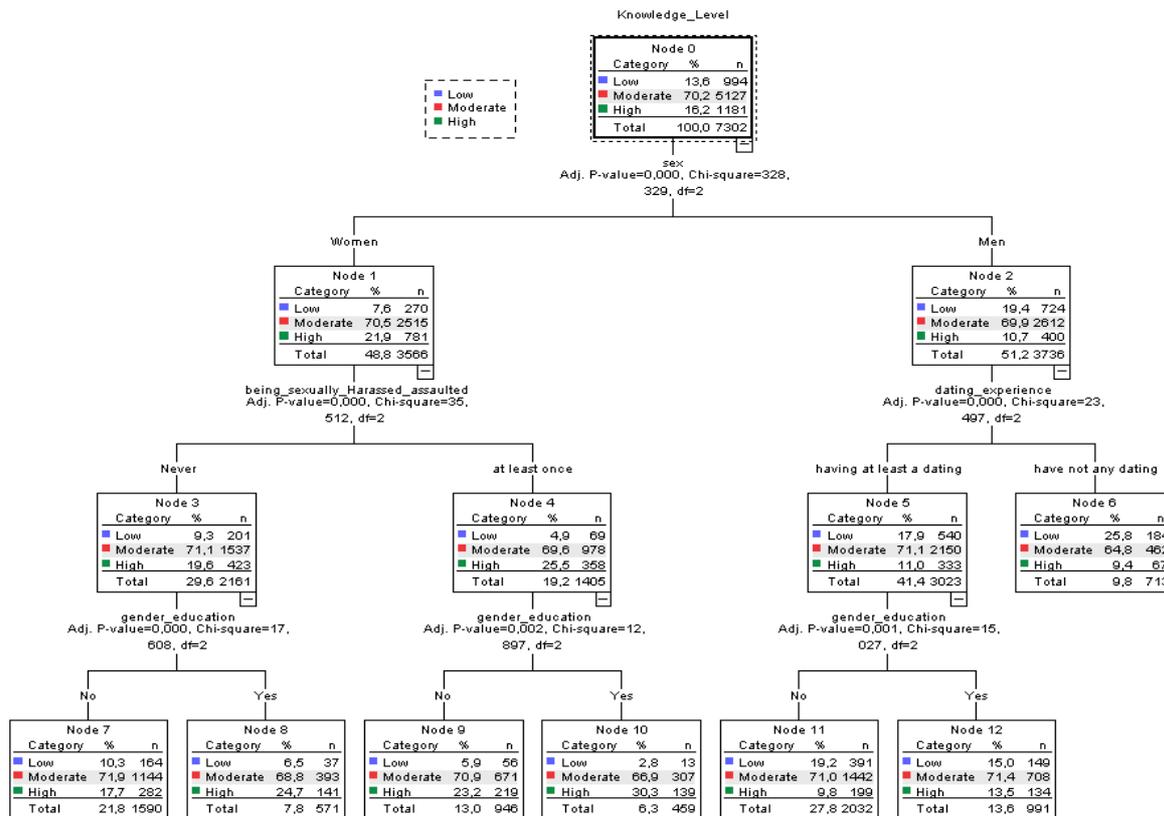
Figure 1: CHAID Analysis of the Level of Knowledge about Sexual Harassment and Assault

Among the female participants, whether they had been exposed to sexual harassment and assault predicted their level of knowledge, χ^2 (2, 3566) = 35.51, p = .000. Findings reveal that 25.5 % of the females that had been exposed to sexual harassment and assault at least once had high-level knowledge about sexual harassment and assault. By contrast, only 19.6 % of females that had never been sexually assaulted or harassed had high-level knowledge about sexual harassment and assault. Taking gender equality education was another variable that predicted a student's level of knowledge about sexual harassment and assault among female participants, including those with exposure to sexual harassment and assault at least once, χ^2 (2, 1405) = 12.90, adj p = .002, and females that had never been sexually assaulted or harassed, χ^2 (2, 2161) = 17.61, adj p = .000. Furthermore, 24.9 % of females that had not been sexually assaulted or harassed and that had taken gender equality education had high-level knowledge, while 17.7 % of females that had not been sexually assaulted or harassed but had not taken gender equality education had high-level of knowledge. Moreover, 30.3 % of female participants that had been exposed to sexual harassment and assault at least once and that had taken gender equality education had high-level of knowledge, while 23.2 % of females that had been sexually assaulted or harassed at least once but had not taken gender-equality education had high-level knowledge.

In contrast, among the male participants, dating experience was the strongest predictor of level of knowledge, χ^2 (2, 3736) = 23.50, adj p = .000. In this respect, 11 % of males that had dated at least once had high-level knowledge, while 9.4 % of males that had not dated at all had high-level knowledge. Taking gender-equality education was also a variable that predicted male students' levels of knowledge about sexual harassment and assault, for men that had dated at least once, χ^2 (2, 3023) = 15.02, adj p = .001. Thus, 13.5 % of males that had dated at least once and had taken gender-equality education had high-level knowledge, while 9.8% of males that had dated at least once but had not taken gender-equality education had high-level knowledge.

3.3. The Accuracy of the CHAID Model

Classification accuracy and risk estimates can be used to assess the success of this model. As a result of the CHAID analysis, the risk estimate was found to be .20 and the standard error was .005. The overall model resulted in a classification accuracy of approximately 79.5 % within the sample. Cramer's V effect size and statistical significance were both calculated for each node (see Table 3). Table 3 reveals that all relationships were within the small-effect size range.

Table 3: Effect Size Values for Knowledge about Sexual Harassment and Assault

Relationships	Node	Chi-Square	Cramers' V	Effect Size
Sex	0	328.33	.21	Medium
Exposed to sexual assault at least once for women	1	35.51	.10	Small
Dating experience for men	2	23.50	.08	Small
Taking gender education for women never harassed/assaulted	3	17.61	.12	Small
Taking gender education for women harassed/assaulted at least once	4	12.90	.10	Small
Taking gender education for men	5	15.03	.07	Small

4. Discussion

Regarding the participants' level of knowledge about sexual harassment and assault, the two-step cluster analysis results show that 70 % of the participants have moderate knowledge. Accordingly, the majority of the participants could correctly answer a maximum of 12 questions out of 16 items in the SHAKT. Research in the related literature similarly asserts a lack of information about sexual harassment and assault among college students (DeSouza & Fansler, 2003; Equal Opportunities Commission, 2013; Krebs et al., 2007).

The frequency distributions of the SHAKT items also, support this finding. Evaluation of the level of participants' knowledge of each item reveals that most of the respondents do not believe that "Sexual harassment and assault are frequently committed by someone that knows the victim" (Item 6)". Interestingly, Item 6 is one of the most common stereotypes about sexual harassment and assault. According to 22–24.2 % of college students (Ahmad & Kamal, 2000; Kamal, Shaikh, & Shaikh, 2010), sexual assaults are only carried out by strangers. Yet, many studies emphasize that a significant portion of sexual assaults are carried out by people that are close to or known to the victim (Balcı, Erbaş, Işık, & Karbeyaz, 2014; Kernsmith, Comartin, Craun, & Kernsmith, 2009; Lee et al. 2010; WHO, 2017; Xue et al. 2019). Indeed, women are four times as likely to be raped by an acquaintance than by a stranger (Syzmanski, Devlin, Chrisler, & Vyse, 1993). Additionally, studies involving victims indicate that most know their aggressor, and this acquaintance makes it difficult to report the incident (Illinois Coalition Against Sexual Assault, 1995; Lee, Busch, Kim, & Lim., 2007).

College students also tend to believe that "Sexual assaulters are people who can't control their sexual urges" (Item 11). This is another common stereotype, with studies conducted with college students finding that 43.9 % (Johnson, Kuck, & Schonder, 1997) and more than half (Xue et al., 2019) of participants agreed that assailants were unable to control their sexual urges. However, less studies are conducted with aggressors than with victims.

A study by Amir (1971), based on police records about rape incidents, notes that 71 % of rape incidents were previously planned, and that actions were not impulsive (as cited in Scully, 1994).

Another finding from this study reveals that one-third of participants responded "I do not know" to Item 12 ("People that have the potential to be sexual assaulters can be easily distinguished") and approximately one-quarter of participants responded "I do not know" to Item 1 ("No evidence about sexual assault in the medical examination, means that there is no sexual assault."), as well as to Item 13 ("After sexual harassment and assault, the victim's trauma symptoms may appear at different times") and Item 15 ("Unwanted sexual conducts between partners cannot be considered sexual harassment or assault"). Similarly, 40 % (Ahmad & Kamal, 2000) and 33 % (Kamal, Shaikh, & Shaikh, 2010) of college students reported that sexual behaviors among married couples cannot be identified as sexual assault. In another study, 20 % of college students reported that they were undecided about a statement explaining that women could be sexually assaulted by their partners. Nearly a quarter of college students reported that they were undecided about the notion that "Men from nice middle-class homes almost never rape" and "Rapists are usually sexually frustrated individuals" (Xue et al. 2019). Another common myth about attackers is that "He's not the kind of guy that would do this" (Franiuk, Seefelt, & Vandello, 2008). In a scenario in which date rape was committed, 36.8 % of students would describe the victim as having been sexually assaulted, whereas 16.8 % stated that it is not a sexual assault (Gölge, Yavuz, Müderrisoglu, & Yavuz, 2003). Many studies suggest that stereotypes and myths about sexual harassment and assault contribute to the continuation of sexual violence (Cowan, 2000; Lonsway, & Fitzgerald, 1994). In fact, these stereotypes are common in many cultures (Kalra & Bhugra, 2013), which continue to nurture a "rape-supportive" climate (Struckman-Johnson & Struckman-Johnson, 1992).

This finding illustrates a lack of adequate knowledge concerning sexual harassment and assault. This is not surprising, as gender inequality and gender stereotypes underpin gender-based violence and sexual harassment (Gilmartin, 1994; Polat, 2017). According to The Global Gender Gap Report (World Economic Forum, 2018), Turkey ranks 130 among 149 countries that are benchmarked by their progress towards gender parity. Information on sexual harassment and assault is provided in the context of sexual health or gender-equality education, in an educational setting. Secondary and high-school curriculums in Turkey do not include any compulsory or elective courses in this area (Esen, 2016). Furthermore, in terms of gender analysis, course content in primary and secondary education programs similarly fails to provide examples of gender equality (Karakuş, Mutlu, & Diker Çoşkun, 2018). Examples of these courses are also limited in colleges. For example, a study examining counseling programs found that only ten of 79 counseling undergraduate programs involved a gender equality course, and only 17 included sexual health lessons (Siyez & Soylu, 2017).

One source of accurate information about sexual harassment and assault for college students is colleges' sexual assault response and prevention centers. Although the establishment of these center is mandatory in many states of the USA (under Title IX), they were only recently introduced in Turkey. The Higher Education Council (2015) states that efforts should be made to prevent sexual harassment and assault in universities, but the number of universities with these units remains low. In Turkey, eight out of 179 universities (112 state and 67 private universities) have units working on sexual harassment and assault. In these units, psychological, legal, and medical support is provided to victims.

This study's findings also illustrate that gender is the first predictive variable of participants' level of knowledge. Similarly, many studies report that the level of knowledge of female college students is higher than that of men college students (Karjane, Fisher, & Cullen, 2005; Krebs et al., 2007; Yiğitalp et al., 2007). Women having more knowledge than men can partly be attributed to differences in parents' child-rearing styles, as girls are more-protectively raised by their parents than boys are. Research conducted on the topic reveals that parents are more protective over girls (McNaughton, & Niedzwiecki, 2000; Mızrakçı, 1994; Morrongiello, & Dawber, 1999; Stephens, 2009). Şanlı and Öztürk (2015) note that parental attitudes differ by gender, with 13.9 % of parents exhibiting authoritarian attitudes when raising girls but only 8.6 % when raising boys. In another study, democratic parental attitudes were found to differ in favor of males (Aydoğdu & Dilekmen, 2018). In addition, boys are considered stronger and more resilient, while girls are understood to be more vulnerable (Grigorenko & Sternberg, 2000). As part of these differing processes, parents may provide more information to daughters, in order to protect

themselves. Thus, the high rates of sexual harassment, assault, and risk to women may explain their increased sensitivity and awareness of the issue (Cantor et al., 2015; Eroğlu et al., 2017; Fisher et al., 2000; Krebs et al., 2007).

Women's increased knowledge, compared to men, is also understandable in terms of past experiences. Research carried out in different countries asserts that women are more exposed to sexual harassment and assault than men (Karjane et al., 2005; Krebs et al., 2007; Yiğitalp et al., 2007). Indeed, this study demonstrates that exposure to harassment is a discriminative variable in terms of women's level of knowledge. Those exposed to sexual harassment or assault tend to read formal or informal resources related to their situation, aside from seeking medical and legal assistance (Ullman, Starzynski, Long, Mason, & Long, 2008). Experiences, described from the victim's perspective on the issue, may have effected this increased level of knowledge. Exposure to sexual harassment and assault can have negative effects on the individual (Carey, Norris, Durney, Shepardson, & Carey, 2018; Ullman et al., 2007), both in the short and long term, and may increase their sensitivity to this issue.

This study has determined that the most important variable predicting men's level of knowledge is their experiences of dating. Accordingly, men with experiences of flirting have a higher level of knowledge. Schema therapy asserts that individuals develop schemas for relationships, based on the relationships with which they interact (van Genderen, Rijkboer, & Arntz, 2012). Following this approach, and since past experiences affect current behaviors, past relationships can be expected to shape individuals' current lives. Thus, these individuals may gain increased awareness if they receive feedback about behaviors at the end of a relationship.

In this study, gender-equality education was found to affect the level of knowledge of both men and women students. Accordingly, those taking gender-equality education had a higher level of knowledge than those that had not undertaken such a course. There is a broad consensus that gender-based inequality lies at the root of the acts of sexual harassment and sexual assault, which occur in different forms of violence in every level of societies (Canadian Women's Foundation 2016). Gender-equality education emphasizes an egalitarian perspective, while aiming to reduce stereotyped judgements. An examination of the literature reveals that many studies emphasize that gender-equality education is an effective factor (Soylu & Esen, 2018).

Limitations of this research should also be considered. First, it is not possible to draw a conclusion about a cause-and-effect relationship between dependent and independent variables, due to the study's cross-sectional research design. Secondly, self-reported data collection tools were used in this study, which means participants may have given false negative and/or false positive responses to explain private details, especially about exposure to sexual assault and harassment. Thirdly, a limited number of independent variables were evaluated in this study.

In light of the findings of this study, it is possible to provide suggestions for researchers and practitioners. Other variables may be evaluated as predictors, such as the respondent being a perpetrator, gender roles, and tolerance for sexual harassment and assault in social environments. Considering the influence of gender-focused courses on levels of knowledge, an extension of these courses is recommended. A connection can also be made between lack of knowledge about sexual harassment and assault and the inability to resist violence. The results of this research illustrate that some actions are not included in definitions of sexual harassment and that sexual violence by close acquaintances or partners is not perceived as violence. In particular, the fact that dating violence is not perceived as violence suggests that anyone can tolerate violence and accept this as a natural form of suffering. In this context, it is necessary to teach college students about basic legal, psychological, and medical knowledge of sexual harassment and assault. College students should also be provided with effective training to teach basic information about sexual harassment and assault. In addition to this training, various social media campaigns, such as #metoo or #heforshe, which have had a great impact, can be useful to raise awareness.

It is observed that there is not enough preventive work carried out at the case college where the research is conducted. Although there are courses related to gender in some departments of some faculties (for example, Faculty of Medicine, Department of Psychological Counseling and Guidance), it seems that this is not sufficient. In addition, it is emphasized that prevention works towards developing more positive and healthy behaviors are more successful (Berkowitz, 2001; Borges, Banyard, & Moynihan, 2008). In this context, it is possible to make

additional suggestions based on the case college settings. Research on sexual harassment and assault prevention programs shows that interaction-based, long-term, internet-based training programs can also be effective (Anderson & Whiston, 2005; Borges et al., 2008). It is thought that the interactive nature of the internet can engage and motivate students more actively to process information in a meaningful way (Heppner, Humphrey, Hillenbrand-Gunn, & DeBord, 1995). It is also mentioned that effective sexual violence prevention programs should use different strategies and mechanisms to educate individuals (Centers for Disease Control and Prevention, 2004). Accordingly, it can be suggested that various strategies should be used in training programs on sexual harassment and assault and that these programs may be internet-based. Moreover, it may be advisable to provide specific information on sexual harassment and assault in an accessible section of the college web pages. This information may include instructions on content, policies, sources of reference and myths about sexual harassment and assault (Buhi, Clayton, & Surrency, 2009). In this way, it can be ensured that the students in the college can easily access the accurate information.

Researchers also note that prevention programs that are prepared specifically for a particular population may be more effective (Wandersman & Florin, 2003). An examination of the literature reveals that providing accessible and accurate information about sexual assault can reduce the rate of sexual assault on college campuses, and can also increase student safety and help to fulfill the task of providing a safe educational environment for all students (Sözer & Clevenger, 2010). In addition, the results of this study emphasize that prevention efforts that work toward developing more positive and healthy behaviors are particularly successful (Berkowitz, 2001; Borges et al., 2008). In addition, it is advisable to provide specific information on sexual harassment and assault, in accessible sections of college webpages. This information may include information on content, policies, sources of reference, and myths about sexual harassment and assault (Buhi et al., 2009). This way can ensure students in the college can easily access accurate information. General observations gleaned from the findings of this study include a lack of knowledge and misconceptions about the sexual harassment and assault of college students. Despite awareness campaigns and efforts to prevent sexual harassment and assault in recent years, college students' knowledge does not reach the desired level. Thus, they need more comprehensive and tailored interventions.

Acknowledgments

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A Comparative Evaluation of Undergraduate Programs of Arabic Translation and Interpreting Departments in Turkey

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Abstract
It is seen that the importance and need for Arabic have been increasing in Turkey in recent years, and the variety and number of programs for the Arabic language in higher education institutions are also increasing. It is noteworthy that the Arabic Language and Literature and Arabic Language Teaching departments, which have a long history, and the Arabic Translation and Interpretation departments, have been increasing in the state and private universities in recent years. In this study, the undergraduate programs of the Arabic translation and interpretation departments in the first three universities, which currently accept students from state universities, were examined from various perspectives. In these universities, the number of courses of Arabic Translation and Interpretation departments, the courses and the intensity of the translation field according to the semesters were evaluated. As a result of the study, it draws attention that there are differences between the programs. The differences observed in the undergraduate programs of these departments, which were opened for the same purpose, suggest that a common program should be created between the departments. In this context, some suggestions have been made regarding the current status of Arabic translation and interpretation undergraduate programs at universities.

Keywords: Education planning, Program, Higher education, Translation and interpretation, Translation education, Arabic

1. Introduction

In recent years, remarkably important steps have been taken regarding the teaching of Arabic in Turkey. Depending on Turkey's geographical location and history, its relationship with Arabic speaking countries increases the importance of this language. Arabic is among the most desired foreign languages to be learned as a foreign language after English among Turkish society. The fact that Arabic, which is among the official languages

accepted by the UN, is included under the name of various programs in higher education institutions makes it necessary to examine this field.

In order for the manpower developed in the education process to reach the determined target it is necessary to have a planned education program in this process. It has become necessary for the education system to train manpower in quality and quantity equipped with the knowledge and skills appropriate to the contemporary developments required by the development at all levels and fields (Tok, 2006, p.1). It is an educational program that is a guide that handles the educational process in every aspect, plans it and determines what will be done according to the objectives to be achieved. The education program, which is one of the building blocks of the education process, has a different importance at all levels. The curriculum is the planned arrangement of the knowledge, skills, attitudes, behaviors that are desired to be acquired by the student in line with the objectives of the education program. Thus, this program, which includes in-school life, is a guide that covers the lessons taught (Komisyon, 2010, p. 33; akt. Özcan, 2012, p.12). The perspective of the curriculum is generally expressed by the Ministry of National Education as follows:

> "The main purpose of our education system is to raise individuals with knowledge, skills and behaviors integrated with values and competencies. While trying to gain knowledge, skills and behaviors through curricula, our values and competencies function as a link and horizon that establishes the integrity between these knowledge, skills and behaviors (MEB, 2019, p. 4)."

Translation education can be defined as giving theoretical and practical courses in order to gain the ability of translating between languages to individuals who receive any foreign language education. A foreign language learner can produce qualified translations from a foreign language to the mother tongue or among the foreign languages he has learned, thanks to the lessons he has taken in this field. Güngenci and Yıldız (2020, p.706) state that besides the four basic skills of listening, speaking, reading and writing, translation activity can also be seen as a language skill. Graduates of translation and interpreting departments, where translation education is given, can perform translation as a profession.

The translation profession is a profession in itself that provides written-oral communication between two different languages and cultures at every stage of international relations, and requires specialization and professionalism in itself according to the application areas (İletişim Başkanlığı, 2021, p.14). Accordingly, the courses that will enable candidates of the profession in the departments of translation and interpreting to translate in various fields during their education and provide them with expertise should be included in the education program. In this process, the education programs that form the framework of the basic knowledge and skills that students are expected to acquire in a specific field are important. Akalın (2016, s.57), emphasizes that it is necessary to determine the requirements, criteria, criteria and common acceptances in education by defending that translation training institutions are based on chance and that it is impossible for a translator to earn her life by chance. Evaluation is an indispensable tool for meeting needs or filling identified gaps, correcting errors, reorganizing and updating the program (Bantwini, 2010). Examining any undergraduate program or an education program at a different level in the light of certain criteria will provide an opportunity to update the deficiencies or differences in that program.

According to Varış (1988), education program development in education cannot be solved by being limited within the framework of certain people's own ideas. In order to ensure the development of the educational process, it is necessary to go to the source of the problem, to examine the success of students and teachers in the school, and to observe the functioning of the school. In order to get an absolute conclusion about the strengths and weaknesses of the program, it may be necessary to evaluate it with various variables states that the Taba-Tyler approach is focused on the program development process in Turkey (Demirel 1992, p. 32). It is recommended to work in eight stages in the process followed according to this approach. These stages are listed as follows: Determining the needs, determining the goals, selecting the content, organizing the content, choosing the learning experiences, organizing the learning activities, determining what to evaluate, the order of the program elements and the control of the relationships (Oliva, 1988, p.165).

In this study, by analyzing the curriculum of the Arabic translation and interpreting departments, it was revealed which courses were focused on during the education. Accordingly, it was examined that which courses of the curriculum of the undergraduate program with the same name in different universities differ from each other.

1.1. Current Situation in Arabic Translation and Interpreting Departments in Turkey

Translation, which plays an important role in intercultural interaction, increases its importance day by day with the increase of inter-country communication. Accordingly, translation departments are opened in higher education institutions in order to train qualified manpower. Of course, the need for translation and translators is on the rise due to the peak of Turkey's international relations in economic, political, cultural and touristic fields for the last 30-35 years, especially in the last 15 years (Ersoy, Şahin ve Türkmen. 2017, p.414). The beginning of translation education in higher education in Turkey dates back to 1980s. Firstly, in the academic year of 1983-1984, Boğaziçi and Hacettepe universities started translation education with English translation and interpreting departments. (Eruz, 2003, p.96). In the beginning of the 90's, translation training in French and German languages besides English started in Turkey (Bildik, 2015, p.70). Today, besides the languages listed, there are translation and interpretation departments of Arabic, Bulgarian, Chinese, Persian and Russian languages. (YÖK, 2020). According to the report published by the Republic of Turkey Prime Ministry Administration Development Presidency on the translation profession in 2015, translation education in our country is in English (54%), French (17%), German (11%), Russian (7%), Arabic (6%) and other languages (5%). (Bulgarian, Chinese, Kyrgyz) (Başbakanlık İdareyi Geliştirme Başkanlığı, 2015, p. 17).

Considering the developing relations between Arab countries and Turkey in recent years, Arabic translation-interpretation departments have been established in order to meet the need for translators by training qualified translators in the field of Arabic-Turkish translation. Both oral and written Arabic Turkish translation training is provided in the Arabic translation and interpretation departments, which have been established and started to operate within both private universities and government universities. Accordingly, it is important to examine the undergraduate curricula that provide information about the translation education provided in these departments. Suçin (2015, p.41-51), In his presentation titled "Arabic translation training and Arabic literary translation workshops in Turkey" he presented in the Young Interpreters Workshop, he made some suggestions about translation education by evaluating the Arabic translation education in the existing departments related to Arabic in Turkey. Kara (2010, s.99), emphasizes that the translation education given in the academic environment has important duties by evaluating the translators who are well-equipped, experts in their fields and who have absorbed the knowledge of translational methodology as one of the cornerstones of today's language and intercultural communication network. Especially, it is an important point that translator candidates, who have an important place in this field, work on practice besides their theoretical knowledge and as a result they reach a qualified position in their field. The main purpose of institutions that provide translation education should be to train translators who can achieve the academic development and progress of translation, within the framework of industrializing world conditions, by combining the theoretical and practical aspects of translation, and who can meet the professional requirements in the translation sector (Erol, 2017, p.83).

In addition to Arabic language and literature, Arabic teaching departments, Arabic translation and interpretation departments have also increased quantitatively in recent years. One of the primary reasons for this is the need for educated manpower in this field depending on the relations between countries. The status of undergraduate programs related to Arabic that are currently enrolling students at universities in Turkey is as follows:

Table 1: Distribution of Programs

Program Name	Government University	Private University	Total
Arabic Language Teaching	4	4	8
Arapça Language and Literature	9	-	9
Translation and Interpretation (Arabic) Faculty	3	2	4
Translation and Interpretation (Arabic) College	1	2	4

(YÖK, 2020)

Table 1 shows that there are three different undergraduate programs related to Arabic in universities. It is seen that the department of Arabic language and literature is more than the other departments in terms of quantity. Some of the Translation and Interpreting departments are within the faculty, while others continue their education in the colleges of universities. There is no difference between the departments in the college and the programs in the faculty. It is noteworthy that Arabic teaching and translation and interpreting departments have an equal distribution among both state and private universities. However, it is striking that the department of Arabic language and literature is not available at private universities. A total of eight Arabic translation and interpreting departments are active, four in foundation universities and four in state universities. These departments aim to train translators with sufficient professional knowledge and equipment in the field of Arabic-Turkish translation. In this study, the curricula of the first three Arabic Translation and Interpretation departments, which were established within government universities and started education, were compared. Among these departments, Kırıkkale University Arabic Translation and Interpretation undergraduate program was established in 2011 and started teaching in the 2011-2012 academic year. The Arabic translation-interpretation department at this university was previously the department of Arabic language and literature, and it is the first department to be opened among state universities in this field. In the 2014-2015 academic year, 250 students receive education in the department, which gave its first graduates. Kırıkkale University Faculty of Arts and Sciences Arabic Translation and Interpretation Department has 50 quotas and accepts students in the type of language score. (Kırıkkale Üniversitesi, 2020). Karamanoğlu Mehmetbey University Arabic Translation and Interpretation Department was established in 2017 within the School of Foreign Languages and started its educational activities in the 2018-2019 academic year. The department, which receives 60 students per year from the language score type, continues its education with 180 students. The third Department of Arabic Translation and Interpretation included in this study was established within Ankara Yıldırım Beyazıt University Faculty of Humanities and Social Sciences and started education in the 2017-2018 academic year. The department, which accepts students from the language score type, accepts 60 students per year. All these departments, which provide one-year preparatory education, provide five years of education, including preparatory + 4 (four) years undergraduate.

2. Method

2.1. Aim of Study

The aim of the research is to create a framework for the current education programs of Arabic translation and interpreting departments in higher education institutions. Thus, it was aimed to reveal the differences and similarities of this developing department. In addition, various suggestions were made by revealing the differences between these departments.

2.2. Limitations of the Study

In the research, Arabic Translation and Interpretation departments programs in higher education institutions were discussed to analyze documents. Undergraduate curriculum of the programs has been examined and based on field courses. Preparatory education and elective courses are excluded from the research. This research was limited to examine the number of courses and the items of course content in order to determine the differences and similarities between the programs. In addition, this study covers the first three universities opened in state universities and the departments that currently accept students. The program of the same department in private universities is not covered in this study.

2.3. Universe and Sample

The universe of the research consists of Arabic Translation and Interpretation Undergraduate programs that provide education in higher education institutions. The sample of the study consists of the first three undergraduate programs opened in state universities as the department of Arabic Translation and Interpretation. These universities: Ankara Yıldırım Beyazıt University, Kırıkkale University and Karamanoglu Mehmetbey University.

2.4. Method of Research

Document analysis method that is one of the qualitative research methods was used in the study. Document analysis is a qualitative research method used to diligently and systematically analyze the content of documents. Document analysis is a systematic method used to examine and evaluate all documents, including printed and electronic materials. Like other methods used in qualitative research, document analysis requires the analysis and interpretation of data in order to make sense, create an understanding about the relevant subject, and develop empirical knowledge (Corbin & Strauss, 2008). The programs utilized by this method in this research were evaluated under various factors.

3. Findings

3.1. Number of Courses

The table below offers the opportunity to compare the number of undergraduate courses in Arabic Translation and Interpretation departments at universities in Turkey. In this table, the current curriculum shared by universities on their websites is discussed. The number of courses is indicated without making the distinction between elective and compulsory courses. In this table, YOK compulsory 5-i courses are not included in the number of courses. There is number of courses on Arabic translation education.

Table 2: Arabic Translation and Interpreting Departments Distribution of Arabic Translation Courses

	Ankara Yıldırım Beyazıt University	Karamanoglu Mehmetbey University	Kırıkkale University
1st Semester	7	5	5
2nd Semester	8	5	5
3rd Semester	11	7	7
4th Semester	11	7	7
5th Semester	9	8	8
6th Semester	9	8	8
7th Semester	9	7	8
8th Semester	7	7	8
Total	71	54	56

Although the number of courses of KMU and KKU Arabic Translation and Interpreting departments is close to each other during their education, the number of courses AYBU Arabic Translation and Interpreting Department is higher than other departments. This situation brings an intense course load at AYBU during undergraduate education compared to other universities.

Table 3: Rate of Translation Courses in Programs Over Other Courses According to Universities

Program Areas	AYBU	Kırıkkale University	Karamanoglu Mehmetbey University
Translation Courses	%40,2	%37,1	%41,6
Other Courses	%59,8	%62,9	%58,4
Total	%100	%100	%100

When the distribution of "translation courses" and "other courses" of the programs according to universities is examined, it is seen that the rates of Arabic teaching, elective courses and 5i (English, History, Turkish Language etc.) courses are higher than translation courses. However, the rates of translation courses vary between programs. Translation courses are offered at the rate of 40.2% in AYBU, 37.1% in KKU and 41.6% in KMU. In this case, it has been determined that the number of translation courses of the KMU Arabic Translation and Interpreting

Department undergraduate program is higher than the other departments. AYBU and KKU programs follow this section, respectively.

3.2. Courses in The Arabic Translation and Interpreting Departments

Table 4: 1st Semester Field Information Course Distribution

No	Ankara Yıldırım Beyazıt University	Kırıkkale University	Karamanoglu Mehmetbey University
1.	Grammar I	Arabic Grammar I	Arabic Grammar I
2.	Writing Skill I	Dictation	Written Expression I
3.	Oral Expression I	Oral Communication I	Oral Communication I
4.	Pre-Islamic Arab Culture	Lexicology I	Lexicology I
5.	Reading-Analysis I	Reading Translation I	Introduction to Translation I
6.	Legal Translation I (Arabic-Turkish)	-	-
7.	Media Translation	-	-

When the first semester courses of Arabic Translation and Interpreting Undergraduate programs are examined, it is seen that there are similar courses on language skills in all departments. However, there are also differences between the programs. While AYBU has seven courses in the first term, it is seen that there are five courses in KKU and KMU. In terms of translation courses, "Legal Translation I (Arabic-Turkish)" and "Media Translation" courses at AYBU, "Reading Translation-I" course at KKU and "Introduction to Translation I" course at KMU are in the program. When a comparison is made in terms of translation courses, it is seen that translation specialization courses are given starting from the first semester in AYBU program. The reason for this may be the thought that students who take preparatory education have completed a certain amount of language skills lessons.

Table 5: 2nd Semester Field Information Course Distribution

No	Ankara Yıldırım Beyazıt University	Kırıkkale University	Karamanoglu Mehmetbey University
1.	Grammar II	Arabic Grammar II	Arabic Grammar II
2.	Auditory Analysis	Lexicology II	Lexicology II
3.	Writing Skill II	Written Expression I	Written Expression II
4.	Oral Expression II	Oral Communication II	Oral Communication II
5.	Reading-Analysis II	Reading Translation II	Introduction to Translation II
6.	News Translation I (Arabic-Turkish)	-	-
7.	Legal Translation II (Turkish-Arabic)	-	-
8.	Post-Islamic Arab Culture I (Islamic period and Umayyads)	-	-

When second semester courses are examined, it is seen that language skills courses are available in this period and that the first term courses are continuation in all three programs. When the programs are evaluated in terms of translation courses, it is seen that the "Legal Translation I" course is given with translation from Arabic to Turkish in the first semester in the AYBU program, there is "Legal Translation II" course is a continuation course with translation from Turkish to Arabic in the second semester. In addition, as in the first semester, there is a lesson on Arab culture in this semester as a lesson on "Post-Islamic Arab Culture I (Islamic period and Umayyads)" at AYBU. Besides that, instead of the "Media Translation" course in the first semester, "News Translation I (Arabic-Turkish)" is taught in the second semester. As can be seen, many courses in this semester are the continuation of the previous term courses.

Language skills courses in the KKU program are a continuation of the previous term and it is seen that the "Written Expression I" course is included instead of the "Dictation" course. In this department program, it is seen that the students are aimed to be competent in Arabic writing and to improve their dictation skills, and then to improve

their written expression skills with the written expression course. There is a "Reading Translation II" course in the field of translation and it is a continuation of the "Reading Translation I" course in the previous term. In this context, it is seen that there is no difference and diversity in terms of translation courses in the first and second semesters at KKU. It is noteworthy that general language skills courses in KMU continue in this period as a continuation of the first term.

Table 6: 3rd Semester Field Information Course Distribution

No	Ankara Yıldırım Beyazıt University	Kırıkkale University	Karamanoglu Mehmetbey University
1.	Post-Islamic Arab Culture II	Arabic Grammar III	Applied Grammar I
2.	News Translation II (Turkish-Arabic)	Arabic Text Translation I	Text Analysis for Translation I
3.	Translation Theories	Oral Expression I	Oral Communication III
4.	Arabic Modern Texts	Turkish-Arabic Translation I	Turkish to Arabic Translation I
5.	Oral Expression III	Written Expression II	Written Expression III
6.	Literary Translation I	Arabic Literature (Classical Period) I	Translation Theories and Methods I
7.	Legal Translation III (Arabic-Turkish)	-	-
8.	Complex Language Structures I (Prepositions and Conjunctions)	-	-

When the courses in the third semester of the Arabic Translation and Interpreting program are examined, it is noteworthy that there are language skills courses in each program. In addition, it is seen that the programs in KKU and KMU contain courses closer to each other. Besides, while there are grammar, oral and written expression lessons in KKU and KMU programs, AYBU has only oral expression courses in this semester similarly. In addition to the high number of courses of AYBU, lessons on special field translations draw attention. It is striking that the special field translation courses available in the third semester of the program at this university are not included in the other two programs. Instead that, both programs include more general translation courses. It can be commented that there is an intensive translation training at AYBU in this semester. In addition, while it is seen that courses on translation theories take place in AYBU and KMU, it is seen that a similar course is not included in the program during the education at KKU.

Table 7: 4th Semester Field Information Course Distribution

No	Ankara Yıldırım Beyazıt University	Kırıkkale University	Karamanoğlu Mehmetbey University
1.	Post-Islamic Arab Culture III	Arabic Grammar IV	Applied Grammar II
2.	News Translation III (Arabic-Turkish)	Arabic Text Translation II	Text Analysis for Translation II
3.	Consecutive Interpreting	Oral Expression II	Verbal Communtation IV
4.	Classical Arabic Texts	Translation from Turkish into Arabic II	Translation from Turkish into Arabic II
5.	Oral Expression IV	Written Expression III	Written Expression IV
6.	Literary Translation II	Arabic Literature (Modern Period) II (Elective)	Translation Theory and Methods II
7.	Legal Translation IV (Turkish-Arabic)	-	-
8.	Complex Language Structures II (Phrases)	-	-
9.	Note Taking Techniques		

When the table is examined, it is seen that there are courses in the programs of each 3 departments as a continuation of the 3rd semester. It is noteworthy that the number of courses in AYBU program has increased in this semester. In the other two programs, as a continuation of the 3rd semester, there was no change in the number of courses. Also in this period, the density of the lessons for special field translation in AYBU's program is observed. In addition, it should be noted that the "Consecutive Translation" course, which is one of the oral translation types, is only included in AYBU's program in this period.

Table 8: 5th Semester Field Information Course Distribution

No	Ankara Yıldırım Beyazıt University	Kırıkkale University	Karamanoğlu Mehmetbey University
1.	Consecutive Translation II (Turkish-Arabic)	Oral Translation Techniques	Consecutive Translation I
2.	Simultaneous Translation I (Arabic-Turkish)	Simultaneous Translation I	Advanced Arabic I
3.	Literary Translation III	Written Translation Techniques I	Written Translation Techniques
4.	Tourism Translation I	Expert Texts I	Special Field Translation I (Press)
5.	Effective Communication Skills I	Dialects of Arabic	Dialects of Arabic I
6.	Diplomacy Translation	Grammar Analysis I	Arab Cultural History I
7.	Legal Translation V	-	Translation History I
8.	Technical Translation I	-	

When the courses in the 5th semester of the Arabic Translation and Interpreting program are examined, it is seen that three programs focus on both oral and written translation courses in this semester. Compared to the other two departments, AYBU has more courses and translation courses for special purposes. In addition to translation courses, there is Effective Communication Skills course at AYBU, Grammar Analysis course at KKU and Advanced Arabic courses in Translation History and Arab Cultural History at KMU. There are special purpose translation courses in five different fields in the 5th semester of the program at AYBU. In this context, only Specialization Texts are available at KKU. In KMU, there is only Special Field Translation (Press) course.

Table 9: 6th Semester Field Information Course Distribution

No	Ankara Yıldırım Beyazıt University	Kırıkkale University	Karamanoğlu Mehmetbey University
1.	Consecutive Translation III	Oral Translation Techniques II	Consecutive Translation II
2.	Simultaneous Translation II (Arabic-Turkish)	Simultaneous Translation II	Translation History II
3.	Effective Communication Skills II	Dialects of Arabic II	Dialects of Arabic II
4.	Tourism Translation II	Expert Texts II	Special Field Translation II (Trade and Economics)
5.	Technical Translation II	Grammar Analysis II	Advanced Arabic II
6.	Religious Texts Terminology and Translation I	Written Translation Techniques II	Written Translation Techniques II
7.	Medical Translation I	-	Arab Cultural History II
8.	Arabic Proverbs and Idioms	-	-

When the courses in the 6th semester of the Arabic Translation and Interpreting programs are examined, it is seen that the 6th semester lessons are the continuation of the 5th semester lessons. However, some courses differ between departments. These different courses are Religious Texts Terminology and Translation, Medical Translation and Arabic Proverbs and Idioms at AYBU, and Special Field Translation (Business and Economics) at KMU. In KKU, it can be said that the courses in this semester are the continuation of the courses in the 5th semester.

Table 10: 7th Semester Field Information Course Distribution

No	Ankara Yıldırım Beyazıt University	Kırıkkale University	Karamanoğlu Mehmetbey University
1.	Internship	Simultaneous Translation III	Simultaneous Translation I
2.	Religious Texts Terminology and Translation II	Arabic Written and Visual Media I	Discourse Translation (Ar-Tr)
3.	Medical Translation II	Media Translation I	Community Translation
4.	Scientific Research Methods	Scientific Texts I	Linguistics
5.	Basic Sources of Arabic	Special Topics I	Translation of Special Fields III (Academic Texts)
6.	Dialects of Arabic I	Dialects of Arabic III	Research Techniques in Social Sciences
7.	Language Proficiency Assessment Techniques	-	-
8.	Computerized Translation Technologies	-	-

When the 7th semester courses of Arabic Translation and Interpretation departments are examined, it is seen that most of the courses of all three universities consist of translation courses. Among the AYBU courses, there is an "internship" course as applied. In addition, as special subject courses in translation, "Religious Texts Terminology and Translation II," "Medical Translation II" and "Computerized Translation Technologies"; Among the KKU courses are Media "Translation I"; Among the courses of KMU, there are "Discourse Translation (Ar-Tr)," "Community Translation" and Special Field Translation III (Academic Texts). " AYBU is seen to be more comprehensive in terms of special field translation lessons.

Table 11: 8th Semester Field Information Course Distribution

No	Ankara Yıldırım Beyazıt University	Kırıkkale University	Karamanoğlu Mehmetbey University
1.	Final project	Simultaneous Translation IV	Simultaneous Translation II
2.	Dialects of Arabic II	Dialects of Arabic IV	Discourse Translation II (Tr-Ar)
3.	Digital Media Translation	Media Translation II	Special Field Translation IV (Subtitle-Dubbing)
4.	Translation Applications	Scientific Texts II	Computer Aided Translation
5.	Contemporary Arab World	Arabic Written and Visual Media II	Linguistics II
6.	Arabic Manuscript Review	Special Topics II	Thesis

When the 8th semester courses of Arabic Translation and Interpretation programs are examined, it is seen that the number of last term courses is 6 in all three programs, and it is seen that all three universities concentrate on translation special field courses in this period. Among AYBU courses, there are "Digital Media Translation," "Translation Practice" courses as special field courses; Among the KKU courses, "Simultaneous Translation IV," "Media Translation" courses, and among KMU courses, "Simultaneous Translation II," "Discourse Translation II (Tr-Ar)," Special Field Translation IV (Subtitle-Dubbing) and "Computer Aided It is seen that there are "translation" lessons. It is seen that especially KKU "Simultaneous Translation" and "Dialects of Arabic" courses consist of four semesters. In addition, KMU "Special Field Translation" courses consist of four semesters and each semester focuses on a different translation area. It is noteworthy that the last semester "Graduation Project" and "Graduation Thesis" courses are included in AYBU and KMU programs. When the three programs are examined, it is seen that the courses in the field of translation are more in the KMU program.

4. Conclusion and Suggestions

In this research, Arabic Translation and Interpretation departments in our country undergraduate education programs; The number of courses, course distribution, the ratio of translation courses to other courses and course contents were evaluated. In the school-based curriculum development approach, it is emphasized that education programs are developed as a result of planning, design, implementation and evaluation studies carried out by institutions (Skilbeck, 1984). Based on this, when the Arabic Translation and Interpreting undergraduate programs are examined, the existing undergraduate programs have been examined in order to reveal whether the program development stages have been carried out and to reveal a more effective program.

Since the Arabic Translation and Interpreting departments in Turkey are still new departments, the undergraduate education programs of the first three universities that started education were discussed. It is possible to summarize the results obtained as follows. When the number of courses and courses of Arabic translation and interpretation departments of all three universities are examined, it is noteworthy that the current department at Ankara Yıldırım Beyazıt University has an intense program content compared to the two departments in other universities. In addition, it can be said that AYBU offers its students the opportunity to meet with the translation sector with the internship course in the 4th semester, which is not included in the other two departments. When the undergraduate programs of Arabic Translation and Interpretation departments were examined in terms of the number of courses, it was found that 71 courses in Ankara Yıldırım Beyazıt University, 56 courses in Kırıkkale University and 54 courses in Karamanoğlu Mehmetbey University were included in the programs of the departments. According to the data, it is noteworthy that translation field courses are more intense in AYBU than KMU and KKU courses. However, when the ratio of translation courses to other courses within departments is examined, the ratio of translation courses is 40.2% in AYBU, 37.1% in KKU and 41.6% in KMU. Based on this, it was noted that KKU's undergraduate program was less than the other two universities in terms of the number of translation courses.

At the end of the study, it was concluded that a common curriculum should be prepared that will contribute to the development of students and eliminate the differences between departments by determining the negative and positive aspects of the curriculum. In this context, the following suggestions that will contribute to the development of students and departments in Translation and Interpretation departments can be considered:
- A commission should be established to examine the curricula of Arabic Translation and Interpretation departments and to prepare a common curriculum,
- In the preparation of the curriculum, the intensity of translation courses should be taken into account,
- Translation course diversity should be determined,
- Which of the special purpose translation courses should be included, should be determined,
- Weekly class hour intensity should be determined,
- The number of courses to be taken per semester should be determined,
- The intensity of the culture lessons should be determined,
- The intensity of the application courses should be determined,
- The current number of faculty members should be taken into consideration while preparing the curriculum,
- Students must have knowledge in the field of translation by working in various public and private institutions at certain intervals in the years before graduation,
- Faculty members from different universities in these departments should come together in a workshop organized for curriculum study and evaluate all aspects of the curriculum,
- If possible, it should be evaluated by taking suggestions that will contribute to the development of the program from the students who graduated from this undergraduate program from different universities and work in the field of translation,
- An intensive study should be done by bringing together translation experts in various fields, at least once in each semester, in a one-day workshop with students,
- With the changes in the field of translation, technological developments and the translation sector should be followed up by the academic community and updated in the curriculum of the departments when necessary,
- Developments in translation technology should be followed by field experts, students should be informed about this and students should be encouraged in studies that can be done in this field.

It is a known fact that it is impossible to make a translation with only theoretical knowledge. Although universities include theoretical and practical courses in their curriculum, it is thought that internships in the sector and meeting with experts who translate in various fields in different activities will contribute to their development. Translator candidates who come together with translation experts in various fields will focus on improving themselves by realizing what difficulties are encountered in the field of practice. In these programs, necessary arrangements can be made in order for the existing curricula to allow this.

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Leadership Styles of Principals Based on Setting, Zone, and Location of Public Colleges of Education in Ghana

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Abstract
This study investigated the leadership styles of principals in public Colleges of Education (CoEs) in Ghana based on the setting, zone and location of the colleges. The quantitative method of the cross-sectional survey design was adopted for the study. The census sampling technique was employed to obtain 38 principals for the study. The Multifactor Leadership Questionnaire (MLQ) by Bass and Avolio (2004) was adapted to collect data from the principals. Means, standard deviation, t-test and ANOVA were utilised in analysing the data. The descriptive analysis established that generally, principals of public CoEs in Ghana mostly used transformational leadership style as compared to transactional and laissez-faire leadership styles. The inferential analyses also revealed that there were no statistically significant differences in the leadership styles of the principals based on setting, zone and location of the colleges. Among the recommendations is that the Ghana Tertiary Education Commission (GTEC), formerly known as the National Council for Teacher Education (NCTE), should consider competence when selecting and appointing principals and not the setting, zone and location of public CoEs because generally, these variables did not statistically significantly determine the leadership styles adopted by the principals.

Keywords: Leadership Styles, Principals, Setting of College, Zone of College, Location of College

INTRODUCTION

The past century has seen a dramatic increase in the economic and political importance of education, making the budget for education one of the largest public spending item in many countries (Plank & Davis, 2020). As such, the importance of education in every country's growth cannot be overemphasized because it is essential in ensuring successful lives of individuals (Saif, Reba & ud Din, 2017). Similarly, Shaw (2011) argues that education is crucial in bringing changes among individuals to enable them to become more functional in the society and impact on societal development. Nsubuga, as cited in Omar and Kavale (2016) purports that formal education system, which comprises basic, secondary, and tertiary training, is very instrumental in developing human capacity for every nation. Aikaman and Unterhalter (2005) share this view when they also argue that education is considered as an important strategy in developing a society. Education, which is "the bedrock and the pillar around which countries develop" (Mensah & Amponsah, 2016, p. 47), could be explained as the development of desirable habits, skills, and attitudes through shaping or modification of behaviour of the individual for adequate adjustment in the society.

Hence, Barrichello, Morano, Feldmann and Jacomossi (2020) sum up the importance of education by indicating it is the antecedent of a nation's competitiveness and modernisation.

Throughout the world, governments have embarked on various educational reforms in order to ensure that quality education is provided to the citizenry (Ylimaki cited in Brezicha, Bergmark & Mitra, 2015). As a result, the role of school leaders has become the focus when it comes to the effective implementation of these educational reforms (Hallinger & Wang, 2015, p. 5; Clifford, Behrstock-Sherrat & Fetters, cited in Brezicha, Bergmark & Mitra, 2015, p. 97). Principals of public Colleges of Education (CoEs) in Ghana, like all other principals of educational institutions in the world, are regarded as leaders who, according to Ngussa, Arego and Kuboja (2015, p. 129) know the way, show the way, walk the way, and ensure that policies, procedures and decisions are implemented with the aim of attaining the set objectives and goals of their respective colleges. In view of this, one cannot discount the significant role of principals in achieving the desired educational outcomes of their colleges.

For the past decade, interest in academic issues has developed day by day by exploring the subject of leadership in higher education, dealing with variations in technological know-how, globalisation, and working innovative practices worldwide, in different industries, and in higher education (Khan, Ismail, Hussain, & Alghazali, 2020). Leadership, as a concept, has been defined in various ways by scholars to suit their views, interests and experiences (Yukl, 2013). As a result, there are variances in how scholars understand the concept of leadership (Adams, Kutty & Zabidi, 2017), with some conceptualizing it "as power, authority, management, administration and supervision" (Boateng, 2012, p. 128). According to Amanchukwu, Stanley and Ololube (2015, p. 7), leadership could be explained as "a relational process that involves mobilizing, influencing, and guiding a group of people to achieve desired goals." Adeyemi and Bolarinwa (2013, p. 187) posit that "leadership is the process of influencing people to willingly work together to achieve set objectives." From the definitions, leadership could be understood as the process of influencing a group of people or a team and providing them with an enabling environment to work collectively to achieve the vision of an organisation.

Evidence exists that leadership plays a crucial role in the achievement of goals and objectives of a school. Mwaura, Thinguri and Mwangi, as cited in Makewa, NgussaBaraka, Arego & Kuboja, 2015) postulate that the quality of education seen in any school is, to a large extent, influenced by the quality of leadership practiced in that school. It is also argued that school leadership is considered as the most crucial and essential factor in a school's success (Salfi, Virk & Hussain, 2014). Similarly, school leadership is significant in ensuring desirable student achievement (Bush, 2016; Wahlstrom, Seashore, Leithwood & Anderson, 2010). This view is shared by other researchers who maintain that leadership is relevant in attaining desired and expected school goals (Makewa, NgussaBaraka, Arego & Kuboja, 2015). This implies that leadership style of principals of public CoEs in Ghana is very crucial in achieving the educational goals because it affects everything and everyone in the colleges.

LEADERSHIP STYLES

Leadership styles refer to the general ways through which subordinates are influenced by their leaders to achieve the goals of an organization. Kiboss and Jemiryott (2014, p. 495) explain leadership styles as "the patterns of behaviour used by leaders in an attempt to influence group members and make decision regarding the mission, strategy, and operations of group activities." Citing Chi, Lan and Dorjgotov (2012) and Riaz, Akram, and Ijaz (2011), Yeh and Hong (2012) postulate that employee motivation, commitment, and performance, are greatly influenced by leadership style to achieve organisational objectives. Similarly, Ibukun, Oyewole and Abe (2011) assert that quality and standards in education could be maintained largely as a result of the ways through which principals effectively perform their leadership responsibilities. This is corroborated by Eyal and Roth (2011) who purport that leadership styles play a significant role in teacher motivation and student achievement. Thus, leadership style of principals of public CoEs in Ghana is vital to the success of the colleges.

Experts in the field of leadership have classified leadership styles in different ways. In one of the most comprehensive reviews on school leadership models, Leithwood and Duke (1999) identified twenty distinct leadership concepts and models and clustered them into six different categories. These categories, not in any order of importance, are transformational, participative, instructional, moral, contingent, and managerial forms of school

leadership. This study, however, is based on Bass and Avolio's (2004) Full Range Leadership Theory (FRLT) comprising transactional, transformational and laissez-faire leadership styles which are found in a continuum. The underlying concept of the FRLT is based on the argument that every leader, to a large extent, may exhibit transactional, transformational and laissez-faire leadership styles.

Transformational leadership seeks to build vision, motivate subordinates, enable intellectual reflection in a professional manner, and assist individual employees in the organisation. By providing individual support, the leader can understand, recognize, and satisfy the concerns and needs of subordinates even though each employee is treated as a unique individual and the leader acts as a role model and encourages teachers to question and reflect critically on their professional values and beliefs (Brezicha, Bergmark & Mitra, 2015, p. 100). Through transformational leadership, tutors of public CoEs in Ghana could be inspired and motivated to look beyond their own self-interest and work hard to attain set goals. Transactional leadership on the other hand seeks to guide and motivate their subordinates to achieve established goals by clarifying role and task requirements, and assisting employees to identify what must be done to achieve desired results (Robbins & Sanghi, 2005). Sadeghi and Pihie (2012) stress that transactional leadership gives the opportunity to subordinates to fulfill their own self-interest, minimise workplace anxiety, and concentrate on clear organizational objectives such as increased quality, customer service, reduced costs, and increased production. Laissez-faire leadership is an inactive leadership style where the leader rejects responsibility, delays decisions, does not provide feedback, and makes no effort to meet the needs of the followers (Hoy & Miskel, 2013). The leader avoids clarifying expectations, resolving conflicts, and making decisions. It is therefore considered as absence of leadership.

The FRLT which has been widely used in different regions of the world, especially in the United States of America, will serve as a useful summary of the key leadership concepts in public CoEs in Ghana in contemporary times.

THE STUDY CONTEXT

Acheampong (2003) indicates that most of the public Teacher Training Colleges (TTCs), now Colleges of Education (CoEs) in Ghana were started as missionary institutions to train ministers, catechists and later teachers. Others were originally traditional secondary schools, which were later converted into Teacher Training Colleges (TTCs). Anamuah-Mensah (2006) argues that since the establishment of institutions to train teachers, many modifications which were as a result of policy changes aimed at producing well trained teachers to meet educational needs at various times, have been made in Ghana's teacher education. These changes, according to Newman (2013), no doubt, have resulted in the production of different cohort of teachers with different types of certificates. In 2004, an Education Review Committee recommended that colleges to be upgraded led to further discussions with the Minister of Education. Subsequently, a College of Education Bill was drafted and this later became a law through the passage of Act 847 by the Parliament of the Republic of Ghana. This was consequently signed into a law on June 27, 2012, whch gave way for the CoEs to become full-fledged tertiary institutions in Ghana. Hence, TTCs which were operating at a level equivalent to Level 4 of the International System of Classification of Education (ISCED 4) was re-designed as CoEs to offer tertiary education in 2008 (Newman, 2013).

In Ghana, CoEs are tertiary institutions established to train students to acquire the necessary professional and academic competencies for teaching in pre-tertiary institutions and non-formal education institutions; build the professional and academic capacities of serving teachers through regular continuing education; provide programmes that will promote the effective teaching of science, mathematics, information and communication technology and other related subjects to meet the needs of contemporary society; and foster links with relevant institutions and the community in order to ensure the holistic training of teachers (Colleges of Education Act, 2012). Currently, there are forty-six (46) public CoEs in Ghana grouped under five zones (Central/Western, Eastern/Greater Accra, Volta, Ashanti/Brong Ahafo, Northern) as specified by the Conference of Principals of Colleges of Education (PRINCOF). The colleges are responsible for the training and preparation of teachers for both primary and junior high school levels in Ghana's basic education setting. Each of these colleges is headed by a principal who is the chief academic, administrative, and disciplinary officer responsible for the general direction

of the College Council or policies that the Council may give. Some specific duties include exercising general authority over staff of the college, and responsible for admissions of students.

Ghana, like many countries, face challenges in their education system. It had been observed that most teachers produced by the pubic CoEs in Ghana over the years were not committed and dedicated. There had been issues about negative attitude of some teachers and supervisors towards instructional supervision in basic schools. Furthermore, numerous minor reforms in Ghana's education for over twenty years had not yielded the desired learning outcomes of learners. Again, preparation of teachers had also not adequately brought about improvement in learning outcomes among learners in basic schools. In view of these challenges, the Government of Ghana, through its Ministry of Education, and with the support from Transforming Teacher Education and Learning, decided to transform initial teacher education in CoEs and universities that train teachers and to provide highly qualified and motivated teachers who are able to inspire their pupils to achieve better outcomes in basic education.

The aim of the new reforms is to instill in new teachers the Nation's core values of honesty, integrity, creativity and responsible citizenship and to achieve inclusive, equitable, high quality education for all learners in line with the Sustainable Development Goal Four (SDG4). The vision of the reform is to prepare new teachers to become effective, engaging and inspirational, and be fully prepared to teach the basic school curriculum in order to improve learning outcomes and life chances of all learners as set out in the National Teachers' Standards (NTS). Consequently, from October 2018, public CoEs in Ghana began to admitting teacher trained for a 4-Year Bachelor of Education degree programmes.

To achieve these responsibilities, the CoEs need principals (leaders) who can spearhead the activities of the Colleges to achieve the goals set. These Colleges which are either single sex or mixed sex (co-education) in setting, may be found in rural, semi-urban and urban areas. In performing their duties, principals of public CoEs adopt different leadership styles or a combination of different leadership styles at any point in time, depending on the situation at hand, to ensure the attainment of college and educational goals. The leadership styles adopted by the principals of public CoEs in Ghana, range from autocratic, democratic, transactional, transformational, to lasissez-faire.

THE PROBLEM

Many scholars contend that demographic variables are critical factors that could be used with other factors to explain the different leadership styles (Bell, Rvanniekerk & Nel, 2015) adopted by principals of colleges. Waters (2013) found out that teachers working in all-boys' and mixed sex schools perceived their principals to be more transformational than transactional in their leadership styles while teachers working in all-girls' schools rated their principals as being slightly more transactional in their styles of leadership. Although transformational styles of leadership were perceived to be exhibited more in all-boys' and mixed sex schools, the overall differences were not significant, implying that the nature or type of school (single sex or mixed sex) is not associated with the leadership style.

There has been a long-standing debate among researchers on the leadership style that is mostly used by principals of colleges and there has not been any conclusion on the issue. For instance, school principals have been found to exhibit transformational leadership style more than transactional and laissez-faire leadership styles (Amponsah, 2015; Danquah, 2013; Waters, 2013; Hariri, 2011), while other research findings such as that of Boateng (2012) have established that principals employed transactional leadership style more than transformational and laissez-faire leadership styles. Hence, the debate on the leadership styles adopted by principals or heads of schools has not been conclusive. This brings the question as to which leadership style is dominantly used by principals of public CoEs in Ghana?

A Pearson chi-square results from Water's (2013) study showed that there is no significant association between perceived leadership style and the regions (zones) in which the schools were found. Adu, Akinloye and Olaoye's (2014) study revealed that there is no significant difference in leadership styles of principals in rural and urban

areas. Scot (2008) however deduced a significant difference between the perception of teachers on leadership styles when compared by the type of community (rural an urban) in which the schools were located.

According to Bell, Rvanniekerk and Nel (2015) the variables responsible and significant for the adoption of leadership styles by principals have resulted in many arguments among scholars. These arguments and discussions have not been conclusive in the context of public CoEs in Ghana. Again, some studies on leadership styles conducted in Ghana considered sex/gender, academic qualifications, marital status, and years of work experience as demographic variables that account for the styles of leadership exhibited by heads of educational institutions. The question is, are these the only demographic factors that are perceived to influence leadership styles adopted by principals of public CoEs? This study was therefore necessary to help understand other demographic variables (setting of college, zone of college, and location of college) that are perceived to account for the variances in leadership styles adopted by principals of public CoEs in Ghana. This will help contribute to knowledge, literature, and the debate on variances in leadership styles of principals based on demographic variables and form the basis for further research on the topic. Again, the findings of this study will have practical and policy implications for the principals and the Ghana Tertiary Education Commision (GTEC).

METHOD

In Ghana, public CoEs are either single-sex or mixed-sex (setting) and are put into five zones (Central-Western, Eastern-Greater Accra, Volta Ashanti-Brong-Ahafo, and Northern) in urban, semi-urban and rural areas (location). This study, which was conducted between September and December 2019, adopted the quantitative cross-sectional survey design. The target population comprised all principals of the 48 CoEs (public and private) in Ghana. The accessible population on the other hand was made up of all principals of public CoEs who had worked in their respective colleges for at least a year. At the time of this study, forty (40) principals out of the forty-six (46) had been at post for at least a year. The census sampling technique was used to select the 40 principals for this study. The Multifactor Leadership Questionnaire (MLQ) by Bass and Avolio (2004) which has been widely used all over the world and as such, standardised, was used to collect data for this study. Out of the forty (40) questionnaires administered, thirty-eight (38) were retrieved and used for the analyses. Several attempts to retrieve the remaining eight questionnaires proved futile. This indicated a response rate of 95%. The use of 38 respondents for the quantitative study was deemed appropriate considering the research topic, population and the purpose of the study (Davies, Williams & Yanchar, 2004). Altunişik, Coşkun, Bayraktaroğlu and Yildirim (2004) as cited in Delice (2010) argue that a sample size ranging from 30 to 500 at 95% confidence interval is good for a quantitative study. In analyzing the data, means, standard deviation, t-test and ANOVA were used.

Hypotheses

The following hypotheses were therefore formulated and tested:
$H0_1$: There is no statistically significant difference in the leadership style of principals of public
    CoEs in Ghana based on the setting (single sex or mixed sex) of the college.
$H0_2$: There is no statistically significant difference in leadership style of principals of public
    CoEs in Ghana based on the zone of the college.
$H0_3$: There is no statistically significant difference in leadership style of principals of public
    CoEs in Ghana based on the location (rural, semi-urban or urban) of the college.

RESULTS AND DISCUSSION

This study investigates the leadership styles of principals in public Colleges of Education (CoEs) in Ghana based on the setting, zone and location of the colleges. The cross-sectional survey design based on quantitative approach was adopted for this study In line with the purpose and design of this study, the data was analysed using means, standard deviation, t-test, and ANOVA.

Analysis of Personal Characteristics of Principals

The results of the analysis of the bio-data are presented in Table 1. The data in Table 1 revealed that 13.2% of the principals were in single-sex colleges while 86.8% were in mixed-sex colleges, suggesting that there are more mixed-sex public CoEs in Ghana as compared to single-sex colleges. It is also realised that 15.8% of the principals were from the Central-Western Zone, 18.4% from the Eastern-Greater Accra Zone, 18.4% from the Volta Zone, 29.0% from the Ashanti-Brong Ahafo Zone, and 18.4% from the Northern Zone. More so, 60.5% of the principals were in colleges situated in urban areas, 29.0% of the principals had their colleges in semi-urban areas, while 10.5% of the principals had their colleges in rural areas.

Table 1: Analysis of Personal Characteristics of Principals

Personal Variables	Response	Frequency (n)	Percentage (%)
Setting of College	Single-sex College	5	13.2
	Mixed-sex College	33	86.8
	Total	38	100.0
Zone of College	Central-Western	6	15.8
	Eastern-Greater Accra	7	18.4
	Volta	7	18.4
	Ashanti-Brong Ahafo	11	29.0
	Northern	7	18.4
	Total	38	100.0
Location	Urban	23	60.6
	Semi-urban	11	29.0
	Rural	4	10.5
	Total	38	100.0

Interpretation of Means

In analyzing the research question and testing the hypotheses based on the data collected, we used the following interpretations for the means: Once in a while (0.1-1.0); sometimes (1.1-2.0); fairly often (2.1-3.0); and frequently if not always (3.1-4.0).

Analysis of Research Question

What leadership style is mostly used by principals of pubic CoEs in Ghana?

It is believed that leaders of public CoEs in Ghana adopt varied leadership styles in ensuring that college and educational goals are effectively achieved. However, one could not determine the leadership style that is mostly exhibited by the principals of these colleges. Hence, this study sought to investigate the leadership style that is dominant among principals of public CoEs in Ghana, and the results are presented in Table 2.

Table 2: Leadership Style Mostly Used by Principals

Leadership Style	Mean	Standard Deviation	Interpretation
Transactional	1.30	0.23	Sometimes used
Transformational	2.79	0.20	Fairly often used
Laissez-faire	0.60	0.51	Once in a while used

The data in Table 2 show that the mean score for transformational leadership style (M=2.79, SD=0.20) is numerically higher than that of transactional leadership style (M=1.30, SD=0.23) and laissez-faire leadership style (M=0.60, 0.51). Inferring from these descriptive data, it is suggested that principals of public CoEs in Ghana mostly used transformational leadership style as compared to transactional leadership style and laissez-faire leadership style. The principals also exhibited transactional leadership style more than laissez-faire leadership

style. The implication is that laissez-faire leadership style was least practiced by the principals. Again, it could be inferred from the analysis of the differences in the means obtained for the various leadership styles that the principals of public CoEs in Ghana fairly often made use of transformational leadership style, sometimes exhibited transactional leadership style and occasionally adopted laissez-faire leadership style.

Results of Test of Hypothesis 1 (H0₁)

H0₁: There is no statistically significant difference in the leadership style of principals of public CoEs in Ghana based on the setting (single sex or mixed sex) of the college.

The first hypothesis was aimed at determining the extent of differences in the means for the leadership styles adopted by the principals based on whether the college in which they performed their leadership functions was a single sex or a mixed-sex (coeducational) one. The results of the test of hypothesis are presented in Table 3.

Table 3: T-Test Results for Nature of College and Leadership Styles

Leadership Style	Nature of College	Mean	Std. D	t	df	Sig. (2-tailed)	Mean Difference
Transformational	Single-Sex	2.73	0.28	-0.868	36	0.401	-0.095
	Mixed-sex	2.83	0.16				
Transactional	Single-Sex	1.45	0.17	1.924	36	0.076	0.225
	Mixed-sex	1.23	0.23				
Laissez-faire	Single-Sex	1.20	0.45	0.342	36	0.738	0.100
	Mixed-sex	1.10	0.57				

$p = 0.05$

A comparison of the results in Table 3 indicate that principals of public CoEs in Ghana often practiced transformational leadership even though principals in mixed-sex Colleges rated higher (M = 2.83, SD = 0.16) than those in single-sex colleges (M = 2.73, SD = 0.28). The principals sometimes exhibited transactional leadership irrespective of the fact that principals in single-sex Colleges practiced more transactional leadership style (M = 1.45, SD = 0.17) than those in mixed-sex Colleges (M = 1.23, SD = 0.23). Similarly, the principals sometimes adopted laissez-faire leadership style. However, those in single-sex Colleges rated higher (M=1.20, SD=0.45) than their counterparts in mixed-sex colleges (M=1.10, SD=0.57). An independent samples t-test we used to test the hypothesis revealed that there were no statistically significant differences among the principals in their use of transformational [t (13) = -0.868, p=0.401, 2-tailed], transactional leadership style [t (13) = 1.924, p = 0.076, 2-tailed], and laissez-faire leadership style [t (13) = 0.342, p = 0.738, 2-tailed] at 0.05 based on the setting of the Colleges.

Based on these results, it could be said that the leadership styles adopted by principals of public CoEs in Ghana were not based on the setting (single-sex or mixed-sex) of the college. Thus, we failed to reject the null hypothesis that there is no statistically significant difference in the leadership style of principals of public CoEs in Ghana based on the setting of the College. This implies that whether the College is a single-sex or mixed-sex one does not determine the leadership style adopted by the principal. This finding seems to be in line with that of Waters (2013) whose study revealed that principals in all-girls' schools were slightly more transactional in their styles of leadership while principals in all-boys' and mixed-sex schools were more transformational than transactional in their leadership styles even though the overall differences were not significant.

Results of Test of Hypothesis 2 (H0₂)

H0₂: There is no statistically significant difference in leadership style of principals of public CoEs in Ghana based on the zone of the college.

The second hypothesis was tested to determine whether significant differences existed in the leadership styles of the principals as a result of the zones which the colleges were found. The results of the test of the second hypothesis are shown in Table 4.

Table 4: ANOVA Results for Zones and Leadership Styles

Leadership Style	Zone	Mean	Std. Dev.	Sum of Squares	df	Mean Square	F	Sig.
Transformational	Central/Western	2.63	0.28	0.208	4	0.052	1.520	0.269
	Eastern/Greater Accra	2.70	0.21	0.342	33	0.034		
	Volta	2.93	0.11	0.549	37			
	Ashanti/Brong Ahafo	2.91	0.13					
	Northern	2.73	0.24					
	Total	2.79	0.20					
Transactional	Central/Western	1.44	0.17	0.172	4	0.043	0.729	0.592
	Eastern/Greater Accra	1.21	0.06	0.589	33	0.059		
	Volta	1.22	0.06	0.761	37			
	Ashanti/Brong Ahafo	1.23	0.29					
	Northern	1.42	0.30					
	Total	1.30	0.23					
Laissez-faire	Central/Western	0.33	0.58	0.567	4	0.142	0.467	0.759
	Eastern/Greater Accra	0.50	0.71	3.033	33	0.303		
	Volta	1.00	0.10	3.600	37			
	Ashanti/Brong Ahafo	0.60	0.55					
	Northern	0.67	0.58					
	Total	0.60	0.51					

$p = 0.05$

The results of the test of the second hypothesis are presented in Table 4. The results indicate that principals of public CoEs in the five zones of Ghana fairly often exhibited transformational leadership style even though those in the Volta Zone recorded highest mean (M=2.93, SD=0.11) as compared with their counterparts in the Ashanti/Brong-Ahafo Zone (M=2.91, SD=0.13), Northern Zone (M=2.73, SD=0.24), Eastern/Greater Accra Zone (M=2.70, SD=0.21) and Central/Western Zone (M=2.63, SD=0.28). The principals, sometimes, adopted transactional leadership style with those in the Central/Western Zone ranking highest (M= 1.44, SD=0.17) as compared to those in the Northern (M=1.42, SD=0.30), Ashanti/Brong-Ahafo (M=1.23, SD=0.29), Volta (M=1.22, SD=0.06), and Eastern/Greater Accra (M=1.21, SD=0.06) Zones. Principals in the Volta Zone sometimes used laissez-faire leadership style (M=1.00, SD=0.10) as compared to those in the Northern (M=0.67, SD=0.58), Ashanti/Brong-Ahafo (M=0.60, SD=0.55), Eastern/Greater Accra (M=0.50, SD=0.71), and Central/Western (M=0.33, SD=0.58) who, occasionally, adopted laissez-faire leadership style. With the principals who occasionally used laissez-faire leadership, those in the Northern Zone rated highest as compared to those in Ashanti/Brong-Ahafo, Eastern/Greater Accra, and Central/Western (M=0.33, SD=0.58) Zones.

The ANOVA results, shown in Table 4, revealed that there were no statistically significant differences in the principals' use of transformational [F (4, 10) = 1.520, p = 0.269], transactional [F (4, 10) = 0.729, p = 0.592], and laissez-faire [F (4, 10) = 0.467, p = 0.759] leadership styles at 0.05 based on the zone of the colleges. Hence, we failed to reject the null hypothesis that there is no statistically significant difference in leadership style of principals of public CoEs in Ghana based on the zone of the colleges is accepted. Thus, we established through our finding

that, the leadership style adopted by the principals of the Colleges is not based on the zone in which the colleges are found. This corroborates with the findings of Waters (2013) that there is no significant association between perceived leadership style and the regions (zones) in which the schools were found.

Results of Test of Hypothesis 3 (H0₃)

H0₃: There is no statistically significant difference in leadership style of principals of public CoEs in Ghana based on the location (rural, semi-urban or urban) of the college.

The third hypothesis sought to determine if there existed any significant difference in the leadership styles of the principals in terms of whether the college was situated in rural, semi-urban, or urban areas. The results of the test of the third hypothesis are shown in Table 5.

Table 5: ANOVA Results for Location and Leadership Styles

Leadership Styles	Location	Mean	Std. Dev.	Sum of Squares	df	Mean Square	F	Sig
Transformational	Urban	2.74	0.23	0.054	2	0.027	0.652	0.539
	Semi-urban	2.87	0.16	0.496	35	0.041		
	Rural	2.75	0.25	0.549				
	Total	2.79	0.20		37			
Transactional	Urban	1.32	0.29	0.051	2	0.026	0.434	0.658
	Semi-urban	1.31	0.16	0.710	35	0.059		
	Rural	1.08	0.18	0.761				
	Total	1.30	0.23		37			
Laissez-faire	Urban	1.25	0.71	0.267	2	0.133	0.480	0.630
	Semi-urban	1.00	0.00	3.333	35	0.278		
	Rural	1.00	0.55	3.600				
	Total	1.13	0.52		37			

$p = 0.05$

From the results in Table 5, it is realised that principals whose colleges were in urban, semi-urban and rural areas fairly often used transformational leadership style even though those in semi-urban areas (M=2.87, SD=0.16) rated highest as compared with principals whose colleges were in rural areas (M=2.75, SD=0.25) and urban areas (M=2.74, SD=0.23). It is also observed from the data that the principals sometimes used transactional leadership style irrespective of whether the college was in urban, semi-urban or rural areas. However, principals of public CoEs found in urban areas (M=1.32, SD=0.29) scored the highest mean followed by the principals of colleges in semi-urban (M=1.31, SD=0.16) and rural (M=1.08, SD=0.18) areas.

Again, principals of colleges in urban, semi-urban and rural areas sometimes exhibited laissez-faire leadership style even though those in urban areas rated highest (M=1.25, SD=0.71) in comparison with those in rural (M=1.00, SD=0.55) and semi-urban (M=1.00, SD=0.00) areas. The results of the one-way between groups ANOVA test conducted, as shown in Table 5, revealed that there were no statistically significant differences in the use of transformational [$F_{(2, 12)} = 0.652$, p=0.539], transactional [$F_{(2, 12)} = 0.434$, p=0.658] and laissez-faire [$F_{(2, 12)} = 0.480$, p=0.630] leadership styles by the principals at 0.05 based on the location of the colleges. Hence, we failed to reject the null hypothesis that there is no statistically significant difference in leadership style of principals of public CoEs in Ghana based on location (rural, semi-urban or urban) of the college.

Through this finding, we established that the choice of leadership style by principals of public CoEs in Ghana, is not contingent on the location of the college. Our finding substantiates that of Adu, Akinloye and Olaoye (2014) who found out that there is no statistically significant difference in leadership styles of principals in rural and urban areas. However, the finding deviates from that of Scot (2008) who established a significant difference between the

perceptions of teachers on leadership styles when compared by the type of community (rural and urban) in which the schools were located.

LIMITATIONS

This study was based on the quantitative approach to conducting research. Hence, it sought to collect and analyse numeric data to identify the leadership styles mostly used by principals in public CoEs in Ghana, and determine differences if any, in the leadership styles of the principals in terms of setting, zone and location of the colleges. With this approach, we did not explore through interviews to understand the reasons behind the principals' general dominant use of transformational leadership style as compared to transactional leadership style and laissez-faire leadership style. Again, it is ideal for quantitative surveys to make use of a relatively large sample to help in generalisation of results. In this study, the target population was forty-six (46) principals of which forty (40) principals had been at their current position for at least a year. This implied that the sample size was relatively small.

CONCLUSIONS

The performance of any organisation, including public CoEs in Ghana, is greatly impacted by leadership styles because they are the general ways in which leaders seek to influence subordinates in order to achieve set goals. It could therefore be deduced that the success of public CoEs in Ghana is to a large extent shaped by the way the principals perceive and perform their roles, especially in the implementation of the new reforms in the Initial Teacher Education. It was established from the findings that principals of public CoEs in Ghana mostly use transformational leadership style. However, we conclude that the principals' leadership styles could not be explicitly categorised as the three leadership styles (transformational, transactional, and laissez-faire) complement each other based on the situation at hand. Again, we conclude that the leadership styles used by the principals of public CoEs in Ghana are not dependent on the setting, zone and location of the colleges.

RECOMMENDATIONS

Based on these conclusions, we recommend that the Ghana Tertiary Education Commission (GTEC) formerly National Council for Tertiary Education (NCTE), and the Conference of Principals of Colleges of Education (PRINCOF), should liaise with universities and other recognised institutions that offer programmes in Educational Administration, Management and Leadership to offer regular professional in-service training programmes for principals of public CoEs on the appropriate leadership styles to be exhibited under different circumstances to ensure maximum productivity and achievement of college and educational goals. Again, GTEC should consider competence when selecting and appointing principals and not the setting, zone and location of public CoEs because generally, these variables did not significantly determine the leadership styles adopted by the principals.

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The Effect of Using Technology in Education on Academic Achievement of Students: The Case of Geographical Information Systems

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Abstract

The objective of this study was to determine the effect of Geographic Information Systems, one of the educational technologies, on the academic performance of students. In accordance with this purpose, to combine the results of independent experimental studies, the meta-analysis method was put into use. Within this context, as a result of the literature review, in the meta-analysis, 17 experimental studies conducted between the years 2007 and 2020 were included. The total sample size of the mentioned studies was 620 in the experimental group and 607 in the control group. Thalheimer and Cook's (2002) classification was used in calculating the effect size values in the study in which the random effects model was used. Publication bias in research; Funnel Plot was tested with Rosenthal Fail Safe N value, cut and fill method of Duval and Tweedie and Begg-Mazumdar statistics, and studies included in meta-analysis were found to be heterogeneous. The effect of moderator variables, which are thought to influence academic achievement, was examined. Q and p significance tests were used to calculate the effect of moderator variables. According to the results of the study, it has been determined that GIS has a very wide (+1,193) effect on academic achievement. Positive average effect size indicates a change in favour of the experimental group. It was concluded that among the moderator variables, the study type, class level and sample size did not create a significant change in the effect size, and the year variable created a significant difference in the effect size.

Keywords: Academic Achievement, Geographic Information Systems, Meta-Analysis

1. Introduction

Rapid change and transformation in the world have been effective in education as well as in all areas. One of the main factors causing this change is the developments in technology. In today's world where the information age is experienced and ways to reach information are more important than obtaining information, it is aimed to train individuals to have these qualities. The education system in Turkey has made innovations in many areas, especially the programs prepared based on the constructivist approach, to achieve the determined goals (Akkus, 2014). In

particular, one of the important developments at the point of technology and education integration is the FATİH (Increasing Opportunities and Technology Improvement Movement) project (Coskunserce & Isciturk, 2019; Cavus & Yorganci, 2020). With the FATİH project, which was put into practice in 2010, efforts were made to improve schools as hardware infrastructure, to make education programs compatible with information technologies, and to develop educational e-contents (Keser & Yayla, 2021). With this project, it was aimed to reduce the difference between the metropolitan and rural schools and to provide equal opportunity in education by making the investments required for the integration of education and technology (Gokmen & Aygun, 2016). In addition to the investments made for educational technology projects to be successful, there is a need for teachers and students who can use information communication technologies effectively and adapt to technology (Ayvacı, Ozbek & Sevim, 2018; Yilmaz, 2020). Accordingly, it is necessary to know the technology options to be used in teaching and to benefit from them effectively. There are different technology options to be used in accordance with the purpose of teaching and Geographical Information Systems (GIS) is one of them.

Geographical Information Systems is known as one of the active learning methods that make students active in lessons and at the same time bring technology to the classroom and bring them together with students (Artvinli, 2009). According to Burrough (1998), GIS is used to collect, query, display and transmit data of any location on earth for specific purposes. Parker (1988) defines GIS as storing, analysing, and displaying data belonging to the location or not. According to some researchers, GIS is defined as a scientific concept or a tool that transfers spatial information to the computer system, which includes spatial information systems and geographic information, and for some, GIS is a database and management system that helps the organization of information (Balciogullari, 2011). GIS is a method with a unique methodology that continues to collect, store, process and present information obtained through location-based observation (Yomralioglu, 2002). Since GIS is generally described as a methodology, it is used by branches of science and professional groups, whose subjects are human, space and time, and include variables related to them (Aladag, 2007). GIS, which was named for the first time by Tomlinson (1968), started to be used in Canada in the 1960s as the use of spatial data in a computer environment (Kokturk, 2004). GIS, which is used by many disciplines, has started to be used in educational settings as a result of the developments in computer, software and hardware systems, especially in the last 30 years or so (Ertogral, 2019). In Turkey, GIS took its place in the curriculum with the 2005 Geography Secondary Education program which was prepared in accordance with the constructivist approach (Ministry of National Education, (MEB) 2005). Thus, for the first time officially, applications related to GIS at the high school level took their place in the official program. GIS enables students to develop many skills including analytical thinking, spatial perception, problem-solving, computer literacy, communication, and presentation skills (Aladag, 2007; Audet & Ludwig, 2000). Therefore, in educational settings, the use of GIS has been included in many stages of the education-teaching process, including primary education, secondary education and university (Baker, 2002; Keiper, 1996). Contrary to the frequent use of GIS by developed countries today, its use is not at the desired level in Turkey (Artvinli, 2010; Baker, 2005; Demircioglu & Karaburun, 2011; Mennecke & West, 2001). In secondary schools and high schools, although the use of GIS is recommended by the Ministry of National Education for some gains, the use of GIS in schools is limited (Kapluhan, 2014). The reason for this is that the number of educators who are qualified to use GIS is low, the physical conditions of schools are inadequate, and also GIS software is expensive (Simsek, 2008; Tastan, 2021). When CBS is used effectively, it activates students by removing them from their passive position and gives them various skills (Aladag, 2007). The most well-known of these skills are spatial perception, using information communication technologies, geographic analysis, and cartographic skills (Tabanli, 2014). Thanks to these skills, students improve their attitude, motivation, and success towards the lessons, especially in the Geography and Social Studies course, in a positive way. When the relevant literature is reviewed, it can be observed that there are many studies that have reached the conclusion that GIS affects academic success positively (Aladag, 2007; Arrasyid, Iwan & Sugandi, 2019; Artvinli, 2010; Aydin & Coskun, 2011; Aydogmuş, 2010; Baker, 1996; Baker & White, 2003; Balciogullari, 2011; Baloglu- Ugurlu, 2007; Cin & Tabanli , 2015; Covey & Cobb, 2003; Degirmenci & Altas, 2016; Demirci & Atalay, 2014; Ertogral, 2019; Gunes, Arikan & Cetin, 2020; Inec, 2012; Kaya, 2011; Keskin, 2018; Koca & Dasdemir, 2016 ; Koca, Gokdemir & Dasdemir, 2017; Oner & Aydın, 2014; Oner, 2020; Ozgen, 2009; Ozgen & Cakicioglu, 2009; Singh, Rathakrishnan, Sharif, Talin & Eboy, 2016; Sonmez & Akbas, 2019; Simsek, 2011 ; Tabanli, 2014; Unal & Sari, 2012; Unlu & Yildirim, 2016; Vincent, 2004). While there are reviews in the literature to summarize the effects of the studies, no meta-analysis study has been found. Meta-analysis studies are needed to combine the results of similar studies and to interpret the accumulation.

Therefore, the purpose of the study is to examine the effect of GIS on students' academic achievement. In this sense, the sub-problems in the study were determined as follows:

- Do Geographical Information Systems, one of the educational technologies, affect the academic success of students?
- Does the average effect size differ regarding the type of study, the moderator variables, year of publication, class level and sample size?

2. Method

In the present study, the method of the meta-analysis was put into use because the objective was to determine the effect of GIS on the academic achievement of students by using the quantitative findings of experimental studies. Meta-analysis is called a statistical process allowing to make a common inference by combining the quantitative findings of previous research on a specified topic (Tatsioni & Ioannidis, 2017). The meta-analysis method is accepted as one of the most common ways to synthesize research (Schulze, 2007). In the most general sense, meta-analysis can be described as analysing the analysis (Cohen, Manion & Morrison, 2007). Durlak (1995) divides meta-analysis types into two as group comparison and correlational meta-analysis. In the current study, the group comparison process effectiveness model, which is one of the meta-analysis types, was used. In the process efficiency model, the standardized effect size which is indicated by the letters "d" and "g" is used and the result is obtained by dividing the difference between the experimental-control groups by the standard deviation (Sahin, 2005).

2.1 Data Collection

In parallel with the aims determined in the study, all the studies including the effect of GIS on the academic achievement levels of students were scanned in YOK (Council of Higher Education) National Thesis Center, Proquest, Google Scholar, Web of Science, Scopus, ULAKBIM TR Index, EBSCOhost databases. To decide on the studies to be meta-analysed, Turkish keywords "başarı," "Coğrafi Bilgi Sistemleri," "CBS," "erişim" and English keywords "competence," "achievement," "Geographic Information Systems," "GIS" and "competence" were determined. The following criteria were used while determining the studies to be analysed within the scope of the research.

- The research to be used should be done between 2007-2020.
- The researches should be selected from among the master's and doctoral thesis written in Turkish or English, or articles published in peer-reviewed journals.
- The sample of the research should include the primary, secondary and high schools, university and graduate students, and teachers.
- Research to be included should be carried out in an experimental design to reach the effect size.
- The validity and reliability analysis of the measurement tools which were used in the research should be done.
- Studies should have variables (sample size, arithmetic mean, standard deviation, t, F, etc.) required for meta-analysis statistics.
- The path followed in the selection of scientific research to be applied meta-analysis is given in Figure 1.
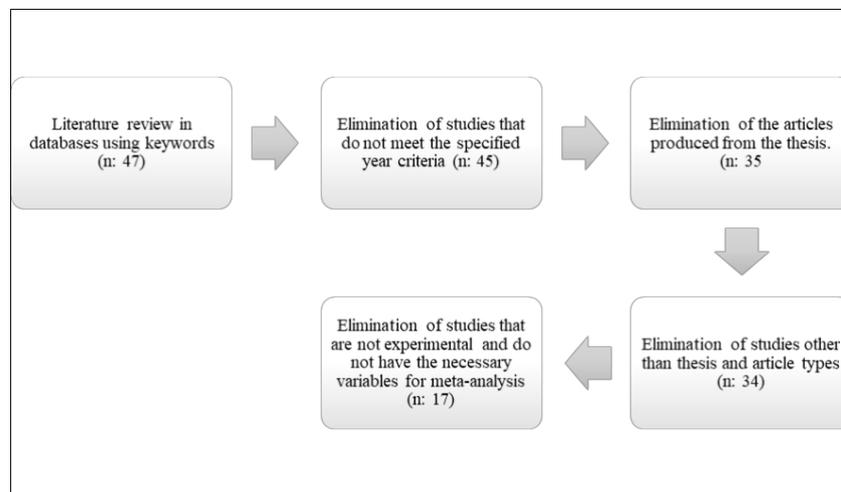
Figure 1: The Path followed in the selection of scientific research to be applied to meta-analysis

According to the determined criteria, the literature review was made and a total of 47 studies were reached. Two studies before 2007 that did not meet the year criteria were eliminated, and it was concluded that 10 studies were produced from the thesis. One study was excluded on the grounds that it was in the form of a paper abstract. After eliminating 17 studies whose method was non-experimental or experimental and did not have the necessary variables (sample size, standard deviation, arithmetic mean, t, F, etc.) to calculate the effect size, analyses were made over 17 studies that were finally reached.

2.2 Data Coding

The included studies were coded in line with the determined criteria, and the effect size was tried to be calculated. While coding the selected studies, the variables of author information, the year in which the study was published, the type of the study, and the sample information were included. Therefore, coding was done by two experts in the field and tested with Miles and Huberman's (1994) method of congruence percentage and the result was found to be 94.44% (Agreement / (Agreement + Disagreement) x100) in order to ensure the reliability of the coding. Studies in which consistency was not ensured were re-examined by the researchers and the consensus was raised to 100%. Descriptive data of the data obtained according to the last screening result dated December 31, 2020, is also given in Figure 2.

	f	%
Master Theses	4	23,53
PhD	3	17,65
Article	10	58,82
2007-2012	9	52,94
2013-2020	8	47,06
5th grade	1	5,88
6th grade	4	23,53
7th grade	2	11,76
9th grade	2	11,76
10th grade	5	29,41
11th grade	1	5,88
Teacher Candidate	3	17,65
25-50	6	35,29
51-75	4	23,53
76 and above	7	41,18
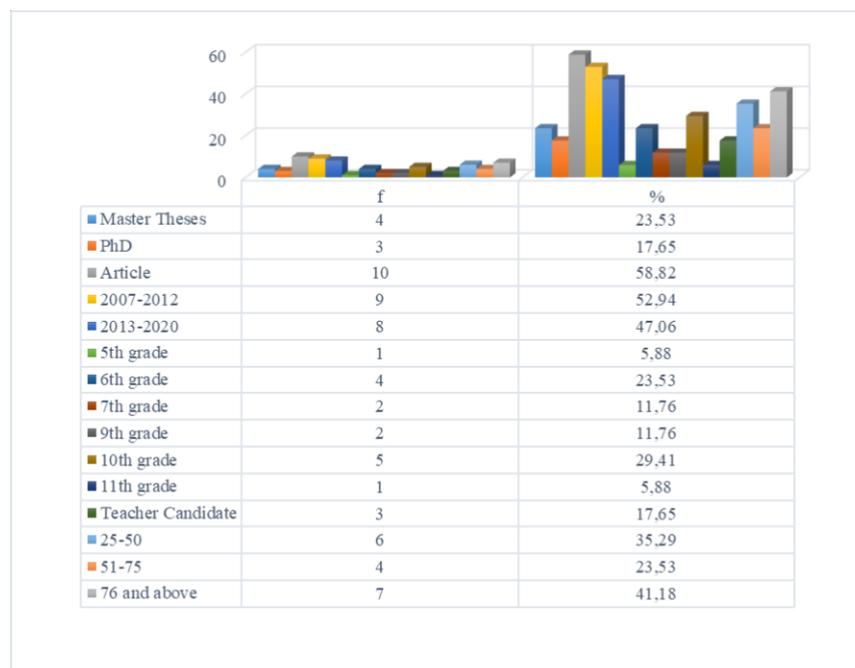
Figure 2: Descriptive statistics regarding the data included in the study

When the descriptive data of Figure 2 were examined, it was found that 58.82% of the studies in the dimension of study type variable are articles, 23.53% are master theses and 17.65% are doctoral dissertations. 52.94% of the studies were published between 2007-2012, and 47.06% were published between 2013-2020. When the studies in the class-level dimension were examined, it was found that studies at the 10th grade (29.41%) and 6th grade (23.53%) were conducted at most and that 41.18% of the sample consists of 76 and above, and 35.29% consists of 25-50 people.

2.3 Investigation of Publication Bias

In meta-analysis studies, one of the ways to increase the validity of the study is to ensure that there is no publication bias. Publication bias is that not all studies on a particular subject can be included in the analysis. Mostly, analysing through the studies with meaningful results causes the calculated effect size to deviate and diverge from the actual result (Borenstein, Hedges, Higgins & Rothstein, 2009). Publication bias in research; Funnel Plot was analyzed using four different statistics: Rosenthal Fail Safe N value, Duval and Tweedie's cut and fill method and Begg-Mazumdar Statistics. The Funnel Scatter Plot for the studies which were included in the meta-analysis is given in Figure 3.
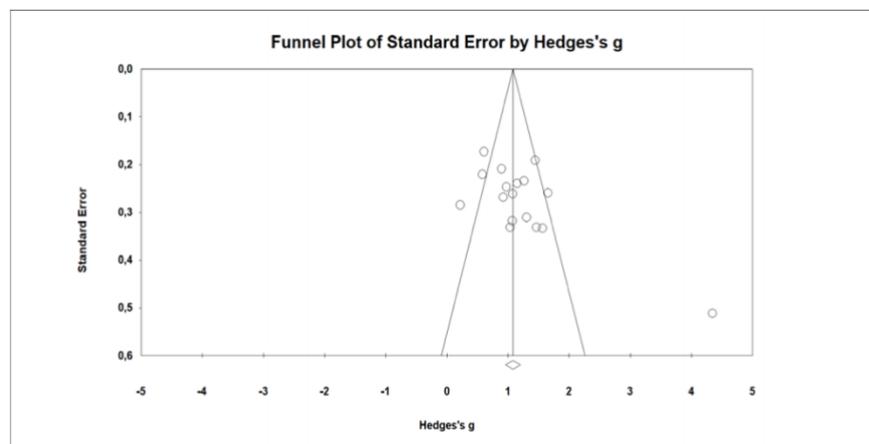
Figure 3. Funnel scatter plot regarding the bias of the studies

According to Figure 3, it can be said that Hedges g values of the studies show a symmetrical distribution. The symmetrical distribution of the studies in the funnel plot shows that the standard error value is strong in the clustered analysis in the middle or upper part of the graph. Except for the Funnel Scatter Plot, the publication bias was supported by the Rosenthal Fail-Safe N value. The data for the Rosenthal Fail-Safe N table are as follows.

Table 1: Study bias according to Rosenthal FSN Value

Bias Condition	
Z Value for Observed Studies	18,25726
P Value for Observed Studies	0,00000
Alpha	0,05000
Direction	2
Z Value for Alpha	1,95996
Observed Number of Studies	17
Number of Missing Studies	1459

According to the Rosenthal FSN table, there is no limit to the FSN value to be able to say that there is no publication bias, but Rosenthal (1979) states that the FSN value found should be ten times more than the study (FSN> 5k +

10). In Table 1, when the analysis results are examined, the number of studies to be reached in order to eliminate publication bias is 1459. This value is approximately 86 times higher than the number of studies that were included in the study. To avoid publication bias in the research, 1442 more studies are needed. Since it is not possible to reach this value, the result achieved is accepted as an indication that there is no publication bias. In addition to the analyses made to test publication bias, Begg-Mazumdar Statistics and Duval and Tweedie's Trim-Fill Method statistics were used. The results of the analyses made are as in Table 2.

Table 2: The Bias of Studies in Terms of Begg-Mazumdar Statistics and Duval and Tweedie's Trim-Fill Method Values

Begg-Mazumdar Rank Correlation					
Tau	0,27941				
Z Value	1,56532				
P Value (Double Tailed)	0,11751				
Trim and fill method by Duval and Tweedie					
	Excluded Study	Effect size	Lower Lim	Upper Lim.	Q Value
Observed Values		1,193	0,921	1,464	77,032
Corrected Values	4	0,96	0,657	1,266	138,398

When examined, it can be said that there is no publication bias according to the result of the Begg-Mazumdar Rank Correlation test in Table 2 (Tau = 0.279; z = 1.565; p = 0.117; p> 0.05). According to Begg and Mazumdar (1994), to be able to say that there is no publication bias, the p-value should be greater than 0.05. According to the Trim and Fill Method of Duval and Tweedie, the observed effect size value is 1.193 and the corrected effect size value is 0.96. According to the results, 4 studies should be added to the meta-analysis to eliminate the asymmetry. The effect size will decrease by 0.233, while the value of Q will increase in this case. The results of the analysis show that the values reached are not at a level that may threaten publication bias. The results obtained in the conducted four analysis show that no publication bias affects the validity of this study, and the results obtained support each other.

2.4 Data Analysis

Analysis of the data was conducted with the comprehensive Meta-analysis (CMA) program, and the Hedge's g coefficient was used instead of Cohen's d to calculate the impact dimensions of those given for reasons of small sample size (Borenstein et al., 2009). The Cohen's d form is preferred for studies with a sample size is greater than 20 (Lipsey and Wilson, 2001). The Thalheimer and Cook's (2002) level was used to calculate the size of the effect (-0,15- 0,15: Negligible level; 0,15- 0,40: Small level; 0,40- 0,75; Medium level; 0,75- 1,10: Large level; 1,10-1,45: Very Large level; 1,45- Huge level).

In the meta-analysis method, it should be decided which statistical model to choose first to bring the study results together in a statistically meaningful way. Cumming (2012) states that a model of random effects should be made in studies in the field of social science. While it is assumed that the effect sizes of the studies included in the random effects model are different; In the fixed effects model, meta-analysis of all the studies that are included in the standard deviation of the mean is zero (Bakioglu & Goktas, 2018). Heterogeneity and Q-value are examined to decide which effect model to use in the meta-analysis studies. For the distribution to be heterogeneous, the p-value must be less than 0.05. If this value is less than 0.05, it indicates that the distribution is heterogeneous, and in this case, the random-effects model should be preferred. Q value indicates heterogeneity in the case where it is greater than the value corresponding to the df value in the chi-square table (Dincer, 2020). Another criterion for determining heterogeneity in meta-analysis studies is the I2 statistic. If the values found in the I2 statistic are 25% and below, it means low, between 50% and 75% is medium, and 75% and above indicates a high level of heterogeneity (Higgins, Thompson, Deeks & Altman, 2003). One of the important factors affecting validity and reliability in the analyses made is the detection of publication bias. Publication bias shows the power of studies to represent the universe. Selecting the results of the selected studies from statistically significant studies increases

the possibility of publication bias and negatively affects the validity and reliability of the study (Rothstein, Sutton & Borenstein, 2005). In the current study, publication bias was examined with various tests and the results were presented in tables. Finally, analogue ANOVA statistics were made to analyse subgroups and moderators in the study (Bakioglu & Goktas, 2019). First, subgroups (study type, year, class level and sample size) that the use of the GIS method can be effective were determined and it was tried to determine to what extent the moderators could explain the variance.

3. Results

In the study, the effect size of each of a total of 17 studies was calculated individually and the total effect size value was tried to be found. The number of students in the experimental group of the studies included in the meta-analysis is 620, and the number of students in the control group is 607.

3.1 Findings Regarding the First Sub-Problem

The first sub-problem of this study was determined as "Does Geographical Information Systems, which is one of the educational technologies, affect the academic success of the students?". In this sense, the total effect size was calculated by determining the effect size of the studies. The effect size and heterogeneity statistics of the studies are given in Table 3.

Table 3: Analysis results regarding the effect of geographical information systems on students' academic achievement

Model	Average Effect Size Value (ES)	95% Confidence for Effect Size Lower L- L	Upper	Standard Error (SE)	Homogeneity Value (Q)	Degree of Freedom	I2	p
Constant	1,083	0,963	1,204	0,062	77,033	16	79,23	),000
Random	1,193	0,921	1,464	0,139				

In the study, firstly, heterogeneity statistics were examined, and it was decided which effect size to use. An I2 value of 75% and above shows a high level of heterogeneity (Higgins et al., 2003). The fact that the I2 value is 79.23% and the p-value is less than 0.05 in the study shows that the distribution is heterogeneous (Q = 77.033; p <0.05; I2 = 79.23). It was decided to use the random-effects model according to the heterogeneity test results. In the current study, the average effect size value was 1.193, the standard error was 0.139, and the minimum and maximum values were 0.921 and 1.464. According to the classification of Thalheimer and Cook (2002), a value of 1,193 shows that the effect of GIS on academic achievement is very large level. The positive average effect size (+1,193) indicates that the operations performed are in favour of the experimental group. The forest graph, which reveals the effect size of the studies carried out, is shown in Figure 4.
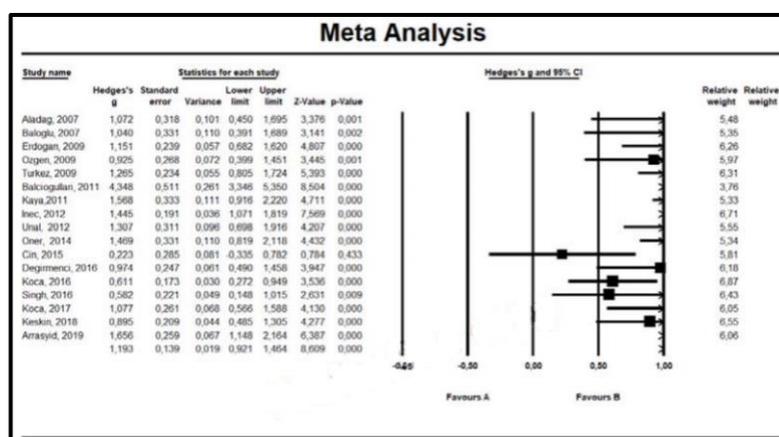
Figure 4. Forest graph regarding the effect sizes of the studies

When Figure 4 is examined, it was found that the effect sizes of all studies included in this study were positive. In other words, academic success increased significantly in the experimental group in which GIS was applied. The highest effect size belongs to the study of Balciogullari (2011), the lowest effect size belongs to the study of Cin and Tabanli (2015). When the confidence intervals of the studies are examined, it is seen that they vary between 6.87% and 3.76%, but they generally have close intervals. The highest confidence interval is the study of Koca and Dasdemir (2016) with the highest number of participants (n = 139), while the lowest confidence interval is the study of Balciogullari (2011) with a smaller number of participants (n = 51).

3.2 Findings Regarding the Second Sub-Problem

The second sub-problem of the study was determined as "Does the average effect size differ according to the moderator variables, type of study, years of publication, class level and sample size?". Moderator variables analysis is an analysis that is used to determine the average effect size difference and direction between specified subgroups (Littel, Corcoran & Pillai, 2008). Q and p significance tests were used to determine the effect of moderator variables. The effect of GIS on academic achievement level according to the type of study, which is one of the moderator variables, is shown in Table 4.

Table 4: The effect of geographical information systems on academic achievement regarding the type of study moderator

	Variable	Q Homogeneity Between Groups	p	n	Effect Size (ES)	Standard Error	95% Confidence Interval for Effect Size Lower L.	Upper L.
	Total	3,081	0,214	17	1,183	0,091	1,005	1,361
	Master Thesis			4	1,279	0,117	1,050	1,509
Study Type	Doctoral Disssertations			3	2,032	0,854	0,359	3,705
	Article			10	1,010	0,145	0,725	1,295

According to Table 4, it can be said that GIS does not have a significant effect on academic achievement according to the type of study (Q = 3.081; p> 0.05). When the effect sizes of the subgroups are examined, it is seen that the studies with the highest effect size are in the doctoral dissertations (ES = 2.032), and the studies with the lowest effect size (ES = 1.010) are in article type. The effect of the year moderator variable on the academic achievement level is given in Table 5.

Table 5: The impact of geographical information systems on academic achievement regarding the year moderator

Variable	Q Homogeneity Between Groups	p	n	Effect Size (ES)	Standard Error	95% Confidence Interval for Effect Size Lower L.	Upper L.
Total	4,480	0,034	17	1,104	0,124	0,861	1,346
Year 2007-2012			9	1,468	0,212	1,052	1,214
2013-2020			8	0,915	0,152	0, 617	3,705

Table 5 shows the distribution of the experimental studies including the effect of GIS on academic achievement by years. The studies conducted were grouped between 2007-2012 and 2013-2020. When the effect sizes of the subgroups are examined, the effect sizes of the studies between 2007-2012 are 1,468, and the effect sizes of the studies conducted between 2013-2020 are 0,915. According to the results of the research, studies conducted by years have a significant effect on academic achievement, and this effect is in favour of studies conducted between

2007-2012 (Q = 4.480; p <0.05). The effect of the grade level variable on academic achievement level is given in Table 6.

Table 6: The effect of geographical information systems on academic achievement regarding the class level moderator

	Variable	Q Homogeneity Between Groups	p	n	Effect Size (ES)	Standard Error	95% Confidence Interval for Effect Size Lower L.	Upper L.
Grades	Total	10,875	0,092	18	1,149	0,085	0,983	1,316
	5			1	1,307	0,311	0,698	1,916
	6			4	1,037	0,215	0,615	1,458
	7			2	0,636	0,424	0,196	1,468
	9			2	1,333	0,191	0,958	1,708
	10			5	1,681	0,429	0,839	2,522
	11			1	1,656	0,259	1,148	2,164
	Preservice Teachers			3	0,927	0,137	0,658	1,196

Table 6 shows the analysis results and it is seen that the class level where the most research is done is at the level of 10th Grade (n = 5) and 6th Grade (n = 4). When the effect sizes are examined according to the class level, it was found that the highest effect level belongs to the studies at the 10th grade (EB = 1,681) and the lowest effect belongs to the studies at the 7th grade (EB = 0.636). However, when the difference between the groups was examined, it was observed that there was no significant difference (Q = 10.875; p> 0.05). The effect of the sample size variable on academic achievement is as in Table 7.

Table 7: The effect of geographical information systems on academic achievement regarding the sample size moderator

	Variable	Q Homogeneity Between Groups	p	n	Effect Size (ES)	Standard Error	95% Confidence Interval for Effect Size Lower L.	Upper L.
Sample Size	Total	1,393	0,498	17	1,114	0,122	0,875	1,354
	25-50			6	1,097	0,210	0,686	1,509
	51-75			4	1,735	0,542	0,673	2,798
	76 and over			7	1,072	0,156	0,765	1,379

According to Table 7, it is seen that there is no statistically significant difference between the mentioned groups which were formed according to the sample size variable (Q = 1,393; p> 0.05). The sample size with the highest effect size (EB = 1.735) varies between 51-75 people, while the sample size with the lowest effect size (EB = 1,072) is 76 and over.

4. Conclusion, Discussion and Suggestions

The individual and general effect size of 17 experimental studies were calculated in this study, which aims to examine the effect of Geographical Information Systems, one of the educational technologies, on the academic achievement level of students with the meta-analysis method. In addition, it was examined whether the GIS differs

according to the moderator variables (study type, years, class level and sample size), which is thought to influence academic achievement.

Regarding the research types, 10 of the 17 studies published between the years 2007 and 2020 are article, 4 are master's thesis, and 3 are doctoral thesis, and the most researched grade level is at the 10th and 6th grade. Almost half of the sample consists of 75 or more people.

In this study, funnel plot, Rosenthal Fail-Safe N value, cut and fill method of Duval and Tweedie and Begg-Mazumdar statistics were used to test publication bias, and it was found that publication bias was low. Before calculating the effect sizes of the studies which were included in the meta-analysis, the homogeneity test was performed and it was determined that the studies showed heterogeneous distribution and accordingly, the random-effects model was used. The classification made by Thalheimer and Cook (2002) was used to evaluate the effect sizes of the analyses.

The first finding of the study shows that the effect of GIS on academic achievement is very broad and positive. This result of the study is in line with the meta-analysis findings of Inel and Sezer (2017). When the relevant literature is examined, no study directly tries to determine the effect of GIS on academic achievement. However, Inel and Sezer (2017) examined the effect of material using on teaching Geography subjects in their study and found a moderate, positive relationship. Since some of the studies included in the meta-analysis include the effect of GIS on academic achievement, it can be said that the results of the research are similar. When the effect sizes of all studies included in the study were examined individually, it was concluded that all of them were positive. Accordingly, in all conducted studies, a significant increase was achieved in the experimental group in terms of academic achievement. When the confidence intervals of the studies were examined, it was found that there were studies with close intervals in general and they changed in parallel with the number of participants.

The studies conducted to examine the effect of the type of research on the effect size are divided into three categories as article, master thesis and doctoral dissertation. When the average effect size is examined according to the study type, it has been determined that all studies have a large effect size and above. However, when the effect sizes of the studies were examined in terms of differentiation between groups, no significant difference was found (Q = 3.081; p> 0.05). Although it is concluded that the study type does not make a significant difference in academic achievement, it is seen that the effect size (2.032) of the studies conducted in the doctoral thesis type is higher.

When the distribution of the studies including the effect of GIS on the academic achievement level by years was examined, it was concluded that there was a significant difference, and this difference was in favour of the studies conducted between 2007-2012 (Q = 4.480; p <0.05). When the effect sizes of the subgroups were examined, the effect size of the studies conducted between 2007-2012 was excellent (1,468), while the effect size of the studies conducted between 2013-2020 (0.915) was wide. It has been stated that GIS technologies should be included in the Geography Course Secondary Education Program (9th-12th Grade) which has been prepared according to the constructivist approach since 2005 (MEB, 2005). However, GIS has not been used sufficiently due to problems such as the number of teachers who can use GIS technology, expensive software and infrastructure problems in schools (Artvinli, 2009; Dolek & Demir, 2011). This has led to the lack of experimental studies on GIS technologies. Thus, when the distribution of the studies in the last thirteen years is examined, the number is not at the desired level.

According to the level of the class in which the studies are conducted, it can be seen that the largest effect size value is at the 10th class (1,681) and the lowest effect size value is at the 7th class (0.636). It is thought that the fact that GIS is not included in the primary and secondary school level programs is effective in the occurrence of this situation. However, various studies indicate that the use of GIS in earlier periods has many benefits (Aladag, 2007; Baker, 2002; Keiper, 1996). It was concluded that there was no significant difference when it was examined whether there was a significant difference between the specified grade levels. When the curriculum is examined, the fact that only high school level gains are found for GIS may have made it difficult to accurately compare the effect sizes between the groups.

When the effect sizes related to the sample size of the studies are examined, it is seen that the largest effect size (1.735) is in the groups between 51-75 people, and the lowest effect size (1,072) is in the groups between 76 and above. However, it was concluded that there was no significant difference between the specified groups. In meta-analysis studies, enlarging the sample helps to obtain more reliable and accurate results (Dincer, 2013). In this sense, more studies are needed in the field to determine the significance between moderator variables more accurately. Regarding the results obtained from the study, the suggestions below have been made. These are given as in the following.

- The study shows that GIS affects academic achievement positively at a very large level. The study is important in terms of showing how important GIS is especially in affecting students' success in the Geography and Social Studies course. So, it is thought that increasing the use of GIS in lessons will make a great contribution to increasing the success of students.
- In the study, study type, class level and sample size are determined as moderator variables. In future studies, different moderators can be determined, and the number of variables can be increased.
- When the studies using GIS are examined, it is seen that there are fewer studies conducted at the secondary school level and there are almost no studies at some grade levels. Considering the benefits of using GIS at the secondary school level, it is thought that more emphasis should be placed on practical studies at these grade levels.
- While determining the sample of the research, the studies conducted in Turkey and abroad were examined. While reviewing the relevant literature, it was observed that the number of experimental studies was small and some studies did not have the necessary variables (sample size, mean, standard deviation, t, F, etc.) for meta-analysis statistics. Since this situation affects the results of the meta-analysis studies, it is thought that it is significant to include the relevant details in the studies.

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Overeducation Among Saudi Graduates in the Labour Market: Incidence and Determinants Across Two Self-Assessment Measures

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Abstract

Education expansion has prompted an extensive body of literature on the issue of overeducation, particularly in developed countries. However, as is the case for many developing countries, little, if any, empirical evidence from Saudi Arabia has emerged on this topic. Using cross-sectional survey data, this study examined the prevalence and possible determinants of overeducation among Saudi graduates in the labour market on the basis of two different self-assessment measures. Results indicated that nearly 50% of Saudi graduates in the study were considered overeducated based on each measure, while about 41% were consistently considered overeducated based on both measures. Using logistic regression models, several individual and job characteristics were deemed as major determinants of the probability of being overeducated across both measures. Furthermore, the two measures largely overlapped and yielded somewhat similar conclusions in terms of both the estimates and determinants of overeducation among graduates. The plausible implications of the results for education and labour market policies are discussed.

Keywords: Education–Job Mismatch, Overeducation, Graduates, Labour Market, Saudi Arabia, Worker Self-Assessment

1. Introduction

The increasing investment in education over the last decades has led to a sharp increase in the supply of highly qualified labour in most countries (Verhaest & Omey, 2010). There is wide consensus that education plays a vital role in yielding various economic, social, and cultural rewards for individuals, firms, and society (Barro, 2001; Psacharopoulos, 1994). However, recent expansion in higher education has sparked a growing debate on the returns of surplus education and the ability of labour markets to provide individuals with compatible jobs (Capsada-Munsech, 2019; Quintini, 2011). Scholars argue that the increased education attainment by itself is insufficient to bring about desired outcomes, as is idealistically assumed. Rather, the returns on societal and

educational investment depend largely on whether those educated persons are employed in jobs that match their attained education (Dolton & Vignoles, 2000; McGuinness, 2006). Overeducation is a type of education–job mismatch and typically refers to the situation in which the worker has a higher education level than normally required or needed for their job (McGuinness, 2006).

A substantial amount of research, particularly in western developed countries, has analysed this issue and its relevance to the labour market. Evidence shows that overeducation is consistently prevalent in both developed and developing countries (Dolton & Vignoles, 2000; Groot & Maassen van den Brink, 2000; Hartog, 2000; McGuinness et al., 2018). In addition, economic and sociological literature suggests that overeducation is a source of inefficiency within the labour market and can result in serious socio-economic costs at micro and macro levels (Congregado et al., 2016; Hartog, 2000; Turmo-Garuz et al., 2019; Velasco, 2000). Overeducation has thus become a crucial problem in many countries, raising concerns that the rapid expansionary education policies may not always bring their desired outcomes (Budría & Moro-Egido, 2008).

As many developing countries, Saudi Arabia has witnessed a significant increase in education enrolments since the early 2000s. Consequently, the number of Saudi graduates seeking jobs has tremendously increased in the past decades. For example, the number of students enrolled in tertiary education increased from around 40,000 in 2000 to over 1.62 million in 2018,[1] resulting in an increase in Saudi graduates from approximately 55,000 to 256,000 (Ministry of Education, 2020).[2] Based on the last Education and Training Survey conducted in 2017, the total Saudi enrolment in tertiary education—as a share of Saudi tertiary-age population (18–22-year-olds)—was 69% (General Authority for Statistics [GAS], 2017). The percentage of Saudi adults (25–64-year-olds) with a bachelor's or equivalent (23.4%) is of the highest among OECD countries (ranked 10 out of 46; Organisation for Economic Co-operation and Development [OECD], 2020).

Despite the increasing supply of Saudi graduates in the last two decades, the relative demand in the labour market has remained low. This is reflected by the unemployment rate for Saudis, which has been relatively high—above 10%—for nearly a decade (i.e., around 12% over the last five years; GAS, 2019). Saudi employment rate for tertiary-educated adults is of the lowest among OECD countries; only 74% of tertiary-educated adults are employed (ranked 43 out of 44; OECD, 2020). There is, therefore, a concern that the significant increase in the supply of graduates may have led to a further increase in the share of those forced to take jobs for which they are overeducated since they could not secure a suitable job.

Some reports about the Saudi labour market have revealed that having a university degree does not actually ensure employment in a job that requires one's level of education (Center for Statistical Research [CSR], 2010; Evidence for Policy Design [EPoD], 2015; Ministry of Labor and Social Development [MLSD], 2016). Habibi (2015) analysed the trends in the supply and demand for university graduates in the Saudi labour market. He argued that the rapid increase in Saudi graduates is likely to exceed the employment opportunities that can be created in the coming years, forcing those surplus graduates to either accept jobs below their education level or join the unemployed.[3] Despite such enduring poor job market prospects for graduates, both the demand for and access to university education remains high. In the ongoing national economic and social changes and reforms in Saudi Arabia, guided by its Vision 2030 agenda that aims at creating a sustainable knowledge-based economy, it is vital to pay attention to the potential problem of overeducation among Saudi graduates, which may have resulted from the rising gap between the supply and demand for these graduates in the labour market. To the author's best knowledge, no study has directly analysed the dynamics of overeducation in Saudi Arabia.

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[1] This is largely due to the sharp increase in the number of universities: from only nine public universities in 2000 to 43 public and private universities in 2017.

[2] These figures include students and graduates at the level of diploma, bachelor, and postgraduate studies from the local higher education institutions; those Saudis studying abroad, whose number has increased from 10,260 in 2000 to 122,530 in 2018, are not included.

[3] Based on projections about the supply and demand for university graduates 2015–2022, Habibi (2015) suggested that the graduate surplus is likely to exceed 100,000 by 2022.

The aim of this study was to examine the issue of overeducation among Saudi graduates in the labour market. Using two self-report measures, it documented the incidence and potential determinants of overeducation in the rarely studied context of developing countries. Given its continuous massive investment in education on the one hand (e.g., 19% of the state budget in 2020; Ministry of Finance, 2020), and the relatively lower levels of returns to such an investment on the other, Saudi Arabia—a high-income developing country—might be a unique context in which to examine the issue of overeducation.

2. Literature Review

2.1 Definition and Measurement of Overeducation

Overeducation is broadly defined as the extent to which one has an education level in surplus of that which is typically required for a particular job (Badillo-Amador et al., 2005; Capsada-Munsech, 2015; Salinas-Jiménez et al., 2016).[4] Nonetheless, overeducation is a relative phenomenon; a person who is overeducated for a particular job might not be so defined for another (Farooq & Ahmed, 2007). The specific definition of overeducation depends on how it is measured within the given data. Thus, the operationalisation of overeducation entails a measure for both the acquired and required levels of education (Linsley, 2005; Verhaest & Omey, 2010). Acquired level of education is typically measured as the number of completed years of schooling or as the highest level of attained education. To measure the level of education required by a given job, researchers have commonly used three main approaches, each of which implies a different definition of overeducation: job analysis (JA), realised match (RM), and worker self-assessment (SA; Badillo-Amador et al., 2005; Hartog, 2000; McGuinness, 2006).[5] Although these measures are intended to assess the same concept of overeducation, the incidence estimates vary largely based on the measure applied (McGuinness et al., 2018).

Each of the above methods is vulnerable to biases and measurement errors (McGuinness, 2006). Indeed, in most studies, the validity and choice of a particular method depend mostly on data availability (Budría & Moro-Egido, 2018). Overall, many researchers consider the SA measure to be the best and most effective measure of overeducation available; and therefore, it has been used extensively in previous studies.[6] SA is based on worker's self-assessment of the educational requirements of their job and can either be indirect (ISA) or direct (DSA) based on the formulated questions asked (Baert et al., 2013; Green & Zhu, 2010). More importantly, previous reviews (e.g., Groot & Maassen van den Brink, 2000; Hartog, 2000; McGuinness, 2006) revealed that the estimates, determinants, and impacts of overeducation tend to vary across the three measurement methods, even within the same labour markets. Thus, how overeducation is measured is vital when interpreting the results of overeducation research. Flisi et al. (2017) recommended that a careful combination of these methods is likely to be the best solution to obtain an understanding of the differences across measures (see also Capsada-Munsech, 2019). While most studies rely on one of these three techniques to measure overeducation, different combinations of objective (e.g., JA or RM) and subjective (e.g., ISA or DSA) methods have also been used in the literature, driven by data availability (Battu et al., 2000; Chevalier, 2003; Chevalier & Lindley, 2009; Tarvid, 2015; Verhaest & Omey, 2006a, 2006b).

2.2 Prevalence of Overeducation

Overeducation has been cited as a pervasive feature of modern labour markets. Reviews of the literature indicate that overeducation exists in various developed countries, with its incidence sometimes estimated to exceed 40%.

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[4] Overeducation is seen as a form of person–job misfit (Edward 1991), in which the overeducated individual experiences a mismatch between their qualifications and their job demands. For more discussion on the theoretical perspectives used to explain the occurrence of overeducation and its impact, see, for example, Capsada-Munsech (2017) and Luksyte and Spitzmueller (2011).

[5] These methods are also referred to as the normative or objective method, the empirical or statistical method, and the subjective or self-reported method, respectively. Comprehensive reviews of the different measurement methods are available in the literature (see Dolton & Vignoles, 2000; Leuven & Oosterbeek, 2011; McGuinness et al., 2018).

[6] Analyses of these different measures show that the SA measures are the least likely, when compared to the other methods, to yield biased estimates of the incidence of overeducation (Castagnetti et al., 2018; Hartog, 2000; Leuven & Oosterbeek, 2011; McGuinness, 2006).

For example, Battu et al. (2000) concatenated 36 separate estimates of the rate of overeducation in several western economies, and found that an average of one-quarter (25%) of the individuals in the labour force was overeducated across the three measures (SA, JA, and RM), with estimates ranging from 7% to as high as 67% of the workforce. In a cross-country meta-analysis of 25 research studies (Groot & Maassen van den Brink, 2000), the incidence of overeducation ranged from 10% to 42% across the different measures. The average incidence of overeducation was 22% in European countries and 26% in the United States. McGuinness (2006) analysed the incidence of overeducation reported in 33 studies in developed countries, generating more than 60 different estimates. Irrespective of the measurement method used, the incidence of overeducation in the reviewed studies ranged from 7% to 57%. Consistently, McGuinness (2006) found that the United States had the highest incidences of overeducation, whereas some European countries, particularly Holland and Germany, had the lowest. Recently, McGuinness et al. (2018) reviewed 98 studies on overeducation in 39 developed countries and found that the overall average incidence of overeducation, based on a total of 296 estimates, was 21.5% for SA, 25.5% for JA, and 25.9% for RM measure. Figure 1 shows the average incidence of overeducation in a number of developed countries based on the different measures. Other single-country studies also found overeducation to be prevalent in many developed countries.[7]
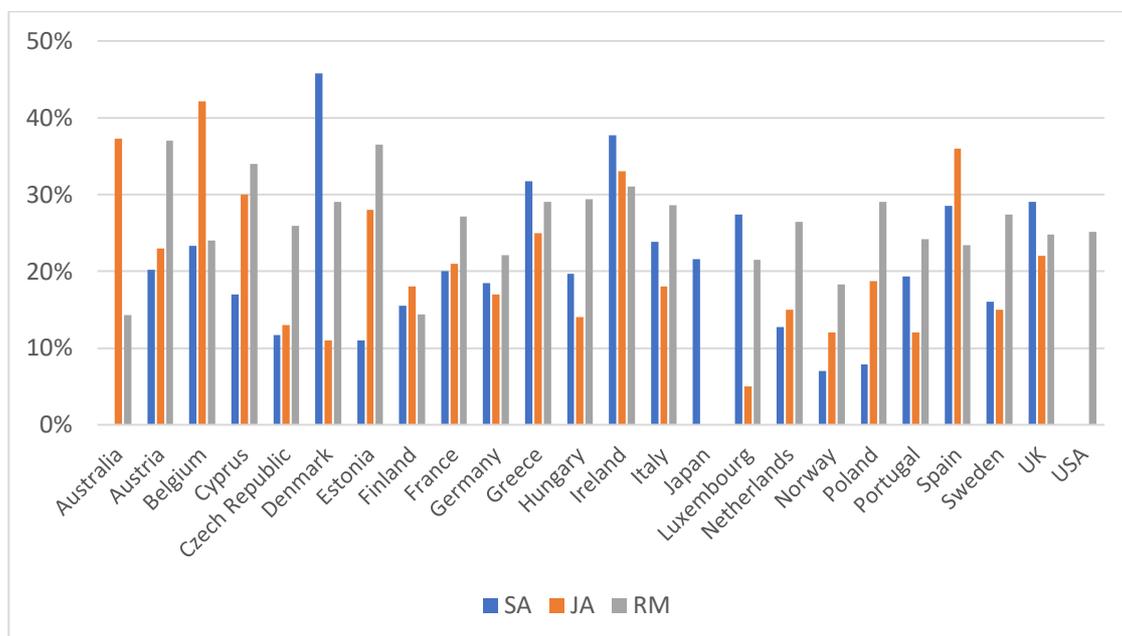
Figure 1: Average incidence of overeducation in selected developed countries

Note. SA, self-assessment; JA, job analysis; RM, realised match. Author's graphic based on estimates (2006–2016) from McGuinness et al. (2018).

Despite the extensive research on overeducation in developed countries, this topic has received much less attention in the context of non-western countries.[8] Several studies, however, have examined the prevalence of overeducation in developing market countries over the last two decades. Figure 2 reports the incidence of overeducation in several developing countries, where results have shown that overeducation is a widespread phenomenon. For instance, Sparreboom and Staneva (2014) reported an average overeducation incidence of 16% across 28 developing countries using the JA measure, with a range from 2% in Malawi to 63% in Samoa. In contrast, Handel et al. (2016) provided additional cross-country evidence based on SA approach, in which they found the average incidence of overeducation across 11 developing countries to be around 36% (ranging from 22% in Macedonia to

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[7] These include the United Kingdom (Alpin et al., 1998; Dolton & Vignoles, 2000; Green et al., 2002), Australia (Carroll & Tani, 2013; Li & Miller, 2015; Mavromaras et al., 2010), Spain (Badillo-Amador et al., 2005; Turmo-Garuz et al., 2019), Ireland (Flisi et al., 2017), and Italy (Capsada-Munsech, 2015; Cattani et al., 2018), among others. Some studies, however, reported relatively low rates of overeducation in such European countries as Norway, Switzerland, and Finland (McGuinness et al., 2018).

[8] A possible reason for the lack of overeducation research in developing countries may be due to the lack of data required for the measurement of overeducation in these countries compared to the developed countries (McGuinness, Bergin, & Whelan, 2018).

70% in Vietnam). Based on data from 1990 to 2011, Sam (2018) found the average rate of overeducation using the SA measure among tertiary graduates across 63 developing countries in 2011 to be around 27%. Results indicated that the rate of overeducation was 17% in Europe and Central Asia, 21% in the Middle East and North Africa, 22% in Latin America and the Caribbean, 26% in East Asia and the Pacific, and 33% in South Asia. These rates appear to be generally higher than those reported in developed counties (see Figure 3). Thus, when considering cross-country data within the same measures (e.g., SA and JA), overeducation may be more prevalent in developing (vs. developed) nations. Several single-country studies have also been conducted in developing countries, where high rates of overeducation are also detected.[9]
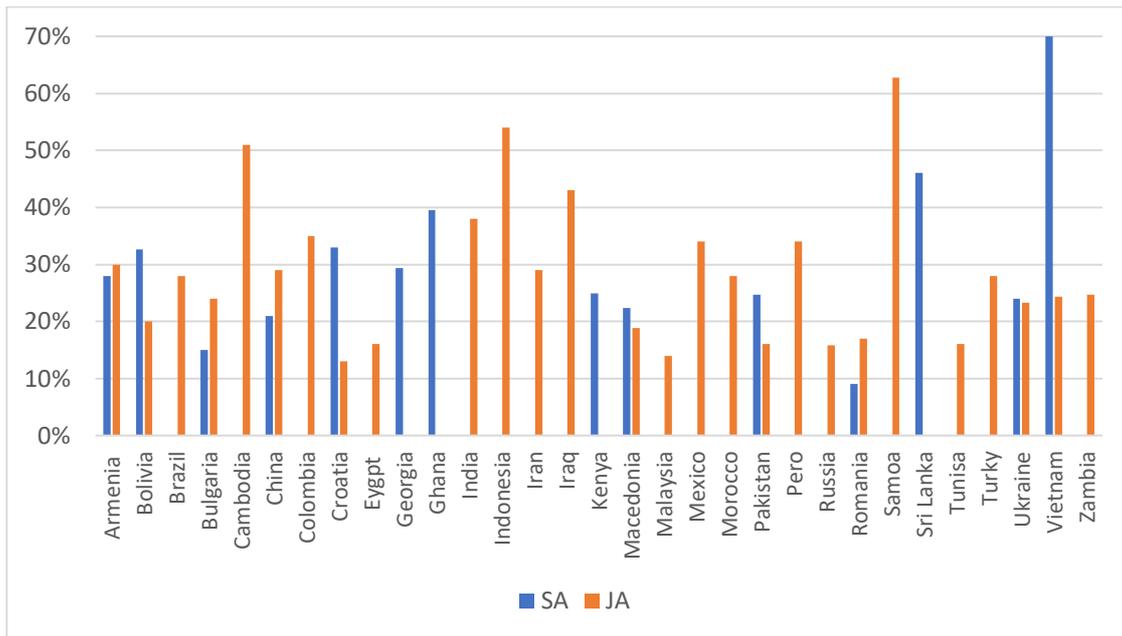
Figure 2: Incidence of overeducation in selected developing countries

Note. SA, self-assessment; JA, job analysis. Author's graphic based on latest estimates from Handel et al. (2016), McGuinness et al. (2018), Sam (2018), and Sparreboom and Staneva (2014).
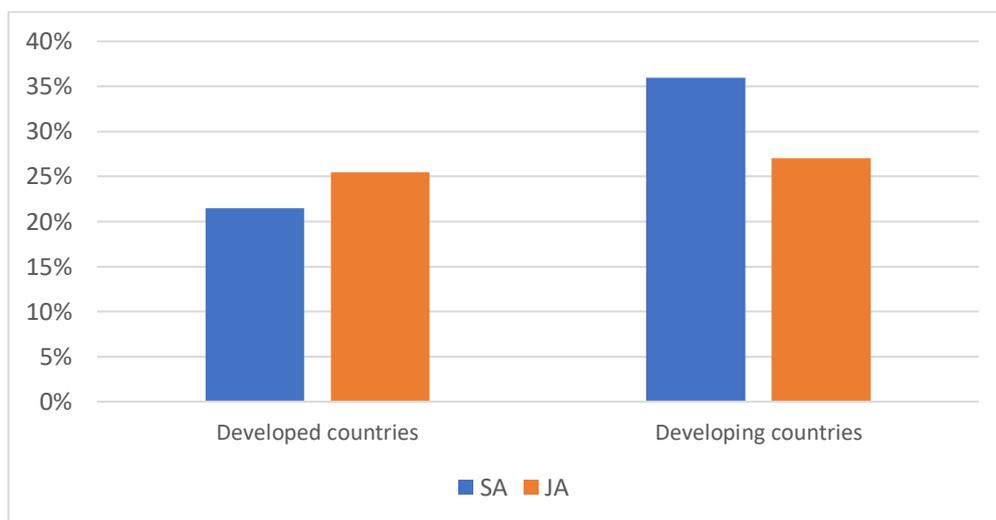
Figure 3: Average incidence of overeducation in developed and developing countries

Note. SA, self-assessment; JA, job analysis. Author's graphic based on average estimates from Handel et al. (2016) and McGuinness et al. (2018).

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[9] These include Mexico (Quinn & Rubb, 2006), Malaysia (Lim, 2013; Zakariya, 2019; Zakariya & Battu, 2013), Pakistan (Akhtar et al., 2018; Farooq, 2011; Farooq & Ahmed, 2007), China (Yang & Mayston, 2012), and Turkey (Acar 2016; Duman 2018; Mercan et al., 2015).

Overeducation research in Arab countries is scarce. Unsurprisingly, the reported results, although indicative of relatively large proportions of overeducated individuals, are generally mixed across studies and estimation methodologies. Among the very few cross-country studies that have been conducted in the Arab world is one by Sadeq (2014), which estimated overeducation among employees in Palestine, Jordan, and Egypt using labour force surveys for 2012. He found that Palestinian workers were the most likely to be overeducated (41%), Egyptian workers were mostly undereducated (67% compared to only 15% who were overeducated), and Jordanians were the most likely to be adequately educated (41% compared to 22% who were overeducated). El-Hamidi (2009) investigated overeducation in the Egyptian private sector using the Egypt Labor Market Survey for 1998 and 2006. El-Hamidi found the incidence of overeducation to be 51% in 1998 and 42% in 2006. Habibi and El-Hamidi (2016) used data from the Egypt Labour Force Survey for 2012, and reported that 25% of Egyptian university graduates were employed in jobs that do not require a university degree; meaning one out of every four working university graduates are overeducated for their jobs. In Tunisia, the overeducation rate ranged from 19% to 27% among graduates for the period from 2009 to 2013 (Kthiri, 2019).

To date, no study has investigated the incidence of overeducation in the Saudi labour market.[10] Actually, the direct objective or subjective measurement of overeducation requires micro-level data that have not been collected in Saudi Arabia.[11] Overeducation may indeed have different properties and implications in Saudi Arabia, where the supply of education is on the rise, unemployment is high, and the quality of education is questionable. This study aimed to contribute towards bridging this gap in the literature by investigating whether empirical studies in developed and developing economies hold true for Saudi Arabia.

Unsurprisingly, and as shown in Figures 1 and 2, the different measures of overeducation in previous studies tend to produce varying, and sometimes conflicting, estimates both across and within countries (Carroll & Tani, 2013). Taking the results of previous reviews broadly, the average estimate of the incidence of overeducation under the RM method typically tends to be the lowest, while the other two measures (JA and SA) tend to yield a reasonably higher average estimate, although their ranking is rather ambiguous (Battu et al., 2000; Groot & Maassen van den Brink, 2000; McGuinness, 2006; Cattani et al., 2018). Additionally, several authors reported sizeable differences in overeducation incidence within the single measurement approach.[12] Part of the variation in overeducation incidence can also be ascribed to the different periods analysed and groups targeted.

2.3 Determinants of Overeducation

Previous research has established several general findings concerning the determinants of overeducation, differentiating between two types of determinants: individual and job characteristics. In terms of socio-demographic characteristics, the results are generally mixed. Concerning sex, overeducation is often expected to be higher among women than men—perhaps owing to the obstacles women face concerning career advancement (Congregado et al., 2016; Frank, 1978). Nevertheless, empirical evidence is unclear. While some studies found the probability of being overeducated to be higher among women than men (Akhtar et al., 2018; Dolton & Vignoles, 1997; El-Hamidi, 2009), others found men to be at slightly more risk of overeducation than women (Alba-Ramirez, 1993; Congregado et al., 2016; Kthiri, 2019), with effects in most cases being barely significant. Additionally, some other studies observed non-significant results (Capsada-Munsech, 2015; Dolton & Silles, 2001; McGoldrick & Robst, 1996; Robst, 2008).

Some studies found that the risk of overeducation declines with age (Dekker et al., 2002; Kthiri, 2019; Vahey, 2000). Apart from the already limited jobs in the labour market, it is suggested that younger entrants, who have

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[10] The only exception is Alzubaidi (2020), which mainly examined the impact of overeducation among Saudi university graduates.

[11] Apart from the broad labour market indicators produced by the GAS in forms of periodic reports, bulletins, and figures, there seem to be no graduate or employer survey data on the Saudi labour market; nor is there a proper list compiled by job analysts that specifies the education levels (or years of schooling) required for the different jobs in Saudi Arabia.

[12] For example, estimates of the SA method vary across studies depending on the type and wording of the questions asked in the survey (e.g., overeducated vs. overskilled or DSA vs. ISA; Budría & Moro-Egido, 2018; McGuinness et al., 2018). Estimates of the RM measure may also differ based on the choice of the statistical mean or mode (Quinn & Rubb, 2006).

limited or no work experience, face greater difficulties in signalling their competence to potential employers early in their careers than do their older counterparts (Capsada-Munsech, 2017). Therefore, they may accept low-skilled jobs to avoid being unemployed. Considering the marital status, some authors suggested that married workers, especially women, are likely to experience a higher risk of overeducation relative to single workers (e.g., Frank, 1978; Robst, 2008). However, in these limited empirical studies (e.g., Battu et al., 2000; McGoldrick & Robst, 1996), the marriage effect is not evident.

Varying risks of overeducation have also been observed among individuals with different educational backgrounds. Generally, there is some evidence that the higher the education level, the higher the probability of being overeducated. The excess supply of tertiary education graduates in the labour market may have formed the incidence of overeducation among the more educated individuals, as they are likely to take jobs that are not compatible with their education (Capsada-Munsech, 2017; Congregado et al., 2016; Mason, 1996). The literature also reports a high variation in the likelihood of being overeducated across fields of study (Dolton & Vignoles, 2000; Reimer et al., 2008). Based on the average incidence of overeducation, evidence from different countries indicates that graduates of humanities, social sciences, and services are the most likely to be overeducated; while those of scientific, technical, and health fields are the least likely to be overeducated (Caroleo & Pastore, 2018; Ortiz & Kucel, 2008; Turmo-Garuz et al., 2019). This can be explained by the varying supply and demand for tertiary-educated graduates in these different fields (Capsada-Munsech, 2017).

Prior research has found several job characteristics to be relevant in identifying who are more prone to being overeducated. A few scholars suggest that previous unemployment experience (including the number and length of time an individual has been out of work) might be related to the probability of being overeducated. Individuals who have been unemployed longer or who have experienced layoffs are expected to be at higher risk of overeducation (Feldman, 1996). This might be caused by these individuals' increased likelihood of taking lower status positions for which they are overeducated to escape current unemployment (Leana & Feldman, 1995; Nielsen, 2011). However, no empirical research has directly examined the link between previous unemployment and overeducation.

Scant research has assessed the potential role of the institutional sector in determining the probability of overeducation. However, some studies have revealed overeducation risk to be higher in the public sector than in the private sector (e.g., Congregado et al., 2016; Dolton & Vignoles, 2000; Haddad & Habibi, 2017). It may be that public bureaucracies, which naturally promote inflexible hiring practices and regulate promotion processes based on seniority rather than merit, are likely to lead to a greater probability of overeducation among public (vs. private) workers (Congregado et al., 2016). Contrastingly, some comparative research suggests that, as the public sector is characterised by job security, stability, and defined career structure, the likelihood of being overeducated is lower in this sector relative to the private sector (e.g., Belfield, 2010; Budría & Moro-Egido, 2018; Velasco, 2000). However, further research is required before drawing definitive conclusions.

The risk of being overeducated varies considerably across industries. A relatively higher overeducation risk is found in industries such as agriculture, construction, transportation and manufacturing, and some services sectors. This is owing to the low quality of jobs offered by these industries, which do not typically require high qualifications. Conversely, industries such as education, health, finance, and insurance are associated with low rates of overeducation (Alpin et al., 1998; Congregado et al., 2016; Dolton & Silles, 2001). This is unsurprising since many of these traditional industries usually offer high-quality jobs that require high levels of education (Dolton & Silles, 2001).

Some studies suggested that overeducation is more prevalent among shift and part-time (vs. full-time) workers and those with fixed-term or temporary (vs. permanent) contracts (Alpin et al., 1998; Belfield, 2010; Dolton & Silles, 2001). Perhaps owing to the transitory or temporary nature of these non-standard jobs (e.g., short-term employment), workers may be less concerned about being overeducated for the job. Moreover, these jobs tend to be low-skilled occupations that require relatively low levels of education (Davia et al., 2017). However, documented evidence in the literature is extremely limited, and only a few studies have reported evidence of a possible increase in the risk of being overeducated among part-time or fixed-term workers (Belfield, 2010; Dolton

& Silles, 2001; Green & McIntosh, 2007; Zakariya, 2017). Several other job characteristics are assumed to have an important bearing on the probability of overeducation, including occupation category (e.g., managers vs. nonmanagers; professional vs. other occupations), firm size (e.g., small vs. large), and work experience (Chevalier & Lindley, 2009; Dolton & Silles, 2001; Green & McIntosh, 2007; Sicherman, 1991). However, direct evidence on the relevance of these factors is lacking.

In general, the available studies yielded sizeable differences in the probabilities of overeducation across individuals with different characteristics and profiles. While the reasons for these divergent results, or the lack of robustness, may vary across contexts, one potential explanation is the use of different measurement approaches to assess overeducation in the literature, which do not essentially yield similar results. Indeed, the few studies that attempted to identify the determinants of overeducation based on multiple measures concluded that the use of different measures is likely to produce quite varied conclusions (JA and SA; Dolton & Silles, 2001; McGoldrick & Robst, 1996; Verhaest & Omey, 2010).

3. Methods

There were no available sources of data for direct measurement of overeducation among Saudis in the labour market. Therefore, the author conducted a cross-sectional survey over a three-week period during June 2019. For this study, an online survey was constructed using SurveyMonkey®. The survey was offered to potential respondents in both English and Arabic, depending on their preference. Details of the sampling, data collection, and measurement are provided below.

3.1 Sampling and Data Collection

The target population chosen for the current study consisted of Saudi graduates working in paid employment who held at least a secondary school degree. The survey was administrated to potential respondents who had attended one of two public universities. The participating universities— King Abdulaziz University and King Saud University—are the largest and oldest universities in Saudi Arabia, with the largest number of undergraduate and postgraduate students and graduates every year in the country. The sampling frame was obtained from the past student databases at both universities, each of which contained more than 20,000 email addresses of past students.[13] As the databases are inaccessible to outsiders, the author worked with the responsible entity at each university to apply the sampling strategy and invite graduates to participate. Three thousand randomly identified past students from both universities were emailed an invitation by the university, requesting participation of eligible respondents, and directing them to the online survey. The email included a brief introduction to the study, the inclusion criteria for participation, and the information necessary to access the survey.[14] All respondents were required to provide their informed consent prior to starting the survey. Out of those contacted, 767 eligible respondents participated; of which, 653 completed all relevant parts of the survey and composed the final sample. Table A1 (see Appendix) presents respondents' descriptive statistics. The sample was primarily male (73.2%), married (59.3%), from the province of Makkah or Riyadh (79.5.3%), and aged younger than 40 years (73.5%), with an average age of 34.9 years. The majority of respondents worked full-time (91.9%) and most held a permanent job (61.1%). Respondents held jobs in a variety of industries, and most had been employed in their current job for less than 10 years (74.3%).

3.2 Measurement

3.2.1 Overeducation

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[13] The list at each university includes all students who had taken classes at the university, regardless of whether they had completed the degree.

[14] Because it was not possible to only send the survey to those past students who meet the eligibility criteria, a skip question on the opening page of the survey was included to determine the eligibility of the participants up front, in order to access and complete the survey. Only Saudi nationals who (a) are in paid employment, (b) have at least a secondary school degree, and (c) are currently residing and working in Saudi Arabia were requested to participate in the study.

Given the data availability, as well as the preference for a more refined measure of overeducation, the current study assessed overeducation using two different SA measures drawn from the survey.[15] First, the ISA measure asked respondents to indicate the educational level required for new applicants to meet the hiring criteria for their current job. It was based on the following question: '*What minimal level of formal education is required to get your current job*?'[16] Respondents were asked to select one of eight education levels: (1) 'no specific education requirements', (2) 'less than secondary school degree', (3) 'secondary school degree', (4) 'diploma', (5) 'bachelor's degree', (6) 'higher diploma or certificate', (7) 'master's degree', or (8) 'doctorate or equivalent'. By comparing the required level of education with the attained level of education reported by the individual, respondents were classified into one of three categories: 1 = undereducated, 2 = adequately educated, or 3 = overeducated.

Second, the DSA measure asked individuals to directly indicate the level of education necessary to adequately do the job from their own perspective (McGuinness et al., 2018). It was derived from the following question: '*In your own experience, what level of education do you feel is most appropriate to perform your current job*?'[17] Responses were: (1) 'a higher level of education than my own would be needed'; (2) 'my own level of education is necessary'; (3) 'a lower level of education than my own would be sufficient'; (4) 'for this job, no particular education is needed'. All respondents were classified into one of three categories: 1 = undereducated (selecting 1), 2 = adequately educated (selecting 2), 3 = overeducated (selecting 3 or 4).

Although both measures were based on individual self-assessment, they differed in their focus and scope. The ISA measure emphasises the formal job educational requirements (i.e., *required* level of education), whereas DSA presents individuals' opinions of the job content (i.e., *appropriate* level of education). Furthermore, the level of education required 'to get the job' might differ from the level of education appropriate 'to do the job' (see Allen & van der Velden, 2001; Capsada-Munsech, 2015; Leuven & Oosterbeek, 2011). It is essential to keep this potential divergence in mind when interpreting the results.

3.2.2 Individual and Job Characteristics
The analyses included a set of individual and job-specific explanatory variables, most of which have been used in previous research to identify possible determinants of overeducation. These include socio-demographic characteristics (sex, age, marital status, and region), educational attainment (level of education and field of study), and employment and job characteristics (previous unemployment, sector, industry, job status, job contract, and work experience).

4. Analysis and Results

4.1 Incidence of Overeducation

Table 1 represents the incidence of overeducation for the sample based on the different SA measures. The figures converge considerably between the two measures. For the ISA measure, 47.9% of the respondents were overeducated, while 49.8% were adequately educated for their jobs. Interestingly, the situation looks very similar when looking at the DSA measure, where 50.2% of the respondents were overeducated, and 47.3 were adequately educated. Only 2.3% for ISA and 2.5% for DSA were undereducated.

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[15] The SA measure was indeed the only available method that allowed deriving an immediate and reliable estimate of overeducation among graduates in the Saudi labour market.

[16] Similar measures, with slight differences in the formulation of the questions, were used by previous studies (e.g., Di Paolo & Mañé, 2016; Dolton & Silles, 2008; Duncan & Hoffman, 1981; Green et al., 2002; Linsley, 2005; Salinas-Jiménez et al., 2016; Verhaest & Omey, 2006a, 2006b).

[17] Similar questions were used by previous studies (e.g., Allen & van der Velden, 2001; Baert et al., 2013; Budría & Moro-Egido, 2018; Capsada-Munsech, 2015; Castagnetti et al., 2018; Green & McIntosh, 2007; Verhaest & Omey, 2006a, 2006b).

Table 1: Incidence of overeducation by measurement method

Overeducation variable	Overeducated		Adequately educated		Undereducated	
	n	*%*	*n*	*%*	*n*	*%*
ISA	313	47.9	325	49.8	15	2.3
DSA	328	50.2	309	47.3	16	2.5

Note. *N* = 653. ISA, indirect self-assessment; DSA, direct self-assessment. Percentages are rounded up to the nearest tenth.

Table 2 reports the proportion of respondents who fall into each combination of the two measures. Although both produced comparable proportions of overeducated, adequately educated, and undereducated individuals, they did not overlap completely. Of the total number of respondents, 40.6% were overeducated on both measures, 38.7% were adequately educated using both measures, and less than 1% were undereducated on the bases of both measures. Looking at those respondents who differed on the two measures, some interesting, though small, results also emerged. For example, 9.2% were adequately educated based on ISA but were overeducated based on DSA. Namely, they had the required education level to get the job but still believed it was more education than they actually needed to adequately do their job. In contrast, 7.4% of the respondents who reported being overeducated based on the educational requirements to get the job (ISA) were adequately educated based on the educational requirements to do the job (DSA). Being overeducated on ISA while being matched on DSA might reflect surplus formal education, whereas the contrary is perhaps more indicative of surplus skills. Additionally, 0.5% of the respondents who were undereducated in terms of ISA were overeducated in terms of DSA, whereas no one was overeducated for ISA and undereducated for DSA. Finally, 1.2% of the respondents who were undereducated on ISA reported being adequately educated on DSA, while 1.8% reported the opposite. In total, 80% of the respondents were equally similar on both measures, while about 20% fell into different groups. Furthermore, the correlation between the two measures of overeducation was fairly high (r_s = 0.66, p < .01).[18] This was expected, given the above similarities and differences between the two measures.

The correspondence and correlation between the two SA measures largely confirms that, while there is general convergence between the two, these measures focus on slightly different aspects of overeducation. Both measures are theoretically set up to identify the same concept, and they yielded relatively similar results. Yet, they are ostensibly different in terms of both construct and estimation technique. This heterogeneity may further underline the importance of comparing these two measures and examining their differences in terms of overeducation correlates.

Because of the low rates of undereducation, with the sample consisting mostly of overeducated and adequately educated individuals in terms of the ISA and DSA measures, undereducated respondents will be treated henceforth as adequately educated, composing the comparison group in the study (52.1% and 49.8%, respectively). Thus, two dichotomous variables based on the responses to the two measures are derived (0 = adequately educated, 1 = overeducated). Figure 4 shows the incidence of overeducation according to this grouping.

Table 2: Correspondence between overeducation measurement methods

ISA	DSA						Total	
	Overeducated		Adequately educated		Undereducated			
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Overeducated	265	40.6	48	7.4	0	0.0	313	47.9
Adequately educated	60	9.2	253	38.7	12	1.8	325	49.8
Undereducated	3	0.5	8	1.2	4	0.6	15	2.3
Total	328	50.2	309	47.3	16	2.5	653	100

Note. *N* = 653. ISA, indirect self-assessment; DSA, direct self-assessment. Percentages are rounded up to the nearest tenth

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[18] Spearman's rank-order correlation was used to calculate the correlation coefficient (r_s = .657, p < .01). Similar associations between the two SA measures were reported by previous research (e.g., 0.66, van der Velden & van Smoorenburg, 1997; 0.57, Verhaest & Omey, 2010).
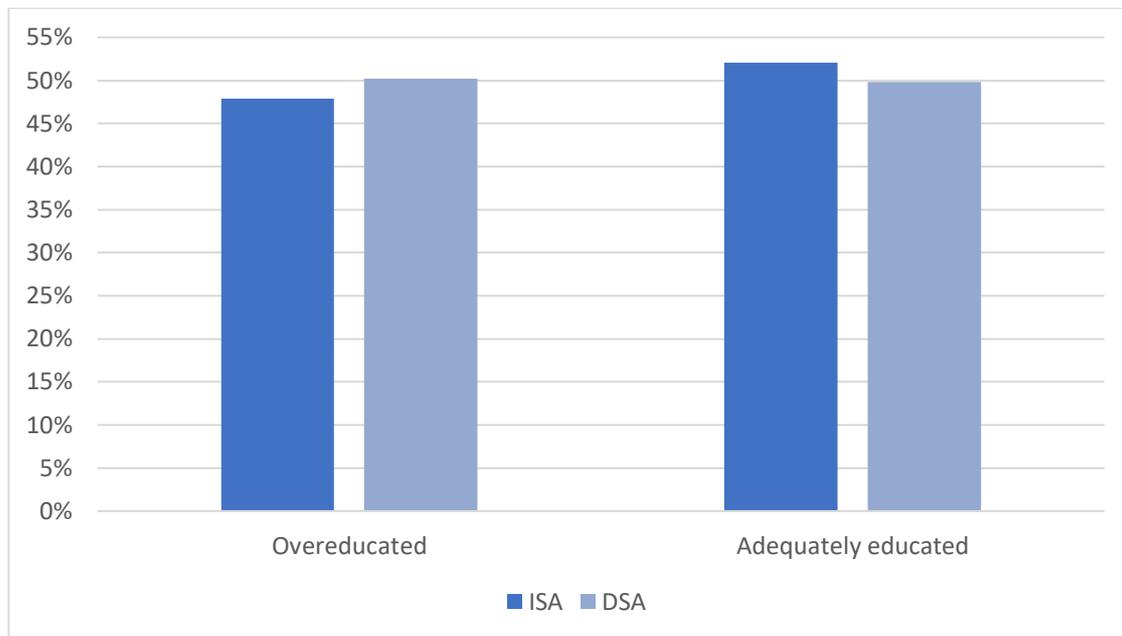
Figure 4: Incidence of overeducation by measurement method ($N = 653$)

Note. ISA, indirect self-assessment (0 = adequately educated, 1 = overeducated); DSA, direct self-assessment (0 = adequately educated, 1 = overeducated). Author's own estimates**.**

4.2 Determinants of Overeducation

The incidence of overeducation across individual and job characteristics is shown in the Appendix (Table A2). There were some variations in overeducation rates for measures of both ISA and DSA. To ascertain the probability of being overeducated based on these characteristics, logistic regression models were performed separately for each of the two overeducation indicators.[19] In each regression model, the overeducation measure (ISA or DSA) was entered as the dependent variable, and the explanatory independent variables included the respondents' individual and job characteristics. Tables A3 and A4, in the Appendix, report the results of the logistic estimations of the probability of overeducation for each measure. In the logistic regression model for ISA, 6 variables out of 13 predictor variables were statistically significant: education level, field of study, overseas study, sector, industry, and job contract. In the logistic regression model for DSA, 5 variables were statistically significant: education level, field of study, previous unemployment, industry, and job contract.

Given the relatively higher supply of female graduates in Saudi Arabia, their lower participation in the workforce, and the fewer job opportunities available to them compared to men, it was expected that they would be more likely to be overeducated. However, this intuition was rejected, as sex was statistically non-significant for explaining the probability of being overeducated for both measures of overeducation. Furthermore, estimation results showed that age was not associated with either measure of overeducation. This finding was further supported by that for work experience, whose effect was also non-significant. Additionally, under the definition of both measures, the effect of marital status was non-significant; the results showed that being single did not increase or decrease the likelihood of being overeducated compared to individuals who were married. Furthermore, although it was expected that the risk of overeducation would higher in the 'other regions', outside of the biggest regions of Riyadh, Makkah, and the Eastern province, because these relatively smaller regions tend to have fewer job opportunities in the different industries, the regional disparity in Saudi Arabia did not explain the probability of being overeducated. The risk of being overeducated on each of ISA and DSA was not significantly higher in any region than the omitted region of Riyadh.

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[19] For each model, the linearity of the continuous independent variables in terms of the logit of the dependent variable (ISA, DSA) was evaluated using the Box-Tidwell procedure (Box & Tidwell, 1962). Bonferroni's correction was conducted using all 18 terms in each model, yielding acceptable statistical significance ($p < .0028$). All continuous variables were linearly related to the logit of the dependent variable in the model. There were five cases with standardised residual values greater than ± 2.5 standard deviations, which were kept in the analysis.

The first important factor potentially explaining overeducation risk was education level. Specifically, the results showed that the higher the level of education, the higher the likelihood of being overeducated for both measures. Perhaps due to the oversupply of tertiary graduates into the labour market, individuals, particularly those with postgraduate degrees, are often forced to take jobs that do not require their education levels (either to get or to do). Moreover, respondents who studied 'science, mathematics, and computing'; 'engineering, manufacturing, and construction'; or 'health and welfare' were at lower risk of being overeducated, as defined by ISA, than those who studied 'general fields of study', which served as a baseline. Based on this measure, the probability of overeducation among those in the fields of 'education', 'social sciences, business, and law'; and 'humanities, languages, and arts' was not significantly different from those in 'general fields of study'.

Interestingly, the same results applied to the DSA measures, in which those former fields were exposed to a lower risk of overeducation than the baseline risk for being overeducated. However, the one group that did stand out on the DSA measure was 'social sciences, business, and law', which showed a significantly lower probability of overeducation on this measure as compared to 'general fields of study'. This may not be surprising, given that 'general fields of study' in the current dataset was associated mostly with those holding a secondary school degree, who, according to the previous finding, had a higher probability of being overeducated. The results generally highlight the link between field of study and labour market outcomes and can be explained by the low (and high) supply and demand for these fields.

The results based on ISA revealed that overseas-educated respondents were at a significantly higher risk of overeducation than their locally educated counterparts. This, however, was not the case for the DSA measure. Although these results are not necessarily surprising, they are not compatible with our expectations either. Given that their foreign qualifications might not be perfectly transferable to the local market, overseas-educated Saudis were expected to be more prone, than their locally educated counterparts, to being overeducated on both measures (Aleksynska & Tritah, 2013).

Unexpectedly, the effect of previous unemployment was statistically non-significant for ISA. However, the analysis showed that the risk of overeducation, as measured by DSA, increased with an increased unemployment history. This points to the importance of previous unemployment experience for current overeducation probability, particularly in terms of the educational requirement to do the job. That is, those who had been unemployed more often in the past were more likely to feel that their education was more than was needed for doing their current job. Furthermore, looking at the institutional sector, the likelihood of respondents being overeducated in 'other sectors' was higher than their counterparts in the public sector, who were the least likely to be overeducated. The effect was statistically significant only for the estimation of ISA. A plausible explanation of this finding might be that, compared to the public sector, individuals working in these sectors are expected to face a smaller number of suitable jobs and thus be more at risk of overeducation. Although the prospects for challenging or varied work in the Saudi public sector might be limited (Congregado et al., 2016), this sector may have a more defined career structure and better working conditions and promotion prospects than other sectors, resulting in employees being more likely to be well-matched in terms of the educational requirements to get the job.

An additional factor explaining the probability of being overeducated was the industry of employment (or economic activity). With 'manufacturing' set as a baseline, the probability of overeducation was significantly different across industries. Looking first at the estimate for ISA, compared to those in the manufacturing industry, respondents in 'financial and insurance activities' and 'education' were less likely to be overeducated on this measure. A higher than baseline but statistically non-significant risk of overeducation was found in other industries, such as the 'wholesale and retail trade; repair of motor vehicles and motorcycles'; 'transportation and storage'; and 'public administration and defence; compulsory social security'. For DSA, a significant higher risk of overeducation was identified in two industries: 'wholesale and retail trade; repair of motor vehicles and motorcycles' and 'transportation and storage'. Indeed, most industries showed a higher probability of overeducation on this measure than 'manufacturing'; however, these results were not statistically significant. In contrast, only those who worked in the 'education' industry were at lower risk by far, of being overeducated than those who worked in 'manufacturing'. 'Information and communication' was also associated with a lower risk of

overeducation, but statistically non-significant. The results for both measures here seem to slightly diverge, particularly in terms of those industries at a significantly higher risk of overeducation than 'manufacturing'. This provides evidence on the importance of industry as a major determinant of overeducation, regardless of the measure adopted. It seems that those low-skill, demanding industries in the private sector with low levels of required education are more likely to be affected by overeducation.

Finally, the effect of working a part-time job was statistically non-significant for all presented estimations of ISA and DSA. Hence, contrary to previous findings, working part-time (vs. full-time) does not significantly increase the risk of overeducation in the Saudi labour market. However, significant results were observed for both measures when analysing the type of job contract. Respondents who worked in a temporary or contract job had a higher risk of being overeducated compared to their colleagues with a permanent job.

Altogether, except for the variables of overseas study and sector for ISA and previous unemployment for DSA, the two SA measures yielded similar results regarding the determinants of overeducation. However, looking at the disparity in the probability of being overeducated across groups, characteristic variables such as field of study and industry showed some differences across the two measures, with some groups showing a high or low risk of overeducation on one measure but not the other.

5. Discussion

The results suggest important conclusions about the incidence and determinants of overeducation among Saudi graduates. First, among the individuals in the current sample, 48% were overeducated based on ISA, 50% were overeducated based on DSA, and 41% were consistently overeducated based on both measures. These results revealed a large proportion of overeducated graduates across the two measures, suggesting that overeducation might be a fairly widespread problem among Saudi graduates. The incidence rates of overeducation in this study were substantially high, particularly when compared to the SA estimates reported for other developed countries (e.g., Battu et al., 2000; Dolton & Vignoles, 2000; Green & McIntosh, 2007; Groot & Maassen van den Brink, 2000; Hartog, 2000; McGuinness, 2006; McGuinness et al., 2018), developing countries (e.g., Farooq, 2011; Handel et al., 2016; Quinn & Rubb, 2006), and Arab countries (e.g., Habibi & El-Hamidi, 2016; Sadeq, 2014). The results also provide further evidence that overeducation is more prevalent in less developed countries, perhaps due to the drawbacks and inefficacies of their education systems, their job markets, or both (Görg & Strobl, 2003; McGuinness et al., 2018). Moreover, the incidence of overeducation was quite similar across the two methods of measurement, in which almost half the respondents reported being overeducated on each measure. The consistency between both SA measures is in line with prior results (e.g., Green et al., 1999; Verhaest & Omey, 2010).

Second, several individual and job characteristics were significant in explaining overeducation among Saudi graduates. In particular, consistent with previous research (e.g., Capsada-Munsech, 2017; Congregado et al., 2016; Mason, 1996), for both measures, the act of undergoing higher education was associated with a higher risk of being overeducated. Additionally, some fields of study were associated with a low overeducation risk, while others had a relatively high risk. In line with previous evidence (e.g., Caroleo & Pastore, 2018; Ortiz & Kucel, 2008; Turmo-Garuz et al., 2019), the least risk of overeducation on both SA measures was consistently found for graduates of scientific, technical, and health fields. Conversely, graduates of traditional and general fields (or less occupationally focused fields) such as social sciences and humanities tended to be at a higher risk of being overeducated, particularly in terms of the educational requirements to get a job (namely, ISA). Having studied overseas or having worked in sectors other than the public or private sectors were also found to increase the probability of overeducation under this measure. The lower probability of being overeducated in the public scoter, as compared to other sectors, is similar to the pattern observed previously (e.g., Belfield, 2010; Budría & Moro-Egido, 2018; Velasco, 2000).

Furthermore, the risk of being overeducated to 'do the job', DSA, was found to increase with being unemployed more times in the past. This finding is in line with prior evidence indicating that unemployment, in terms of frequency and length, affects the likelihood of being overeducated later in one's career (Budría & Moro-Egido, 2018; Nielsen, 2011). Moreover, overeducation varied across industries. Consistent with prior results (e.g., Cattani

et al., Congregado et al., 2016;), individuals working in the industries of finance, insurance, and education were less prone to being overeducated on both measures, as compared to those working in other industries, such as trade and repair, transportation, and storage. As similarly reported by other studies (e.g., Belfield, 2010 Dolton & Silles, 2001; Green & McIntosh, 2007), the type of job contract was also important for both measures: those individuals working in temporary or fixed-contract jobs were at a higher risk of overeducation relative to those in permanent jobs, who apparently had better job-matching prospects. Contradictory to the previous findings (e.g., Belfield, 2010; Dolton & Silles, 2001; Sicherman, 1991; Vahey, 2000), age, work experience, and job status were not relevant in determining the overeducation probability for Saudi graduates based on both measures. Moreover, the effect of sex and marital status were non-significant, and previous evidence concerning both was either inconclusive or lacking altogether.

The high incidence of overeducation can be interpreted within the wider discussion of the mismatch between supply (skill market) and demand (labour market) for particular types of graduates in Saudi Arabia. The increasing influx of Saudi graduates in the past decade may have ultimately surpassed the number of suitable jobs available in the labour market. Unfortunately, this oversupply may even have caused the labour market to become saturated with graduates in those lower-demand fields, leaving a limited supply of graduates in other, higher-demand fields of study.[20] Some government reports (CSR, 2010; EPoD, 2015; MLSD, 2016) also point to the large gap between the skills acquired by Saudis during their education and those required by employers in the private sector. In contrast, the domestic labour market cannot create enough new jobs for the large number of Saudi graduates every year, nor can it effectively funnel new graduates into compatible jobs that match their education in the respective sectors or industries. Only limited types of education and skills directly cater to the labour market needs. Indeed, some signs suggest that job creation has been slow and largely limited to jobs at the upper and lower ends of the market, often occupied by expatriate labour; namely, the low-skilled menial jobs that Saudis graduates are mostly overeducated for, even if willing to take, and, to a far lesser extent, the highly specialised jobs that require advanced skills and extensive experience that new labour market entrants lack (Al-Asmari, 2008; CSR, 2010; Habibi, 2015). As a result, the skills market fails to produce the skills that the labour market mostly needs in terms of quality and quantity, while the latter fails to properly absorb the supply of graduates and connect Saudis to opportunities that most effectively match their education. Graduates who cannot get a suitable job in the labour market are likely to accept jobs below their qualifications (mostly low-skilled temporary) or become unemployed—a choice that is likely to increase the chances of future mismatch.

5.1 Limitations and Future Directions

This study had several potential limitations that future researchers should address. First, the sample size was relatively small; thus, the generalisability of the results to the entire population of working Saudi graduates, especially those from other universities, is limited and should be inferred with caution. Future research with sufficiently larger sample sizes is needed for more representative results. Additionally, owing to the small size of respondents initially falling into specific individual- and job-characteristic categories, some of these categorical variables were collapsed to more evenly balanced ones for statistical analyses. Thus, it was not possible to fully uncover the variations and trends related to the specific groups of these variables. The present findings may not equally generalise to all types and groups of employment, sector, and industry. Future research with larger, more distinct, and more diverse subsamples would provide even more valuable insight into overeducation risk and determinants.

Second, the use of a self-report instrument represents several limitations. Although the two measures of overeducation provided valuable insights into the patterns of overeducation based on the educational requirements to get and to do the job, both are eventually equated with one another in terms of subjectivity. Analysing overeducation using both objective and subjective operationalisations would be beneficial in shedding light on the potential differences between these indicators, their overlaps, and how each really captures overeducation (see

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[20] Of course, the uninformed educational and career choices made by students and their parents have contributed, at least partly, to this source of inefficiency in the supply chain.

Chevalier, 2003; Verhaest & Omey, 2010). Concerning subjectivity, individuals' assessment of the educational requirements, especially those actually needed to do their job, might have been influenced by their expectations, feelings, or preferences on and about the job, leading to measurement errors. Social desirability might also have systematically biased the data upwards or downwards.[21] The conclusions drawn here should, at the very least, be considered in conjunction with these limitations, which have important implications for further research.

5.2 Practical Implications

The current results provide evidence suggestive of a troublesome reality, in which a large portion of Saudi graduates in the labour market might be overeducated relative to their jobs. Such a high incidence rate of overeducation can be ascribed to both labour supply and demand failures. The current findings have important implications for policy and practice, primarily in these two areas. From the supply perspective, the estimates of overeducation in the current study suggest that there is an oversupply of Saudi graduates, particularly in those fields which are in lower demand by the local labour market. Taken together with the observation that the skills acquired by many graduates do not usually match with those that their potential employers look for, there is a need for high-quality education based on linking the nature and number of university enrolments for specific degrees to the current and future labour market conditions, needs, and prospects. To bring the supply in line with the demand, there may be a need for universities to reduce admissions quotas in the fields of study that are in oversupply and have poor job prospects (i.e., fields with high rates of overeducation and unemployment). This should be coupled with providing students with first-hand information about career opportunities and expected returns on specific skills and majors.

From the demand perspective, the current overeducation patterns may indicate the rigidities and shortcomings of the labour market. There is a need for policies and strategies designed to address the limited absorptive capacity of graduates in the labour market (e.g., lack of employment growth). This warrants a major intervention intended to enhance both the employability and the employment opportunities for Saudi graduates, especially in the private, self-employment, and emerging sectors. Proper policies need also to be implemented to promote diversity in the demand side of the labour market by creating new jobs that demand more diverse qualifications; thus, accommodating more graduates in the labour market. This is, of course, with the assumption that these required new skills are already in supply; otherwise, the education system needs to adapt accordingly to respond to the newly created jobs.

Finally, supply–demand mismatch (and thus overeducation) is a complex problem for which there is no simple solution. Although different sources of failure in the labour and skill markets are distinguished above, the underlying conditions of either market failure are more likely to occur concurrently and interactively. A policy response (or set of policies) that is multifaceted and similarly interactive is required (EPoD, 2015). It may not be sufficient or even appropriate, especially in the case of Saudi Arabia, to only reform or restructure one side of the market to fit the other better.[22] Rather, there might be a need to simultaneously reform both markets to fit each other in a mutually supportive way. Indeed, despite the Saudi government's several interventions and policy responses to address the rising gap between the supply and demand, these efforts have not been as comprehensive and overarching as they should be. To date, their rather selective and ad hoc nature has made them not particularly effective.

Perhaps, the gist of the problem in Saudi Arabia lies in the lack of an explicit linkage between the various supply- and demand-side stakeholders, which is a key prerequisite for formulating the right policy response and changing both systems to respond to one another effectively. Tied to this idea, the current labour market information system managed by GAS is inadequate. It primarily derives data from the Labour Force Survey, which merely produces

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[21] It is possible that some individuals overstated their education level to inflate their educational status, leading to an upward bias, while others might have overestimated their job's educational requirements, either to get or to do the job, to inflate their working status, creating a downward bias (e.g., Capsada-Munsech, 2019; Hartog, 2000).

[22] Either by reshaping the skill market to meet whatever the labour market needs or by restructuring the labour market to fit whatever the skill market supplies (Murillo et al., 2012; Tarvid 2015).

general and inconclusive statistics about the labour market and is thus insufficient to provide adequate information for planners, policymakers, or even job seekers. There is a need to collect and analyse more in-depth empirical data about the current patterns of the labour market—for example, about graduates' employability, employment opportunities, and education and skills mismatches—which should be channelled into the labour market information system.

6. Conclusion

To conclude, overeducation is a costly problem for individuals, firms, and society. Given the current results, more education for Saudis is not necessarily better. There is a risk that, without proper alignment between the supply and demand for Saudi graduates, increasing educational attainment is most likely to result in a substantial waste of scarce human and financial resources, ultimately decreasing the relative market value of educational degrees. This study supports the argument in the literature that increasing the supply of graduates in the labour market does not guarantee the desired returns in terms of a highly skilled and competitive workforce that contributes to the country's economic growth (Congregado et al., 2016; Dolton & Vignoles, 2000; McGuinness, 2006). An improved understanding of these issues is vital for designing an effective policy response to the problem of overeducation. Toward this aim, this study incorporated two SA measures into its analysis of the incidence and determinants of overeducation. Despite its limitations, it represents the first known empirical attempt to thoroughly investigate the issue of overeducation in the Saudi labour market. Notwithstanding, at this point in the research stream, there is still very little evidence on overeducation and the conditions under which it is likely to occur and persist in Saudi Arabia. Further research is needed to expand our understanding of overeducation and its implications—particularly its determinants and impacts on wages and other personal, job, and career outcomes. A fruitful avenue for future research would be the investigation of overeducation among specific target groups in the labour market, who might be either the most or the least vulnerable to overeducation, such as long-term unemployed, self-employed, women, young individuals, and those with disabilities. Concurrently, it would also be interesting to examine the stability of the current results using objective measurement methods and a larger and more diverse sample of Saudi graduates in the labour market. Despite the data limitations in Saudi Arabia, further research building on the current study would undoubtedly provide valuable insights into these issues.

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Declaration of Interest

There is no conflict of interest to declare.

Data Availability Statement

The data that support the findings of this study are available from the author upon reasonable request. The data are not publicly available due to ongoing analyses for further publications.

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Appendix

Table A1. Descriptive statistics of the study sample

Characteristic	*n*	%
Sex		
Female	175	26.8
Male	478	73.2
Age (years)		
20–29	222	34
30–39	258	39.5
40–49	114	17.5
≥ 50	59	9
Marital status		
Single[a]	266	40.7
Married	387	59.3
Administrative region		
Riyadh	152	23.3
Makkah	367	56.2
Eastern	59	9
Other[b]	75	11.5
Education level		
Secondary school degree	52	8
Diploma	59	9
Bachelor's degree	300	45.9
Higher diploma or master's degree[c]	126	19.3
Doctorate or equivalent	116	17.8
Field of study		
General fields of study	50	7.7
Education	47	7.2
Humanities, languages, and arts	88	13.5
Social sciences, business, and law	227	34.8
Science, mathematics, and computing	125	19.2
Engineering, manufacturing, and construction	71	10.9
Health and welfare	45	6.9
Overseas study(s)		
Yes [d]	209	32
No	444	68
Previous unemployment		
0 time	317	48.5
1 time	174	26.6
2 times	84	12.9
≥ 3 times	78	11.9
Institutional sector		
Public	295	45.2
Private	338	51.8
Other[e]	20	3.1
Industry		
Manufacturing	20	3.1
Construction	38	5.8
Wholesale and retail trade; repair of motor vehicles and motorcycles	72	11
Transportation and storage	23	3.5

Table A1. (*continued*)

Characteristic	*n*	%
Accommodation and food service activities	25	3.8
Information and communication	32	4.9
Financial and insurance activities	28	4.3
Professional, scientific, and technical activities	45	6.9
Administrative and support service activities	29	4.4
Public administration and defence; compulsory social security	65	10
Education	159	24.3
Human health and social work activities	56	8.6
Other service activities	26	4
Other [f]	35	5.4
Job status		
Part-time	53	8.1
Full-time	600	91.9
Job contract		
Temporary or contract	254	38.9
Permanent	399	61.1
Work experience (years)		
< 5	339	51.9
5–9	146	22.4
10–14	76	11.6
15–19	44	6.7
≥ 20	48	7.4

Note. $N = 653$. Percentages are rounded up to the nearest tenth.

[a]Single includes also divorced and widowed. [b]Other regions include Madinah, Qassim, Asir, Tabuk, Northern Borders, Hail, Jazan, Najran, Al Baha, and Al Jouf. [c]Seventeen of the respondents (2.6%) had a higher diploma degree, while 108 held a master's degree (16%). [d]Countries of graduation include the United States, the United Kingdom, Australia, Austria, Canada, France, Germany, Egypt, Ireland, Sweden, Switzerland, Spain, China, Japan, Malaysia, Bahrain, Kuwait, Jordan, Oman, and Yamen. [e]Other sectors include the non-profit organisation sector, and the sector containing regional and international organisations and institutions. [f]Other industries include agriculture, forestry, and fishing; mining and quarrying; electricity, gas, steam, and air conditioning supply; water supply, sewerage, waste management, and remediation activities; real estate activities; arts, entertainment, and recreation; and the activities of extraterritorial organisations and bodies.

Table A2. Descriptive statistics of the incidence of overeducation across individual and job characteristics

Characteristic	ISA		DSA	
	n	*%*	*n*	*%*
All observations	313	47.9	328	50.2
Sex				
Female	78	44.6	80	45.7
Male	235	49.2	248	51.9
Age (years)				
20–29	125	56.3	138	62.2
30–39	125	48.4	132	51.2
40–49	47	41.2	47	41.2
≥ 50	16	27.1	11	18.6
Marital status				
Single	142	53.4	162	60.9
Married	171	44.2	166	42.9
Administrative region				
Riyadh	72	47.4	77	50.7
Makkah	164	44.7	174	47.4
Eastern	32	54.2	31	52.5
Other	45	60.0	46	61.3
Education level				
Secondary school degree	23	44.2	38	73.1
Diploma	23	39.0	29	49.2
Bachelor's degree	154	51.3	170	56.7
Higher diploma or master's degree	89	70.6	68	54.0
Doctorate or equivalent	24	20.7	23	19.8
Field of study				
General fields of study	23	46.0	37	74.0
Education	19	40.4	18	38.3
Humanities, languages, and arts	41	46.6	45	51.1
Social sciences, business, and law	145	63.9	143	63.0
Science, mathematics, and computing	45	36.0	46	36.8
Engineering, manufacturing, and construction	27	38.0	28	39.4
Health and welfare	13	28.9	11	24.4
Overseas study(s)				
Yes	75	35.9	68	32.5
No	238	53.6	260	58.6
Previous unemployment				
0 time	136	42.9	120	37.9
1 time	82	47.1	94	54.0
2 times	42	50.0	54	64.3
≥ 3 times	53	67.9	60	76.9
Institutional sector				
Public	108	36.6	100	33.9
Private	189	55.9	214	63.3
Other	16	80.0	14	70.0
Industry				
Manufacturing	12	60.0	9	45.0
Construction	19	50.0	20	52.6
Wholesale and retail trade; repair of motor vehicles and motorcycles	54	75.0	61	84.7

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Table A2. (*continued*)

Characteristic	ISA		DSA	
	n	*%*	*n*	*%*
Transportation and storage	17	73.9	20	87.0
Accommodation and food service activities	16	64.0	18	72.0
Information and communication	11	34.4	11	34.4
Financial and insurance activities	9	32.1	14	50.0
Professional, scientific, and technical activities	27	60.0	22	48.9
Administrative and support service activities	17	58.6	21	72.4
Public administration and defence; compulsory social security	42	64.6	43	66.2
Education	27	17.0	22	13.8
Human health and social work activities	27	48.2	26	46.4
Other service activities	17	65.4	18	69.2
Other	18	51.4	23	65.7
Job status				
Part-time	31	58.5	37	69.8
Full-time	282	47.0	291	48.5
Job contract				
Temporary or contract	155	61.0	169	66.5
Permanent	158	39.6	159	39.8
Work experience (years)				
< 5	187	55.2	202	59.6
5–9	66	45.2	65	44.5
10–14	29	38.2	34	44.7
15–19	17	38.6	16	36.4
≥ 20	14	29.2	11	22.9

Note. $N = 653$. ISA, indirect self-assessment; DSA, direct self-assessment. Percentages are rounded up to the nearest tenth.

Table A3. Logistic regression analysis of the determinants of overeducation (ISA)

Independent variable	B	SE	Wald's χ^2	Odds ratio	95% CI for odds ratio	
					Lower	Upper
Sex (ref. male)	0.004	0.236	0.000	1.004	0.632	1.594
Age (years)	0.008	0.017	0.233	1.008	0.975	1.042
Marital status (ref. married)	-0.119	0.236	0.256	0.888	0.560	1.408
Administrative region (ref. Riyadh)						
Makkah	0.038	0.235	0.026	1.039	0.655	1.646
Eastern	0.358	0.364	0.966	1.430	0.701	2.919
Other	0.299	0.355	0.713	1.349	0.673	2.702
Education level	0.757***	0.131	33.452	2.132	1.650	2.756
Field of study (ref. general fields of study)						
Education	-0.356	0.621	0.329	0.700	0.207	2.366
Humanities, languages, and arts	-0.770	0.510	2.280	0.463	0.171	1.258
Social sciences, business, and law	-0.282	0.451	0.391	0.754	0.312	1.825
Science, mathematics, and computing	-1.024*	0.481	4.528	0.359	0.140	0.922
Engineering, manufacturing, and construction	-1.491**	0.511	8.511	0.225	0.083	0.613
Health and welfare	-1.777**	0.653	7.408	0.169	0.047	0.608
Overseas study (ref. no)	-0.831**	0.296	7.880	0.436	0.244	0.778
Previous unemployment	0.079	0.084	0.877	1.082	0.917	1.277
Institutional sector (ref. public)						
Private	0.471	0.319	2.181	1.601	0.857	2.991
Other	1.618*	0.728	4.935	5.041	1.210	21.007
Industry (ref. manufacturing)						
Construction	-0.548	0.629	0.759	0.578	0.168	1.985
Wholesale and retail trade; repair of motor vehicles and motorcycles	0.487	0.608	0.642	1.628	0.494	5.361
Transportation and storage	0.267	0.741	0.130	1.306	0.306	5.577
Accommodation and food service activities	-0.177	0.700	0.064	0.838	0.213	3.305
Information and communication	-1.260	0.675	3.486	0.284	0.076	1.065
Financial and insurance activities	-1.709*	0.698	6.000	0.181	0.046	0.711
Professional, scientific, and technical activities	-0.543	0.643	0.713	0.581	0.165	2.049
Administrative and support service activities	-0.506	0.677	0.558	0.603	0.160	2.275
Public administration and defence; compulsory social security	0.334	0.664	0.254	1.397	0.380	5.132
Education	-3.013***	0.664	20.562	0.049	0.013	0.181
Human health and social work activities	-0.745	0.662	1.266	0.475	0.130	1.738
Other service activities	-0.423	0.714	0.351	0.655	0.162	2.654
Other	-0.331	0.637	0.271	0.718	0.206	2.500

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Table A3. (*continued*)

Independent variable	*B*	SE	Wald's χ^2	Odds ratio	95% CI for odds ratio	
					Lower	Upper
Job status (ref. full-time)	-0.447	0.374	1.431	0.639	.307	1.330
Job contract (ref. permanent)	0.684**	0.252	7.375	1.983	1.210	3.249
Work experience	0.010	0.120	0.006	1.010	0.799	1.276
Constant	-2.723**	0.898	9.190	0.066		
Model χ^2	208.5***					
df	33					
Nagelkerke R^2	0.365					
Classification						
Overall	74.3%					
Adequately educated	75.6%					
Overeducated	72.8%					

Note. $N = 653$. The dependent variable, ISA, indirect self-assessment, was coded as 0 = adequately educated, 1 = overeducated; sex was coded as 0 = male, 1 = female; marital status was coded as 0 = married, 1 = single; overseas study was coded as 0 = no, 1 = yes; job status was coded as 0 = full-time, 1 = part-time; job contract was coded as 0 = permanent job, 1 = temporary or contract job. Age was measured in years; education level, previous unemployment, and work experience were measured at ordinal level (6, 6, and 5 levels, respectively) and treated as contentious variables. All statistics reported herein use 3 decimal places to maintain statistical precision.
$^*p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table A4. Logistic regression analysis of the determinants of overeducation (DSA)

Independent variable	B	SE	Wald's χ^2	Odds ratio	95% CI for odds ratio	
					Lower	Upper
Sex (ref. male)	-0.170	0.242	0.494	0.843	0.525	1.356
Age (years)	-0.019	0.017	1.191	0.981	0.949	1.015
Marital status (ref. married)	0.055	0.240	0.052	1.056	0.660	1.689
Administrative region (ref. Riyadh)						
Makkah	0.269	0.241	1.252	1.309	0.817	2.097
Eastern	-0.004	0.373	0.000	0.996	0.480	2.070
Other	0.235	0.360	0.425	1.265	0.624	2.562
Education level	0.485***	0.126	14.830	1.624	1.269	2.078
Field of study (ref. general fields of study)						
Education	-0.446	0.665	0.449	0.640	0.174	2.359
Humanities, languages, and arts	-0.940	0.544	2.991	0.391	0.135	1.134
Social sciences, business, and law	-0.985*	0.488	4.077	0.373	0.144	0.971
Science, mathematics, and computing	-1.443**	0.520	7.714	0.236	0.085	0.654
Engineering, manufacturing, and construction	-1.932***	0.538	12.889	0.145	0.050	0.416
Health and welfare	-2.373**	0.686	11.982	0.093	0.024	0.357
Overseas study (ref. no)	-0.369	0.296	1.554	0.691	0.387	1.235
Previous unemployment	0.221**	0.091	5.944	1.247	1.044	1.489
Institutional sector (ref. public)						
Private	0.567	0.309	3.373	1.763	0.963	3.229
Other	0.490	0.668	0.537	1.632	0.440	6.050
Industry (ref. manufacturing)						
Construction	0.242	0.607	0.159	1.274	0.388	4.186
Wholesale and retail trade; repair of motor vehicles and motorcycles	1.529**	0.609	6.309	4.615	1.399	15.217
Transportation and storage	1.983**	0.823	5.803	7.265	1.447	36.472
Accommodation and food service activities	0.653	0.688	0.900	1.921	0.499	7.395
Information and communication	-0.498	0.641	0.604	0.607	0.173	2.135
Financial and insurance activities	0.101	0.652	0.024	1.106	0.308	3.972
Professional, scientific, and technical activities	0.034	0.612	0.003	1.034	0.312	3.431
Administrative and support service activities	0.865	0.680	1.620	2.375	0.627	9.003
Public administration and defence; compulsory social security	1.214	0.636	3.641	3.368	0.968	11.725
Education	-1.948**	0.632	9.488	0.143	0.041	0.492
Human health and social work activities	0.397	0.638	0.386	1.487	0.426	5.193
Other service activities	0.558	0.701	0.635	1.748	0.443	6.900
Other	1.036	0.624	2.758	2.817	0.830	9.563

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Table A4. (*continued*)

Independent variable	*B*	SE	Wald's χ^2	Odds ratio	95% CI for odds ratio	
					Lower	Upper
Job status (ref. full-time)	-0.062	0.400	0.024	0.940	0.429	2.059
Job contract (ref. permanent)	0.559**	0.255	4.815	1.750	1.062	2.884
Work experience	0.138	0.120	1.321	1.148	0.907	1.453
Constant	-1.790	0.908	3.884	0.167		
Model χ^2	229.848***					
df	33					
Nagelkerke R^2	0.396					
Classification						
Overall	74.3%					
Adequately educated	71.4%					
Overeducated	77.1%					

Note. $N = 653$. The dependent variable, ISA, indirect self-assessment, was coded as 0 = adequately educated, 1 = overeducated; sex was coded as 0 = male, 1 = female; marital status was coded as 0 = married, 1 = single; overseas study was coded as 0 = no, 1 = yes; job status was coded as 0 = full-time, 1 = part-time; job contract was coded as 0 = permanent job, 1 = temporary or contract job. Age was measured in years; education level, previous unemployment, and work experience were measured at ordinal level (6, 6, and 5 levels, respectively) and treated as contentious variables. All statistics reported herein use 3 decimal places to maintain statistical precision.
*$p < .05$, **$p < .01$, ***$p < .001$.

Investigation of Factors Affecting Pre-School Teachers' Vocational Alienation[*]

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Abstract

Preschool teachers have an important place in achieving the goals of preschool education and in assuring its quality. Since vocational alienation affect preschool teachers' performance negatively, main purpose of this study is to investigate factors affecting their vocational alienation. For this purpose 227 pre-school teachers from Turkey voluntarily participated in the study. The model of the study was correlational survey model. Research data was collected with; Personal Information Form, Vocational Alienation Scale for the Preschool Teachers (VAS-PT), Organizational Climate Scale and Preschool Teachers' Self-Efficacy Beliefs Scale. According to teachers' graduation degree variable, the vocational alienation scale scores of teachers at the graduate level differed statistically negatively from other groups (high school, associate degree, undergraduate). The scores of the sub-dimensions of the scale of vocational alienation of the group consisting of teachers who have a different vocation they want to do, differ negatively compared to other colleagues. Between teachers' vocational alienation scores and self-efficacy beliefs and organizational climate scores, positive and negative significant relationships were determined. There were significant negative relationships between teachers' vocational alienation scores and all sub-dimensions of the Self-Efficacy Belief Scale. Negative relationships were determined among the scores of all sub-dimensions of Vocational Alienation Scale for Pre-school Teachers and "Supportive Principle Behavior," "Intimate Teacher Behavior" and "Collaborative Teacher Behavior among Colleagues" of the Organizational Climate Scale. In addition, there were positive relationships between "Disengaged Teacher Behavior" and "Restrictive Principle Behavior" dimensions of Organizational Climate Scale and all sub-dimensions of Vocational Alienation Scale for Pre-school Teachers.

Keywords: Preschool Teachers, Vocational Alienation, Self-Efficacy, Organizational Climate

1. Introduction

The quality of pre-school education in Turkey is not in a satisfactory level; for this reason, education of teachers comes to the forefront (Atay-Turhan, Koç, Isıksal, & Isıksal, 2009). Investments aimed at enhancing the quality of pre-school education offer many benefits such as increase in children's elementary school scores, decrease in grade repetitions, and less need for special education (Lynch and Vaghul, 2015). The teacher as an important part of pre-school education holds a significant position in reaching the goals and the desired quality of education. As they help build the society, teachers should be educated in a way to meet the needs of present day (Kösterioğlu and Kösterioğlu, 2008). A better qualified teacher means better learned students and a more permanent learning (Karacaoğlu, 2008). Apart from good qualifications, teachers should also be aware of their strengths and have confidence of self-efficacy.

Self-efficacy is the teacher's belief in that they will make a change in the student's behaviors and academic success (Guo, Justice, Sawyer and Tompkins, 2011). Individuals who believe that they will be successful in a given duty are more successful than those who do not (Bandura, 1986, 1997). According to Bandura (1986), teachers' perception of self-efficacy can be influenced and shaped by various school factors (Guo, Piasta, Justice, & Kaderavek 2010; Hoy & Woolfolk, 1993; Raudenbush, Rowan, & Cheong, 1992; Ross, Cousins, & Gadalla, 1996). Pre-school teachers' self-efficacy beliefs are important in order to enhance class quality and to support children's academic success (Guo et al., 2010; Justice, Mashburn, Hamre, and Pianta, 2008). Teachers' perception of self-efficacy may indirectly influence student success thanks to the quality communication they establish with students (Goddard and Goddard, 2001). A study conducted by Wolter and Daugherty (2007) shows that teachers' teaching qualifications such as experience and holding a degree can impact their perception of self-efficacy. According to another study, there is a statistically significant and positive correlation between teachers' self-efficacy beliefs and job satisfaction (Infurna, Riter, and Schultz, 2018). Another study conducted with pre-school teachers shows that inclusion of teachers in the decision-making process and their cooperation with co-workers as they perceive it are related to their self-efficacy (Guo, Justice, Sawyer and Tompkins, 2011). In other words, there is a correlation between organizational climate and teacher self-efficacy.

Organizational climate is a point to be emphasized since it affects organizational behavior (Akbaba-Altun and Memişoğlu, 2011). According to Pidarta, organizational climate is characteristics that can affect the behaviors of organization members that make an organization different from others (Waruwu, 2015). According to Yılmaz and Altınkurt (2013), organizational climate is the general working atmosphere and feelings of the environment that consist of employees' relations and behaviors. The factors used to explain organizational climate are the characteristics of the working environment, perceptions of the employees, their behaviors as a result of their perceptions and distinctive characteristics of an organization (Gök, 2009). What can be said about school as an organization and school climate is in parallel with organizational climate. When organizational climate is applied to education, it is defined as some psycho-social characteristics that people working at school use to describe and interpret their working environment (Hoy and Miskel, 2008). According to Conley (2006), school climate is the working atmosphere where perceptions and conditions about organizational factors form the spirits of employees and the leadership style of the administrator. While the factors affecting school climate vary in literature (Qian, Jiang, and Ruan, 2007 as cited in Jiang, Li, Wang and Li, 2019; Xiaofu and Qiwen, 2007; Tschannen-Moran and Hoy, 1997 as cited in Hu, Li, Wang, Reynolds and Wang, 2019), Hoy et al. handled it in two main headings as the principal's behaviors and coworkers' behaviors and six sub-headings as (a) supportive principal behavior: they are open to suggestions, their criticism is constructive and supportive, (b) commanding principal behavior: autocratic administrator who has a strict and tight administration, (c) restrictive principal behavior: they assign unnecessary workload to teachers and are preventive rather than supportive, (d) cooperative teacher behavior: they are respectful to each other's professionalism and support each other's progress, (e) intimate teacher behavior: they establish strong social bonds and become friends, (f) disengaged teacher behavior: they have negative attitude and criticize their colleagues (Hoy & Miskel 2010 as cited in Yılmaz & Altınkurt, 2013).

Studies conducted to reveal the relationship between school climate and job satisfaction concluded that there is a significant positive relationship between the two (Hoy & Miskel, 2008). Teachers' positive perceptions of organizational climate are related to job satisfaction and thus the quality of education (Ghavifekr & Pillia, 2016).

Organizations with employees with higher job satisfaction have higher productivity (Robbins, 2007 as cited in Waruwu, 2015). Xiafu and Qiwen (2007) found a positive statistically significant relationship between school climate and job satisfaction, while a statistically negative relationship was found between school climate and management, materials and salaries. They argue that teachers' satisfaction with their salaries is affected by good management and the teaching environment. It is also revealed that principal behavior and school organizational climate are correlated in this study. Principal behaviors, relationship with colleagues, school climate and self-efficacy beliefs mentioned in the literature may cause the individual to feel belonging to the environment they are in. In other words, all the factors listed may cause the teacher to become alienated from the teaching profession.

Aldemir defines "alienation" as the belief of the person about to what extent what they do for the results they want to achieve can be effective in achieving the intended results (Çalışır, 2006). Seeman (1959), who has pioneering studies in this field in the literature, proposes to consider alienation by the personal stance of the person in society, and discusses alienation in five categories. These categories are (a) powerlessness: feeling powerless in the face of rule makers and rules and the thought of not being able to change things, (b) meaninglessness: inability to make sense of the causes and consequences of their own and others' behaviors and finding the world too complex to set a goal (Mackey, 1974 as cited in Sanberk, 2003); (c) normlessness: believing that the social rules are broken or that they are no longer functional, (d) sense of isolation: the individual abstracts themselves from their physical environment and avoids communication (Kıhrı, 2013), (e) self-alienation: according to Mills, the person thinks that they are serving something foreign to them and alienates themselves as a result of this thought (Seeman, 1959). In some literature studies, alienation is considered as an indicator of burnout (Halaçoğlu, 2009).

Vocational alienation can be defined as the employee finds their job meaningless and does not get satisfaction from work relations and sees themselves as an insignificant element of the system (Elma, 2003). Hoy, Blazovsky and Newland define vocational alienation as a reflection of the feelings created by disappointment of the individual with working conditions in the organization (as cited in Elma, 2003). Such a person does not consider their job as a part of their life, denying the position and dignity that the organization has given them (Eryılmaz, 2010). There are many reasons for vocational alienation listed in the literature. The following are listed among the factors that cause vocational alienation: negative behaviors of principles and employees, cooperation between the subordinate and the superior, the feeling of loneliness of the individual, artificial, temporary and superficial relationships (Şimşek, Çelik, Akgemici, & Fettahoğlu, 2006), organizational climate (Celep, 2008), closed organizational climate, bureaucratic structure (Eryılmaz, 2010) and commitment to the organization (Minibaş, 1993). It has been discovered in the studies that the less the commitment of the employees to the organization or the job is, the more alienated they are from their job (Minibaş, 1993). Ulrich has listed the factors that will increase the commitment of employees to the profession and reduce their vocational alienation as cooperation, teamwork, common achievements, communication and interest in people (Kıhrı, 2013). As there are many reasons for vocational alienation, a study can be done for each reason to eliminate these reasons. Eryılmaz (2010) has stated one of them to be ensuring the participation of employees in management. In the light of the literature, it is possible to say that the organizational climate of the employees, their colleagues and the administrator's attitudes are important factors in vocational alienation. In this regard, there may be a relationship between teachers' vocational alienation and their perceptions of organizational climate and self-efficacy. When the literature is examined, it is seen that studies on this subject are very limited, especially studies conducted on pre-school teachers. Hence, the relationship between pre-school teachers' vocational alienation and their perceptions of organizational climate and self-efficacy is decided to be investigated in this study at first. Secondly, the relationship between some variables (gender, graduation degree, years of experience, desire for a career change, class size, weekly working hours and types of educational institutions that teachers work) and teachers' vocational alienation level was also examined within the scope of this study. Research questions were as follows:

- Is there a significant relationship between preschool teachers' level of vocational alienation and their perceptions of organizational climate and self-efficacy?
- Do pre-school teachers' level of vocational alienation differ significantly according to variables such as gender, graduation degree, years of experience, desire for a career change, class size, weekly working hours, types of educational institutions

2. Method

2.1 Research Model

In this study, a relational screening model was used to examine pre-school teachers' level of vocational alienation in terms of different variables and to determine the relationship between their self-efficacy belief, organizational climate and their level of vocational alienation. Screening models generally handle the opinions and attitudes of individuals in large groups about a phenomenon or an event, and thus they try to describe facts and events (Karakaya, 2009). As for the relational screening model, it tries to determine the existence of a relationship between two or more variables or the degree of the relationship (Karasar, 2014).

2.2 Study Group

The study group of this research consists of 227 pre-school teachers who work in pre-school education institutions during the academic year of 2019-2020. Table 1 shows the demographic information about pre-school teachers taking part in the study.

Table 1: Demographic information of the participants

		f	%
Gender	Female	218	96
	Male	9	4
Graduation Degree	High School	9	4
	Associates Degree	31	14
	Bachelor's	163	72
	Postgraduate	24	10
School Type	State Kindergarten	102	45
	State Independent Kindergarten	63	28
	Private Kindergarten	62	27
Years of Experience	5 years and less	95	42
	6-10 years	60	26
	11-15 years	42	19
	16- 20 years	22	10
	21 years or more	8	3
Weekly Working Hours	20-30 hours	133	58
	31-40 hours	54	24
	41 hours or more	40	18
Class Size	0-10 children	22	10
	11-20 children	147	64
	21-30 children	50	22
	31 or more	8	4
Desire for a Career Change	Yes	78	34
	No	149	66

It is observed that the majority of the participants are female teachers (96%). When the participants' graduation degree is examined, it is seen that 72% of them have undergraduate degrees. It can be said that most teachers work in elementary school (f = 102) while those who work in independent government or private schools are similar in number. When the experience levels of the study group teachers are examined, those with a maximum experience of 5 years or less (f = 95) constitute the most crowded group while teachers who have worked for 21 years or more (f = 8) remain as minority. Considering the working hours, the majority of the participants (82%) work for 40 hours or less while 18% of them work more than 40 hours. When the number of students in the classes of the participants is examined, it is seen that the biggest group (64%) was 11-20 children. Only 4% of the teachers in the study group stated that they have a class size of 31 and above. When asked whether they wanted to work in

another profession or not, 2/3 of the participants said they did not while remaining participants stated that they wanted to pursue another profession.

2.3 Data Collection Tools

2.3.1 Personal Information Form
In order to gather information about teachers in the study, a personal information form was created via Google Forms containing various variables of teachers such as gender, graduation degree, years of experience, desire for a career change, class size, weekly working hours, types of educational institutions.

2.3.2 Vocational Alienation Scale for Pre-school Teachers (VAS-PT)
The "Pre-school Teachers Vocational Alienation Scale" used within the scope of the study was developed by Kıhrı (2013). The items of the 5-point Likert-type scale are answered with the options of "Strongly Agree," "Agree," "Not Sure," "Disagree" and "Absolutely Disagree." The scale consists of 69 items and a total of 5 sub-dimensions which are *"Meaninglessness"* (17 items), *"Sense of Isolation"* (17 items), *"Self-Alienation"* (16 items), *"Powerlessness"* (13 items) and *"Normlessness"* (6 items). The reliability coefficients of the items in the scale are between 0.82 and 0.97, factor load values between 0.42 and 0.87, and item-total correlations ranged from 0.21 to 0.73. There is no reverse coded item in the scale. A minimum of 69 points and a maximum of 345 points can be taken from the scale. The reliability coefficient of the overall scale is .96.

2.3.3 Organizational Climate Scale (OCS)
The "Organizational Climate Scale" used in the study was developed by Hoy and Tarter (1997), and the adaptation of the scale into Turkish was conducted by Yılmaz and Altınkurt (2013). The items of the 4-Likert-type scale are answered with "rarely" (1 point), "sometimes" (2 points), "usually" (3 points) and "very often" (4 points). The scale consists of 39 items. In the scale, there are a total of 6 sub-dimensions which are "Supportive Principal Behavior" (9 items), "Commanding Principal Behavior" (7 items), "Restrictive Principal Behavior" (5 items), "Intimate Teacher Behavior" (7 items), "Collaborative Teacher Behavior among Colleagues" (7 items) and "Disengaged Teacher Behavior" (4 items). The reliability coefficients of the items in the scale are between 0.70 and 0.89, factor load values between 0.46 and 0.82, and item-total correlations ranged from 0.35 to 0.77. Two items in the scale are reverse coded. A minimum of 39 points and a maximum of 156 points can be obtained from the scale.

2.3.4 Self-Efficacy Beliefs Scale for Pre-school Teachers (SEBS-PT)
The "Self-Efficacy Beliefs Scale for Preschool Teachers" used within the scope of the study was developed by Tepe and Demir (2012). The items of the 5-point Likert-type scale are selected with the options of "none" (1 point), "little" (2 points), "moderate" (3 points), "highly" (4 points), and "absolutely" (5 points). The scale consists of 37 items and a total of 6 sub-dimensions which are Teaching Learning Process (9 items), Communication Skills (7 items), Family Participation (5 items), Planning (5 items), Arranging Learning Environments (5 items) and Classroom Management (5 items). The reliability coefficients of the items in the scale are between 0.87 and 0.9, factor load values between 0.67 and 0.89 and item-total correlations ranged from 0.49 to 0.63. There is no reverse coded item in the scale. A minimum of 37 points and a maximum of 185 points can be obtained from the scale. The reliability coefficient of the overall scale is .97.

2.4 Data Collection

A form was created via Google Forms to include the items of Personal Information Form, OCS, VAS-PT, and SEBS-PT. "Mandatory" sign has been added to each question so that they are all filled in. The filling-in duration of the form is about 12-15 minutes. The link to the form created in the data collection process was shared with pre-school teachers through social networks on the internet. The data was collected in this way when pre-school teachers filled in the online form. A total of 227 pre-school teachers answered the questions and all of the forms were included in the study. The process of all teachers filling in the form lasted about one and half months.

2.5 Data Analysis

Quantitative methods were used in analyzing the data. The primary step was to calculate the reliability coefficients of the scales used in the study. In studies in education, a reliability coefficient of 0.70 and above is seen as sufficient in ensuring the reliability of the test (Büyüköztürk, 2010). In this study, the reliability coefficients of the OCS, VAS-PT and SEBS-PT scores are in the range of 0.73-0.82, 0.75-0.92 and 0.82-0.90, respectively. The results show that the scales collected within the scope of the research are reliable.

The averages of the responses of the participants to the three scales, both in the total of the scale and in its sub-factors, were calculated through the SPSS 20.0 program. T-test was used in comparing paired groups, and ANOVA was used for comparing three or more groups. Normality tests were applied for both analyses, and it was concluded that this assumption was not violated. Equations of variances for ANOVA were evaluated with Levene's test. In cases assumption was maintained, Tukey HSD test was used for Post-Hoc or otherwise Dunnett C was used. Pearson's correlation coefficient was used to determine the relationships between variables. While interpreting the coefficients, values lower than 0.30 are classified as "low level relationship," values in the range of 0.30-0.70 as "moderate relationship" and finally, values higher than 0.70 as "high level relationship" (Büyüköztürk, 2010).

3. Results

In this study, correlation coefficients were calculated in order to examine the relationship between pre-school teachers' level of vocational alienation and their perceptions of organizational climate and self-efficacy beliefs. Significance level of these coefficients were also given in Table 2. When looking at the relationship between all sub-dimensions of VAS-PT and OCS, there were significant relationships.

Moderately negative significant relationships were determined between all sub-dimensions scores of VAS-PT and "Supportive Principle Behavior," "Intimate Teacher Behavior" and "Collaborative Teacher Behavior among Colleagues" sub-dimensions scores of Organizational Climate Scale. Relationships between "Disengaged Teacher Behavior" and "Restrictive Principle Behavior" sub-dimensions of Organizational Climate Scale and all sub-dimensions of VAS-PT were significant moderately positive. However, there was no significant relationship between the scores of "Commanding Principle Behavior" sub-dimension and the scores of VAS-PT.

When the correlation coefficients between VAS-PT and the sub-dimensions of SEBS-PT were examined, negative and low-level significant relationships were found between "Sense of Isolation," "Powerlessness" and "Meaninglessness" VAS-PT sub-dimensions and all sub-dimensions of SEBS-PT. Negative and low-level significant relationship was determined between "Self-Alienation" VAS-PT sub-dimension and "Arranging Learning Environments" SEBS-PT sub-dimension. Also, negative and low-level significant relationships were found between "Normlessness" VAS-PT sub-dimension and "Family Participation," "Planning," "Arranging Learning Environments" and "Classroom Management" SEBS-PT sub-dimensions (Table 2).

Table 2. Correlation Coefficients among the all sub-dimensions of the VAS-PT, the OCS and the SEBS-PT

		Sense of Isolation	Self-Alienation	Powerlessness	Normlessness	Meaninglessness
Organizational Climate Scale Sub-dimensions	Supportive Principle Behavior	-.42**	-.38**	-.59**	-.50**	-.51**
	Commanding Principle Behavior	.07	.06	.14	0.08	0.13
	Intimate Teacher Behavior	-.59**	-.41**	-.50**	-.32**	-.44**
	Disengaged Teacher Behavior	.36**	.33**	.34**	.31**	.34**
	Restrictive Principle Behavior	.35**	.41**	.50**	.47**	.48**
	Collaborative Teacher Behavior	-.58**	-.49**	-.56**	-.40**	-.46**

	Between Colleagues					
Self-Efficacy Beliefs Scale	Teaching Learning Processes	-.27**	-.06	-.27**	-.12	-.29**
	Communication Skills	-.25**	-.06	-.22**	-.09	-.28**
	Family Participation	-.28**	-.10	-.29**	-.15*	-.30**
	Planning	-.24**	-.09	-.23**	-.15*	-.27**
	Arranging Learning Environments	-.29**	-.16*	-.26**	-.19**	-.30**
	Classroom Management	-.23**	-.13	-.25**	-.14*	-.27**

* $p<0.05$ ** $p<0.01$

T-test and ANOVA analyzes were used to determine the relationship between teachers' level of vocational alienation and variables such as gender, graduation degree, years of experience, desire for a career change, class size, weekly working hours and type of institution.

For both t-test and ANOVA analyzes, whether the groups showed normal distribution was examined by normality tests and histograms. As a result of these examinations, it was determined that normality of the groups was not violated. Homogenity of variances were examined through the Levene's Test before ANOVA tests. In the selection of post-hoc tests, Tukey HSD was preferred if the variances were assumed equal, whereas Dunnett C test was preferred in case of unequal variances.

Preschool teachers' scores on Sense of Isolation, Self-Alienation, Powerlessness, Normlessness and Meaninglessness VAS-PT sub-dimensions and total score they got from the overall scale do not show a significant difference according to gender variable (Table 3). Although there was a difference in favor of women, this difference was not significant according to the descriptive statistics results. This result was interpreted as the gender variable did not make a significant difference in the sub-dimensions of VAS-PT and throughout the scale.

Table 3. T-test results of Effect of Gender on the VAS-PT

	Gender	n	M	SD	df	t	p
Sense of Isolation	Female	218	2.23	.66	225	.75	.45
	Male	9	2.06	.66			
Self-Alienation	Female	218	3.04	.55	225	1.08	.28
	Male	9	2.84	.43			
Powerlessness	Female	218	2.14	.77	225	1.30	.19
	Male	9	1.79	.89			
Normlessness	Female	218	2.98	.75	225	1.42	.16
	Male	9	2.61	.95			
Meaninglessness	Female	218	2.04	.60	225	-.17	.86
	Male	9	2.08	.98			
Total	Female	218	2.42	.55	225	.92	.36
	Male	9	2.24	.72			

When graduation degrees variable was examined, ANOVA analysis results showed that there was no significant mean differences between the teachers' scores in the "Self-Alienation" VAS-PT sub-dimension, $F (3, 223) = 2.33$, $p > .05$ (Table 4). However there was a significant difference among graduation degrees of the teachers in scores of "Sense of Isolation" VAS-PT sub-dimension, $F (3, 223) = 5.44$, $p < .001$. Tukey HSD test showed that mean scores of graduate graduates (M = 2.70) on "Insulation" VAS-PT sub-dimension was statistically higher than scores of high school (M = 2.01), associate degree (M = 2.07) and undergraduate (M = 2.19) graduates.

Results showed that there was a significant mean difference among graduate levels by the preschool teachers' scores on "Powerlessness" sub-dimension, $F_{(3, 223)} = 3.34$, $p < .05$. Mean scores of postgraduate degrees (M = 2.57)

was statistically higher than high school (M = 1.84) and associate degree (M = 2.00) graduates according to post-hoc tests.

ANOVA results of "Normlessness" VAS-PT sub-dimension revealed that there were statistically significant differences among different graduation degrees of teachers, $F_{(3, 223)} = 7.12$, $p < .001$. Scores of bachelor's degree (M = 2.99) graduates in this sub-dimension was statistically higher than the scores of associate degree (M = 2.60) graduates. Furthermore, the scores of postgraduate degree (M = 3.43) graduates were statistically higher than high school (M = 2.48), associate degree (M = 2.60) and bachelor's degree (M = 2.99) graduates.

Results showed that there was a significant difference among degrees of graduation of the teachers in terms of the scores "meaninglessness" sub-dimension of VAS-PT, $F_{(3, 223)} = 3.30$, $p < .05$. Post-hoc results showed that postgraduate (M = 2.37) degree graduates had statistically high scores compared to high school graduates (M = 1.73). Moreover, there was a significant difference among teachers' total scores of VAS-PT, $F_{(3, 223)} = 5.15$, $p < .01$. Postgraduate degree graduates (M = 2.74) got higher scores than high school (M = 2.12), associate degree (M = 2.27) and bachelor's degree (M = 2.40) graduates.

Table 4. ANOVA Results of Effect of Graduation Degrees of Preschool Teachers on the VAS-PT

Scale	Graduation Degree	n	M	SD	F	p	Post-Hoc *
Sense of Isolation	High School	9	2.01	0.47	5.44	.00	1 – 4 2 – 4 3 – 4
	Associates	31	2.07	0.57			
	Bachelor's	163	2.19	0.62			
	Postgraduate	24	2.70	0.83			
Self-Alienation	High School	9	2.75	0.74	2.33	.08	
	Associates	31	2.93	0.53			
	Bachelor's	163	3.03	0.53			
	Postgraduate	24	3.24	0.56			
Powerlessness	High School	9	1.84	0.44	3.34	.02	1 – 4 2 – 4
	Associates	31	2.00	0.74			
	Bachelor's	163	2.10	0.77			
	Postgraduate	24	2.57	0.88			
Normlessness	High School	9	2.48	0.52	7.17	.00	1 – 4 2 – 3 2 – 4 3 – 4
	Associates	31	2.60	0.52			
	Bachelor's	163	2.99	0.74			
	Postgraduate	24	3.43	0.90			
Meaninglessness	High School	9	1.73	0.40	3.30	.02	1 – 4
	Associates	31	1.95	0.60			
	Bachelor's	163	2.03	0.57			
	Postgraduate	24	2.37	0.86			
Total	High School	9	2.12	0.43	5.15	.00	1 – 4 2 – 4 3 – 4
	Associates	31	2.27	0.51			
	Bachelor's	163	2.40	0.53			
	Postgraduate	24	2.78	0.68			

* 1- High School Degree, 2-Associates Degree, 3-Bachelor's Degree, 4- Postgraduate Degree

When the teachers' years of experience variable was examined, there was no significant effect of years of experience on teachers' "Sense of Isolation," $F_{(4, 222)}=2.18$, $p>.05$, "Self-Alienation," $F_{(4, 222)}=.61$, $p>.05$, "Powerlessness," $F_{(4, 222)}=1.03$, $p>.05$ and "Normlessness," $F_{(4, 222)}=.574$, $p>.05$ and "Meaninglessness," $F_{(4, 222)}=1.09$, $p>.05$ VAS-PT sub-dimensions scores. As a result, there was no significant difference among seniority

levels of teachers in terms of total scores of teachers got on VAS-PT. Post-hoc tests were not performed since there was no significant difference in both sub-dimensions' and scale total scores.

Table 5. ANOVA Results of Effect of Professional Experiences of the Preschool Teachers on the VAS-PT

Scale	Professional Experience	n	M	SD	F	p
Sense of Isolation	5 years or less	95	2.2	0.59	2.18	0.07
	6-10 years	60	2.41	0.71		
	11-15 years	42	2.04	0.63		
	16-20 years	22	2.13	0.72		
	21 years or more	8	2.31	0.70		
Self-Alienation	5 years or less	95	2.97	0.51	0.61	0.65
	6-10 years	60	3.09	0.57		
	11-15 years	42	3.10	0.55		
	16-20 years	22	3.00	0.63		
	21 years or more	8	3.00	0.56		
Powerlessness	5 years or less	95	2.11	0.78	1.03	0.39
	6-10 years	60	2.27	0.80		
	11-15 years	42	1.99	0.70		
	16-20 years	22	2.11	0.93		
	21 years or more	8	1.89	0.50		
Normlessness	5 years or less	95	2.89	0.76	0.57	0.68
	6-10 years	60	3.06	0.72		
	11-15 years	42	3.00	0.72		
	16-20 years	22	2.88	0.86		
	21 years or more	8	3.10	0.98		
Meaninglessness	5 years or less	95	2.00	0.58	1.09	0.36
	6-10 years	60	2.19	0.64		
	11-15 years	42	1.99	0.57		
	16-20 years	22	2.01	0.83		
	21 years or more	8	1.94	0.39		
Total	5 years or less	95	2.37	0.52	1.10	0.36
	6-10 years	60	2.54	0.59		
	11-15 years	42	2.35	0.51		
	16-20 years	22	2.36	0.70		
	21 years or more	8	2.35	0.50		

Independent-sample t test scores for the changes between participants who want to work at another job or not revealed that there was a significant differences ($p<.05$) in terms of preschool teachers' overall scores on VAS-PT and its sub-dimensions: "Sense of Isolation," "Self-Alienation," "Powerlessness," "Normlessness," "Meaninglessness." Participants want to work in a different job got statistically higher scores on VAS-PT sub-dimensions and overall scale (Table 6).

Table 6. T-test results of Effect of Preschool Teachers' Desire for a Career Change on the VAS-PT

Scale	Desire for a Career Change	n	M	SD	df	t	p
Sense of Isolation	Yes	78	2.48	0.69	225	4.39	0.000
	No	149	2.09	0.59			

Self-Alienation	Yes	78	3.22	0.54	225	3.76	0.000
	No	149	2.93	0.52			
Powerlessness	Yes	78	2.47	0.76	225	5.01	0.000
	No	149	1.94	0.73			
Normlessness	Yes	78	3.17	0.74	225	3.05	0.002
	No	149	2.85	0.74			
Meaninglessness	Yes	78	2.28	0.69	225	4.31	0.000
	No	149	1.92	0.54			
Total	Yes	78	2.66	0.57	225	5.02	0.000
	No	149	2.28	0.51			

ANOVA results indicated that there was no significant difference in "Sense of Isolation," $F(3, 223)=.57$, $p>.05$, "Self-Alienation," $F(3, 223)=1.13$, $p>.05$, "Powerlessness," $F(3, 223)=1.22$, $p>.05$, "Normlessness," $F(3, 223)=.36$, $p>.05$, "Meaninglessness," $F(3, 223)=1.23$, $p>.05$, VAS-PT sub dimensions and overall scale by the class size, $F(3, 223)=1.19$, $p>.05$. Because of no significant differences among groups, post-hoc analysis were not performed.

Table 7. ANOVA Results of Effect of Class Size on the VAS-PT

Scale	Class Size	n	M	SD	F	p
Sense of Isolation	0-10	22	2.27	0.66		
	11-20	147	2.20	0.63	0.57	0.63
	21-30	50	2.25	0.75		
	31 or more	8	2.50	0.71		
Self-Alienation	0-10	22	3.05	0.58		
	11-20	147	3.02	0.56	1.13	0.34
	21-30	50	3.01	0.51		
	31 or more	8	3.38	0.57		
Powerlessness	0-10	22	2.18	0.90		
	11-20	147	2.09	0.75	1.22	0.30
	21-30	50	2.13	0.78		
	31 or more	8	2.63	1.13		
Normlessness	0-10	22	3.05	0.78		
	11-20	147	2.94	0.75	0.36	0.79
	21-30	50	2.97	0.82		
	31 or more	8	3.19	0.69		
Meaninglessness	0-10	22	2.10	0.74		
	11-20	147	2.04	0.62	1.23	0.30
	21-30	50	2.00	0.57		
	31 or more	8	2.44	0.70		
Total	0-10	22	2.46	0.64		
	11-20	147	2.40	0.54	1.19	0.31
	21-30	50	2.40	0.57		
	31 or more	8	2.77	0.70		

When examining teachers' weekly working hours and their level of vocational alienation, ANOVA results in Table 8 revealed no significant differences among groups in terms of "Sense of Isolation," $F(2,224)=.258$, $p>.05$, "Self-Alienation," $F(2, 224)=.775$, $p>.05$, "Powerlessness," $F(2,224)=.089$, $p>.05$, "Normlessness," $F(2, 224)=.85$,

p>.05, "Meaninglessness," $F(2,224)=1.513$, p>.05, VAS-PT sub dimensions and overall scale, $F(2, 224)=.231$, p>.05.

Table 8. ANOVA Results of Effect of Weekly Working Hours of the Preschool Teachers on the VAS-PT

Scale	Weekly Working Hours	n	M	SD	F	p
Sense of Isolation	20-30 hours	133	2.20	0.67		
	31-40 hours	54	2.26	0.69	0.26	0.77
	41 hours or more	40	2.27	0.59		
Self-Alienation	20-30 hours	133	3.02	0.51		
	31-40 hours	54	3.11	0.70	0.78	0.46
	41 hours or more	40	2.98	0.44		
Powerlessness	20-30 hours	133	2.11	0.77		
	31-40 hours	54	2.13	0.83	0.09	0.92
	41 hours or more	40	2.17	0.79		
Normlessness	20-30 hours	133	3.02	0.76		
	31-40 hours	54	2.93	0.85	0.85	0.43
	41 hours or more	40	2.85	0.64		
Meaninglessness	20-30 hours	133	1.99	0.61		
	31-40 hours	54	2.09	0.64	1.51	0.22
	41 hours or more	40	2.18	0.63		
Total	20-30 hours	133	2.39	0.56		
	31-40 hours	54	2.45	0.63	0.23	0.79
	41 hours or more	40	2.45	0.51		

The last variable in which differentiation according to the level of vocational alienation was examined is the type of school that teachers work in. There were no significant differences among groups according to "Sense of Isolation," $F(2, 224)=.52$, p>.05, "Self-Alienation," $F(2, 224)=.91$, p>.05, "Powerlessness," $F(2, 224)=1.03$, p>.05, "Normlessness," $F(2, 224)=.36$, p>.05, "Meaninglessness," $F(2, 224)=1.60$, p>.05 VAS-PT sub dimensions and overall scale, $F(2, 224)=.80$, p>.05. Post hoc tests were not performed as there were no significant differences between the groups.

Table 9. ANOVA Results of Effect of School Type on the VAS-PT

Scale	School Type	n	M	SD	F	p
Sense of Isolation	State Kindergarten	102	2.18	0.64		
	State Independent Kindergarten	63	2.23	0.71	0.52	0.60
	Private Kindergarten	62	2.29	0.62		
Self-Alienation	State Kindergarten	102	3.01	0.52		
	State Independent Kindergarten	63	3.11	0.54	0.91	0.40
	Private Kindergarten	62	2.98	0.59		
Powerlessness	State Kindergarten	102	2.00	0.77		
	State Independent Kindergarten	63	2.16	0.80	1.03	0.36
	Private Kindergarten	62	2.22	0.77		
Normlessness	State Kindergarten	102	2.92	0.79	0.36	0.70

	State Independent Kindergarten	63	3.02	0.74		
	Private Kindergarten	62	2.97	0.72		
Meaninglessness	State Kindergarten	102	1.97	0.61		
	State Independent Kindergarten	63	2.08	0.62	1.60	0.20
	Private Kindergarten	62	2.14	0.62		
Total	State Kindergarten	102	2.36	0.56		
	State Independent Kindergarten	63	2.45	0.56	0.80	0.45
	Private Kindergarten	62	2.46	0.55		

4. Discussion

The study aimed to analyze the factors affecting the level of pre-school teachers' vocational alienation. In this regard, the correlation coefficients between self- efficacy and organizational climate levels and vocational alienation were calculated. As a result of these analyses, moderately significant negative relationships were determined between all sub-dimensions of the VAS-PT and the "Supportive Principal Behavior," "Intimate Teacher Behavior" and "Collaborative Teacher Behavior between Colleagues" sub-dimensions of the OCS. In addition, it is seen that there are moderately positive significant relationships between "Careless Teacher" and "Restrictive Principal Behavior" sub-dimensions of OCS and all the sub-dimensions of VAS-PT. No significant relationship was found between the VAS-PT sub-dimensions and "Commanding Principal Behavior" the OCS sub-dimension. These results indicated that pre-school teachers whose principal is open to suggestions and makes constructive criticism in their institutions and whose colleagues are socially strong and collaborative demonstrate low-level of vocational alienation. In addition, it can be concluded that unnecessary workload and colleagues who give negative criticism increase their level of vocational alienation. Similar to the findings of the study, Witt (1992) pointed out that the organizational climate is an important factor in the formation and development of employees' vocational alienation (as cited in Çalışır, 2006).

When the relationship between the scores of vocational alienation and self-efficacy scores was examined, negative and low-level significant relationships were found between VAS-PT sub-dimensions of "Sense of Isolation," "powerlessness" and "meaninglessness" and all sub-dimensions of Self- Efficacy Scale. In addition, a negative and low-level significant relationship was found between the "self-alienation" sub-dimension and the "arranging learning environments" sub-dimension while negative and low-level significant relationships were also found between the sub-dimension of "normlessness" and "family participation," "planning," "organization of learning environments," and "classroom management" Self-Efficacy Scale sub-dimensions. These meaningful relationships overlap with the findings of Arslan (2017)'s study. According to Arslan (2017), there is a relationship between pre-school teacher's collective self-efficacy levels and perceptions of profession. In general, as the self-efficacy levels of teachers increase, their level of vocational alienation decreases; and as the level of self- efficacy decreases, the level of vocational alienation increases. Accordingly, it can be said that increasing the theoretical knowledge and skills of pre-school teachers through seminars and workshops that will increase their competence in subjects such as learning teaching process, communication skills, family participation, planning, arranging learning environments and classroom management will reduce their level of vocational alienation.

T-test and ANOVA parametric tests were used to determine the relationship between categorical variables such as gender, graduation degree, experience, desire for a career change, class size, weekly working hours, institution type and level of vocational alienation. Considering the graduation degree variable of pre-school teachers, it was seen that there was a significant difference between the mean scores of the VAS-PT sub-dimensions: "sense of isolation," "powerlessness," "normlessness," and "meaninglessness." No significant difference was found between the scores they got from the self-alienation sub-dimension. In these four sub-dimensions, it was determined that those who hold graduate degrees generally score higher than undergraduate, associate degree or high school graduates. On the other hand, in the self-alienation sub-dimension, no significant difference was found between

graduation groups. Different from these results, Kıhrı (2013) did not reach a significant difference in Sense of Isolation, powerlessness and normlessness dimensions in her study, while she reached significant differences against the postgraduate group in meaninglessness and self-alienation scores. A significant difference was found between the levels of pre-school teachers' total VAS-PT scores in terms of the graduation degrees of the teachers. This difference shows that the graduate group is statistically more than those who hold high school degree, associate degree or undergraduate degree. Korkmaz (2014) indicated in his study that undergraduate graduates felt themselves weaker, more meaningless and more isolated than those with a graduate degree, and this was also the case with the total score of the scale. This finding is not in line with the findings of the current study. In the findings of the current study, it is seen that those with higher graduation degree are more alienated from the profession. While the graduate education of teachers creates a more idealistic perspective towards their students and their development, it can be thought that the disagreement with other colleagues, administrators and parents in practice distances them from the profession. Consequently, when the participants were asked in this study whether they would like to work in a different job, the majority stated that they would. However, one-on-one or focus group studies should be conducted with pre-school teachers in order to understand this issue in more depth.

It is observed that there is no significant difference between the scores of pre-school teachers obtained from the total VAS-PT in terms of the duration of the years they worked. This finding is similar to the work of Kıhrı (2013), Korkmaz (2014), Celep (2008), and Çalışır (2006) and contradicts the findings of Elma (2003).

There is no significant difference in terms of gender between pre-school teachers' scores on the sub-dimensions of "Sense of Isolation," "self-alienation," "powerlessness," "normlessness" and "meaninglessness" and the total score they got from the overall scale. Celep (2008), Elma (2003), and Çalışır (2006) could not find a significant difference in terms of gender between the scores of teachers in the Sense of Isolation dimension, which is similar to the findings of the current study. The studies of Celep (2008) and Elma (2003), which have similar results with the current study, do not show a significant difference in terms of gender in the "Powerless" sub-dimension. However, Çalışır (2006) found a significant difference in terms of gender in this sub-dimension.

Pre-school teachers' scores on the sub-dimensions of sense of isolation, self-alienation, powerlessness, normlessness and meaninglessness and the total score they got from the scale show a significant difference according to whether the participants want to work in a different job. It is observed that the level of vocational alienation of teachers who want to do a different job is significantly high. According to these results, factors alienate teachers from the profession and direct them to a different job. Elimination of these negative factors will contribute positively to teachers' desire to continue their career.

It is observed that there is no significant difference in terms of the variable of type of institution where the teachers work, the weekly working hours and the class size when the levels of the scores that pre-school teachers got from the sub-dimensions of the VAS-PT scale are compared with the overall scale. Although it is thought that the level of vocational alienation will increase in groups with high number of weekly working hours and children in the classroom, neither inferential nor descriptive statistics results support this idea.

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Examination of Secondary School Students' Attitudes towards Socioscientific Issues[*]

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Abstract

The interplay between culture and technology is dynamic. Since ancient times, science has had a major impact on people, and people have determined the general direction of science progress. In this way, there is mutual influence between society and science. Socioscientific issues have emerged as a result of the interaction process between science and society. In this context, it was aimed to examine eighth grade students' attitudes towards socioscientific issues. The study was conducted with 136 eighth grade students studying in a city in the Central Anatolia region of Turkey in the 2018-2019 academic year. Quantitative data collection and analysis methods were used in this study, which aimed to examine the secondary school students' attitudes towards socioscientific issues. "The Attitudes towards Socioscientific Issues Scale (ATSIS) " was used as data collection tool in the study. According to the findings of the factorial ANOVA test; it was determined that eighth grade students' showed positive attitude on socioscientific issues. While students had positive attitudes related to interest and usefulness of SSI, they also had neither positive nor negative attitudes related to interest and usefulness of SSI. In addition, it was observed that the general attitude levels about socioscientific issues and the mean scores of interest and usefulness, liking and anxiety sub-dimensions did not differentiate according to gender. Based on the findings, the importance of socioscientific issues was emphasized and recommendations were made to program makers, researchers and practitioners on teaching.

Keywords: Socioscientific Issues, Attitude, Secondary School Students

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1. Introduction

1.1 Introduce the Problem

Since ancient times, science has had a major impact on people, and people have determined the general direction of science progress. In this way, there is mutual influence between society and science. Scientific developments are driven by the needs of society. Scientific progress has a major effect on people's sense of values, so dilemmas and controversies are increasing (Sadler and Zeidler, 2004).

Knowledge accumulation is increasing day by day. Therefore, what is expected from today's students is to know which of their knowledge is supported by evidence and which is based on theory. In addition, another important point is that students are aware that knowledge is dynamic and changes over time (Çepni, 2005). Thus, today's individuals will be more active in both accessing and using information, solving the problems, reaching conclusions about the possible risks, benefits and possibilities of the problems related to science, and creating new information.

In recent years, due to scientific and technological studies and the possible risks of these studies it is necessary to use socioscientific issues in education. Socio-scientific issues are current issues that include scientific and social issues together, contain many social dilemmas, do not have a definite answer, are open to discussion, cannot be easily concluded, including moral and ethical issues, and concern the society (Fowler, Zeidler and Sadler, 2009; Sadler; 2004; Ratcliffe and Grace, 2003; Zeidler, Sadler, Applebaum and Callahan, 2009).

For a subject to be expressed socio-scientific, it must contain two criteria at least:
- These; the issue is related to the field of science and
- This issue has a social context (Eastwood, Sadler, Zeidler, Lewis, Amiri and Applebaum, 2012).

It is inevitable that science develops rapidly, individuals try to keep up with the changing world, they follow the media, information is spreading rapidly, and also they are affected by scientific and non-scientific information. In addition, socioscientific issues that we encounter frequently in the media, on websites and in many other places are frequently discussed by people with their positive and negative aspects. For example, nuclear power plants planned to be built in Sinop and Mersin region in Turkey are constantly discussed by many scientists in television programs. While some people argue that the opening of a nuclear power plant will contribute to the country's economy and will have many similar benefits, some people focus on the possible risks.

The National Research Council (NRC 1996, Queensland School Curriculum Council, 2001) emphasized that individuals should be able to discuss socioscientific issues, moreover they need to improve their skills in making analyzes and decisions on this subject.

The ability to make informed decisions on science-related social issues is considered an important attribute of scientific literacy which is one of the ultimate goals of science education. Therefore, the decision-making stages of students on socioscientific issues have been examined by many researchers and are still being studied. In addition, according to most studies, it has been observed that students understand science concepts better in learning environments where socioscientific issues are core elements (Topçu, Muğaloğlu and Güven, 2014).

Since the sub-topics of socioscientific issues are problems which individuals may encounter in their daily lives, science education aims to explain these topics and teach them to students (Albe, 2008; Kolsto, 2006; Nielsen, 2012; Walker and Zeidler, 2007). For example, when considered in terms of socioscientific issues, social concerns and ethical dilemmas should not be socio-scientific issues should not be considered separately from science education (Sadler, 2011; Sadler, Amirshokoohi, Kazempour and Allspaw, 2006). Therefore, socioscientific issues have been included in the Science curriculum in many countries and it is aimed to improve students' thoughts on this issue (Oulton, Dillon and Grace, 2004). Students' understanding on socioscientific issues enables them to make more informed decisions on real-life problems and social dilemmas and it is important that they realize

processes and actions they used to make those decisions (Albe, 2008; Kolsto, 2006; Van der Zande, Warloo, Brekelmans, Akkerman and Vermunt, 2011). Individuals who know about SSI are aware of ethical, legal and scientific issues. In addition, they take an active role in decision-making processes regarding these issues (Van der Zande, 2009). This awareness of students also enables them to be active members of the society (Dawson, 2011). For this reason, it is necessary that individuals raise their awareness about ethical dilemmas and their understanding of different perspectives, and they gain the skills necessary to solve these dilemmas (Dawson, 2011).

When the related literature was examined, it was seen that there are many studies on socioscientific issues at the undergraduate level (İşbilir, Ertepınar and Çakıroğlu, 2012; Özdemir and Çobanoğlu, 2008; Soysal, 2012; Turan, 2012) and some studies focus on a topic selected from socioscientific issues (Demir and Düzleyen, 2012; Kırbağ Zengin, Keçeci, Kırılmazkaya and Şener, 2012; Özdemir and Çobanoğlu, 2008; Uzunkol, 2012). Genç and Genç (2017) conducted on a content analysis on socioscientific issues studies carried out in Turkey. in this content analysis, Genç and Genç (2017) observed that mainly global warming (30.56%), biotechnology (19.44%), nuclear energy (13.89%), GMO (13.89%), organ transplantation (13.89%), cloning (%) 5.56) and HEPP (2.78%) issues were studied. It is noteworthy that most of the studies are quantitative (77.78%). In addition, according to the results of the study, questionnaire (50.94%) was the most preferred data collection tool, besides achievement test (18.87%), attitude scale (13.21%) and interview forms (16.98%) were also included. Moreover, most of the studies were conducted with undergraduate students (61.11%), respectively high school students (19.44%), secondary school students (11.11%), educators (5.56%) and parents (2%, 78).

In this study, socioscientific issues such as stem cells, cloning, GMOs, nuclear power plants, biotechnology, global warming, HEPP and organ transplantation were determined by field studies and opinions of field experts. These selected topics are included in the secondary school science curriculum. As it is seen, multiple socioscientific issues will be examined together in this study.

The ability to talk and discuss about socioscientific issues is important for the individual to make the right decisions on behalf of herself/himself, her environment and our country. socioscientific issue (SSI)-based education draws the attention and increases young people's interests and knowledge in these issues. All individuals should be informed about socioscientific issues that cover many subjects, so it is essential to help the students to become aware of socioscientific issues in the classroom. The number of study on socioscientific issues is increasing every year in Turkey. For this reason, it should be investigated in education levels. When the relevant literature was examined, it was observed that studies have been conducted on socioscientific issues at different educational levels: at higher education (Al, 2015; Arslan and Atabey, 2018; Çakırlar Altuntaş, Yılmaz and Turan, 2017; Demiral and Çepni, 2018; Demircioğlu and Uçar, 2014; Eş, Işık Mercan and Ayas, 2016; Gürbüzoğlu Yalmancı and Gözüm, 2016; Harman and Çökelez, 2017; İşbilir, 2010; Karakaya, 2015; Kaya, 2013; Kurt and Ekici, 2013; Sönmez and Kılınç, 2012; Ural Keleş, 2018; Yalvaç Hastürk, 2013), at secondary education (Ayvacı and Şenel Çoruhlu, 2009; Çetin and Harman, 2012) and at primary education (Çavuş, 2013; Demirci and Yüce, 2018; Gülhan, 2012; Kırbağ Zengin, Keçeci, Kırılmazkaya, 2012; Özsoy and Kılınç, 2017; Öztürk, 2013; Topçu and Atabey, 2017; Yavuz Topaloğlu and Balkan Kıyıcı, 2017). It is striking that most of the researches is at the undergraduate level while the studies conducted with secondary school students is less. This study will also increase the number of studies for middle school students. Considering that eighth grade science curriculum includes more SBK-related acquisitions than other grade levels and SBK has two aspects, social and scientific, it is important to study the SSI for the eighth graders because it directly concerns the science course.

In this study, based on the explanations above, it is focused on examining the attitudes of eighth grade students towards socioscientific issues.

For this purpose, answers to the following questions will be sought:
- What is the attitude level of eighth grade students towards socioscientific issues?
- Do the attitudes of eighth grade students towards socioscientific issues differentiate according to gender?
- Do the attitudes of eighth grade students towards socioscientific issues differentiate according to mother's education level?

- Do the attitudes of eighth grade students towards socioscientific issues differentiate according to father's education level?

2. Method

2.1 Research Model

Quantitative data collection and analysis methods were used in this study, which aimed to examine the attitudes of secondary school student towards socioscientific issues. A research was carried out using the general survey model in the study. Survey research aims to define a situation as it exists and collect data to identify certain characteristics of a group (Karasar; 2006, Büyüköztürk, Çakmak, Akgün, Karadeniz and Demirel, 2010). A general survey is an overall review to make a general judgment about a universe made up of many members, the whole universe or within a sample (Karasar, 2006).

2.2 Study Group

The study was conducted with 136 eighth grade students studying in eight different state secondary schools located in a city of the Central Anatolia region of Turkey. In this study, convenience sampling, which is one of the purposeful sampling methods, was selected. This sampling method provides the researcher speed and practicality because in this method, the researcher chooses a situation that is close and easy to access (Yıldırım and Şimşek, 2016).

To describe the demographic characteristics of the students in the study, demographic variables thought to affect their attitudes about socioscientific issues, and their frequency and percentage values group are given below.

Table 1: Frequency Table for the Variable Gender

Gender	Frequency	Percent (%)
Female	73	53,7
Male	63	46,3
Total	136	100,0

As seen in Table 1, It was observed that the numbers of male and female participants are close to each other.

Table 2: Frequency Table for Mother's Education Level Variable

Mother's Education Level	Frequency	Percent (%)
Primary School	71	52,2
Middle School	45	33,1
High School	17	12,5
University	3	2,2
Total	136	100,0

According to the findings in Table 2, it was seen that the mothers of the students participating in the study were mainly primary school (52.2%) graduates, and a very small portion of them was university graduates (2.2%)

Table 3: Frequency Table for Father's Education Level Variable

Father's Education Level	Frequency	Percent (%)
Primary School	37	27,2
Middle School	43	31,6
High School	43	31,6
University	13	9,6
Total	136	100,0

According to the findings in Table 3 when the fathers' education status of the students participating in the study were examined, it was found that most of them were secondary school (36.6%) and high school (36.6%) graduates, and the fathers who were university graduates (9.6%) were still less.

2.2 Data collection tools

Information about the use of data collection tool used in the research process was presented below.

2.2.1 Attitudes towards Socioscientific Issues Scale
The "Attitude Scale towards Socioscientific Issues" developed by Topçu (2010) was used to measure eighth grade students' attitudes towards socioscientific issues. this scale consisted of 30 items with 3 sub-dimensions as (1) Liking (2) Anxiety; (3) interest and usefulness. It was a five-point Likert type scale and its response format was ranging from (1) strongly disagree to (5) strongly agree. Item-26 and item-28 in the liking sub-dimension were reverse coded because they contain negative attitude expressions. Item-3, item-5, item-12, item-16, item-17, item-19 and item-29 in the anxiety sub-dimension were reverse coded when calculating the attitude score. However, while calculating the scores in the anxiety sub-dimension, the answers given to the items were not subjected to reverse coding. As a result, the mean scores of the participants' attitude and for the sub-dimensions of the scale were formed by taking the arithmetic mean of their responses to the relevant items. Topçu (2010) found that a confirmatory factor analysis supported the three-dimensional structure of ATSIS and the Cronbach α coefficient ranged from 0.70 to 0.90. Cronbach α coefficients for each dimension were computed and "Liking socioscientific issues" was found as .8, "The interest and usefulness of socioscientific issues" .90, "Anxiety towards socioscientific issues" .70.

Before the study, a pilot study was conducted with 150 students for the reliability studies of the scale and the reliability coefficient of the scale was found to be .72, so it was decided that the scale could be applied to secondary school students. Essentially, internal consistency reliability test of 0.7 or higher indicates an acceptable level of reliability (Büyüköztürk, 2012; Şimşek, 2017). In this study, the Cronbach alpha coefficient was calculated as .89 for the whole attitude scale about socioscientific issues, .84 for the Interest and Usefulness of socioscientific issues sub-dimension, .87 for the Liking sub-dimension, and .72 for the Anxiety sub-dimension.

2.3 Analysis of data

In the study, the scales given to the students were examined one by one in the analysis of the data. In addition, the data was checked for inaccuracies, and then they were entered into the SPSS program by the researcher. While analyzing the data, the answers given to the scale were scored as "1 = Strongly Disagree", "2 = Disagree", "3 = Undecided", "4 = Agree" and "5 = Strongly Agree". Items 26 and 28 in the liking sub-dimension are reverse coded because they contain negative attitude statements. Likewise, all seven items in the Anxiety sub-dimension (Item 3, Item 5, Item 12, Item 16, Item 17, Item 19 and Item 29) were scored by reverse coding while calculating the students' general attitude score. However, while calculating the Anxiety subscale score, the answers given to the items were scored without any reverse coding process. In this context, students' attitude and sub-dimension mean scores about socioscientific issues were formed by taking the arithmetic mean of their answers to the relevant items. The distribution of the number of students participating in the study according to their demographic characteristics was determined by calculating the frequency and percentage values. Likewise, the attitude levels of the students about socioscientific issues were evaluated using descriptive statistics.

The factorial ANOVA model was used to determine whether the students' attitude levels about socioscientific issues differentiate according to demographic variables. The factorial ANOVA should be used when the research question asks for the influence of two or more independent variables on one dependent variable. The results of the factorial ANOVA model provide more detailed and generalizable findings than the one-way ANOVA model (Howell, 2008). While the effect of only one factor on the dependent variable is shown in the one-way ANOVA model, in the factorial ANOVA model, the effect of two factors (independent variable) and their interactions on the dependent variable can also be examined (Akbulut, 2010; Howell, 2008). There are many types of factorial

models and such designs are classified by the number of levels of each factor and the number of factors. So a 2x2 factorial will have two levels or two factors and a 2x3 factorial will have three factors each at two levels. A "main effect" is called the effect of one of your independent variables on the dependent variable, ignoring the effects of all other independent variables while interaction effects may occur between two or more categorical independent variables as in factorial analysis of variance designs.If the interaction effect is significant among these effects, it means that a more important result is obtained than the main effects (Akbulut, 2010) the 2 x 4 x 4 factorial ANOVA model was used in the study because the gender variable, which was considered as a demographic variable in the study, consisted of two categories, the mother's education level four categories, and the father's education level four categories.

3. Findings

3.1 Findings Related to Testing Normality of Data

Whether the average scores obtained from the attitude scale on socioscientific issues and its sub-dimensions show normal distribution according to the subcategories of the variables of gender, mother's education level and father's education level was evaluated by taking into account the skewness and kurtosis values of the data and some descriptive statistical values. The obtained findings were presented in Table 4, Table 5, and Table 6.

According to the limits stated below, the attitude score of a group can be evaluated according to the 5-point Likert type average score. While determining the width between class intervals, Class Width = Array Width / Number of Groups equality was checked. Class Width was expressed as 4/5 = 0.80. Accordingly, mean scores between 1.00-1.79 are very negative, mean scores between 1.80-2.59 are negative, scores between 2.60-3.39 are neither positive nor negative, scores between 3.40-4.19 are positive, and mean scores between 4.20-5.00 are interpreted as very positive attitude (Tekin, 1987).

Table 4: Descriptive Statistics Regarding Sub-Dimensions and Attitudes towards Socioscientific Issues According to Gender Variable

Dimension	Gender	N	Mean	Ss.	Skewness	Kurtosis	Minimum	Maximum
General attitude	Female	73	3.40	0.55	-0.476	0.021	1.90	4.50
	Male	63	3.43	0.73	-0.720	1.084	1.13	4.77
The interest and usefulness	Female	73	3.58	0.66	-0.699	0.253	1.77	4.69
	Male	63	3.59	0.90	-1.094	1.262	1.00	5.00
Linking	Female	73	3.27	0.80	-0.649	0.061	1.20	4.80
	Male	63	3.40	0.96	-0.634	0.292	1.00	5.00
Anxiety	Female	73	2.76	0.74	0.446	-0.207	1.29	4.57
	Male	63	2.81	0.85	0.375	-0.069	1.00	5.00

Table 5: Descriptive Statistics Regarding Sub-Dimensions and Attitudes towards Socioscientific Issues According to Mother's Education Level Variable

Dimension	Level of Education	N	Mean	ss.	Skewness	Kurtosis	Minimum	Maximum
General attitude	Primary	71	3.36	0.71	-0.742	0.611	1.13	4.57
	Secondary	45	3.47	0.54	-0.232	1.341	1.97	4.77
	High School	17	3.51	0.59	0.206	-1.132	2.73	4.53
	University	3	3.42	0.41	1.719	-1.121	3.17	3.90

The interest and usefulness	Primary	71	3.46	0.88	-0.985	0.511	1.00	4.65
	Secondary	45	3.69	0.62	-0.858	2.116	1.69	5.00
	High School	17	3.75	0.61	0.306	-0.754	2.92	5.00
	University	3	3.90	0.99	1.176	-1.258	3.08	5.00
Linking	Primary	71	3.23	0.97	-0.554	-0.334	1.00	4.80
	Secondary	45	3.43	0.79	-0.401	0.983	1.40	5.00
	High School	17	3.52	0.70	-0.413	-0.041	2.00	4.60
	University	3	3.43	0.68	1.361	-2.221	2.90	4.20
Anxiety	Primary	71	2.65	0.73	0.667	0.824	1.00	5.00
	Secondary	45	2.88	0.78	0.028	-0.348	1.29	4.57
	High School	17	2.94	0.95	0.244	-0.994	1.53	4.57
	University	3	3.48	0.97	1.361	1.768	2.71	4.57

Table 6: Descriptive Statistics on Sub-Dimensions and Attitudes towards Socioscientific Issues According to Father's Education Level Variable

Dimension	Level of Education	N	mean	ss.	Skewness	Kurtosis	Minimum	Maximum
General attitude	Primary	71	3.46	0.63	-0.509	0.479	1.67	4.50
	Secondary	45	3.29	0.68	-0.581	1.947	1.13	4.77
	High School	17	3.40	0.63	-0.778	0.530	1.67	4.40
	University	13	3.73	0.52	-0.126	-1.262	2.87	4.53
The interest and usefulness	Primary	71	3.58	0.75	-1.203	2.709	1.00	4.69
	Secondary	45	3.49	0.78	-0.561	0.436	1.31	5.00
	High School	17	3.59	0.85	-1.268	1.464	1.15	5.00
	University	13	3.86	0.59	-0.004	-0.260	2.92	5.00
Linking	Primary	71	3.22	0.83	-0.654	0.078	1.00	4.60
	Secondary	45	3.23	0.93	-0.298	0.408	1.00	5.00
	High School	17	3.43	0.88	-0.924	0.525	1.20	4.80
	University	13	3.69	0.76	-0.655	0.632	2.00	4.70
Anxiety	Primary	71	2.41	0.55	0.546	0.780	1.29	3.86

Secondary	45	3.01	0.80	0.316	0.016	1.43	5.00
High School	17	2.98	0.88	-0.101	-0.565	1.00	4.57
University	13	2.45	0.52	-0.112	0.599	1.53	3.43

According to the findings in Table 4, it was seen that all the skewness values of the overall mean scores of male and female students' attitudes, the interest and usefulness, liking and anxiety are within the ± 2 range, and the kurtosis values were all within the ± 3 range. Findings in Table 6 and Table 7 were similar. The skewness coefficients of the students' average general attitude, the interest and usefulness, liking and anxiety scores were in the range of ± 2 according to the education level of both the mother and the father, while the kurtosis coefficients were in the range of ± 3. According to these findings, it can be said that the overall scores of the students' attitude and sub-dimension towards socioscientific issues did not violate the normal distribution assumption.

Findings Regarding Students' Attitudes and Sub-Dimensions on Socioscientific Issues

Whether the mean scores of the students' general attitude towards socioscientific issues and sub-dimension showed a significant difference according to the gender of the students, their mother's educational level and their father's educational level were examined with the factorial ANOVA model.

Table 7: Factorial ANOVA Test Results on General Attitude Scores towards Socioscientific Issues

Source of Variation	Sums of Square	Df	Mean Square	f	p
Gender	0.017	1	0.017	0.040	.841
Mother's education	0.074	3	0.025	0.058	.981
Father's education	0.808	3	0.269	0.639	.592
Gender*Mother's education	0.236	3	0.079	0.186	.905
Gender*Father's education	1.175	3	0.392	0.929	.429
Mother's education*Father's education	2.493	7	0.356	0.844	.553
Gender*Mother's education*Father's education	1.499	4	0.375	0.889	.473

*p>.05

According to the findings in Table 7, it can be said that the general attitude levels of the students towards socioscientific issues did not significantly differentiate according to the gender of the students, their mother's educational level and their father's educational level(*p>.05*). The situation was similar when considering the interactions between independent variables. It was seen that both the interactions of the variables in pairs and the interaction of all three did not make a significant difference in the general attitude levels of the students about socioscientific issues (*p>.05*).

Table 8: Factorial ANOVA Test Results Related to the Interest and Usefulness Sub-Dimension Scores

Source of Variation	Sums Of Square	Df	Mean Square	f	p
Gender	0.163	1	0.163	0.260	.611
Mother's Education	0.369	3	0.123	0.197	.898
Father's Education	1.484	3	0.495	0.791	.501
Gender*Mother's Education	0.489	3	0.163	0.260	.854
Gender*Father's Education	0.811	3	0.270	0.432	.730
Mother's Education*Father's Education	5.762	7	0.823	1.316	.249
Gender*Mother's Education*Father's Education	1.015	4	0.254	0.406	.804

*p>.05

In line with the results in Table 8, it can be said that students' the interest and usefulness sub-dimension average scores did not significantly differentiate according to the gender of the students, their mother's educational level and their father's educational level(p>.05). It was observed that the interaction between gender and mother's education level, the interaction between gender and father education level variables, and the interaction between the variables of mother's education level and father's education level did not cause a significant difference in the students' mean scores in the interest and usefulness sub-dimension (p>.05). Likewise, the joint effect of all three independent variables did not lead to a significant difference in the students' mean scores in sub dimensions (p>.05).

Tablo 9: Factorial ANOVA Test Results Related to Liking Sub-Dimension Scores

Source of Variation	Sums Of Square	Df	Mean Square	f	p
Gender	0.158	1	0.158	0.198	.657
Mother's Education	0.269	3	0.090	0.113	.952
Father's Education	1.994	3	0.665	0.836	.477
Gender*Mother's Education	0.702	3	0.234	0.294	.830
Gender*Father's Education	2.871	3	0.957	1.204	.312
Mother's Education*Father's Education	5.416	7	0.774	0.973	.455
Gender*Mother's Education*Father's Education	2.451	4	0.613	0.771	.547

*P>.05

According to the findings in Table 9, the liking sub-dimension mean scores of the students did not show a significant difference according to the gender of the students, their mother's educational level and their father's educational level (p> .05). In addition, as in the interest and usefulness sub-dimension, the interactions of three independent variables with two and the mutual interaction of all three did not lead a significant difference on the students' liking sub-dimension mean scores (p> .05).

Table 10: Factorial ANOVA Test Results Related to Anxiety Sub-Dimension Scores

Source of Variation	Sums of Square	Df	Mean Square	f	p
Gender	0.143	1	0.143	0.246	.621
Mother's Education	2.830	3	0.943	1.625	.188
Father's Education	5.831	3	1.944	3.348	.022
Gender*Mother's Education	0.326	3	0.109	0.187	.905
Gender*Father's Education	3.239	3	1.080	1.860	.141
Mother's Education*Father's Education	1.394	7	0.199	0.343	.932
Gender*Mother's Education*Father's Education	2.704	4	0.676	1.165	.330

*P>.05

According to the results in Table 10, while the students' anxiety sub-dimension mean scores did not show a significant difference according to the gender of the students and their mother's educational level(p> .05), they showed a significant difference according to their father's educational level(p<.05). As a result of the Tukey multiple comparison test conducted according to the education level of the father, it was determined that the anxiety levels of the students whose fathers were secondary and high school graduates were significantly higher than those whose fathers were primary school graduates.

Again, according to the results in Table 10, considering the common effects between independent variables, it was observed that the interaction between the gender and mother's education level variables, the interaction between the gender and father education level variables and the interaction between the education level of the mother and the education level of the father did not showed a significant difference in the anxiety sub-dimension mean scores

of the students. The interaction of all three independent variables also did not cause a significant difference in students' anxiety sub-dimension mean scores ($p>.05$).

4. Results and Discussion

When the findings of this study, in which eighth grade students' attitudes towards socioscientific issues were examined, it was determined that the general attitudes of the participants towards socioscientific issues and their attitudes in the interest and usefulness sub-dimension were positive while the participants developed neither positive nor negative attitudes in the liking and anxiety sub-dimension. In addition, it was observed that levels of the general attitude towards socioscientific issues and the mean scores of the interest and usefulness, liking and anxiety sub-dimensions did not differentiate according to gender variable. Keefer (2003) concluded that decision-making about socioscientific issues does not affect gender. Tekin and Aslan (2019) examined the gender variable in their study conducted with prospective teachers and concluded that gender attitude towards socioscientific issues did not differentiate statistically. Again in Yolagiden (2017), in a similar study conducted with prospective teachers, they stated that the participants' attitudes towards socioscientific issues did not differentiate in terms of gender. Similarly, Cebesoy and Dönmez-Şahin (2013) stated in their study that gender variable did not affect prospective teachers' attitudes towards socioscientific issues. These studies were mostly conducted with university students and it overlaps with our study in terms of not differentiating the attitude according to gender. This study, on the other hand, was conducted with secondary school students, and the absence of a study on attitude at the secondary school level reveals the difference of the study. Unlike this study Qin and Brown (2007), in their study on GMO, which is an example of socioscientific issues, found that gender variable differentiates attitudes and this differentiation is in favor of women. One of the reasons why the gender variable affects attitude in this study may be that GMO, which is a socioscientific issue, expresses a narrower area within socioscientific issues. Considering the aforementioned studies, it can be concluded that gender did not make a significant difference regarding socioscientific issues. Regardless of gender, it can be said that socioscientific issues address all members of the society (Tekin and Aslan, 2019).

Genç (2019), in a study conducted with secondary school students, found that the scores of participants scientific attitude towards socioscientific issues did not show a significant difference in terms of maternal education level variable. This result is in line with the result of the study. Tekinarslan Şahiner (2018) conducted a study for secondary school students in order to determine the students' level of knowledge about hydroelectric energy, solar energy, wind energy, thermal energy, nuclear energy and geothermal energy, which are among the energy resources taught under the topic of energy within the scope of social studies course. 1350 eighth grade students participated in the study. In the study, it was concluded that students whose mothers graduated from undergraduate and graduate achieved high achievement scores, while those who had doctorate education and who were illiterate had low achievement scores.

According to another finding of the study, it was determined that the general attitude levels about socioscientific issues and the interest and usefulness and liking sub-dimension mean scores did not differintiate significantly according to the educational status of the father. However, the anxiety sub-dimension score differentiated according to the father's occupation. Çepni and Geçit (2020), in their study conducted with prospective social studies teachers, concluded that there was no significant difference between the educational status of the father and the attitude towards socioscientific issues. In addition, Doğru (2010) aimed to determine the levels of the 8th grade students' knowledge about biotechnology, which is a socioscientific issue, in a study. In the study, a significant difference was not found in terms of father education level, which is one of the variables. This study overlaps with our study, the lack of a significant difference both in terms of grade level and educational status of the father. Unlike our study this study does not cover all socioscientific issues.

5. Suggestions

The following recommendations are presented in this study conducted on socioscientific issues

- Teaching socioscientific issues can be given effectively starting from primary school.

- While organizing programs, gains can be discussed and solutions can be offered.
- Starting from primary education, socioscientific issues-based acquisitions and activities can be applied in social studies and science lessons.
- Although there are many studies on socioscientific issues at the university level, the number of studies can be increased by including these studies at the primary education level.
- The study can be conducted in different disciplines and developed in larger samples.

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An Analysis of Elementary Teaching Undergraduate Program in Terms of 21st Century Skills

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Abstract

21st century skills emerge is one of the most crucial competencies that need to be considered in teacher education. With this in mind, the fundamental objectives of this study is to analyze the pre-service teachers' competencies and perceptions of 21st century skills that are effectively present in today's world. Explanatory mixed method was applied in this study. The aim of the study is to reveal the adequacy of the undergraduate elementary teaching program in the acquisition of 21st century skills from the perspective of pre-service teachers. In the study, quantitative data was collected through descriptive screening method, and qualitative data was collected through phenomenological analysis. 21st century skills scale was utilized to collect quantitative data, and semi-structured interview form was used to collect qualitative data. The sample of the study consists of 411 pre-service elementary teachers studying at a state university. According to the findings obtained, pre-service teachers perceived themselves quite sufficient in terms of "21st century skills". Given the qualitative findings, pre-service teachers reported that the learning-teaching processes were ineffective in the context of achieving 21st century competencies. As a matter of fact, 21st century skills are defined as skills that should be acquired within the scope of the elementary teaching undergraduate program. Failure to teach these skills emerges as the most significant limitation of the program. In particular, these skills and evaluations should be incorporated into the curricula content of faculties of education.

Keywords: 21st Century Skills, Elementary Teacher Education

1. Introduction

The times we live in have introduced enough developments to entail experience and knowledge of centuries. These developments have led changes in the definition of qualified person needed by institutions or other structures in society. This change has thus raised the question: "What kind of person should be raised?" In this context, it has brought discussion of how people can take part in the society they live in, of the ability to adapt to social developments and of what social skills they should have.

In the meantime, parallel to the teaching of 21st century skills and competences, educators have strived to develop a perspective towards 21st century skills. In today's world, when graduate people from all institutions, universities or relevant schools are asked if they are ready for their profession, they mostly reply as "I'm not ready." Studies show that people who have graduated from universities or relevant schools are insufficient,

especially in skills and attainments based on practice. Foremost among them are skills such as communication skills, critical thinking, problem solving, profession and professional ethics, teamwork and collaborative work, technology use, leadership and project management. The financial problems of the countries urge the institutions to recruit individuals with certain qualifications and skills without spending more on training and development (Trilling and Fadel, 2009). Especially the outbreak of the global COVID-19 coronavirus pandemic has created changes in many areas both in our country and the world. Given our country, a broad range of distance education practices, online trainings and seminars, teleconferences based on technological tools have been one of the most obvious indicators of this transformation. In today's world, the changing and developing global conditions have resulted in many changes and transformations in the dimensions of education and training. These changes and transformations can be educational, technological or intellectual. The changes in views towards the teaching profession, which is the fundamental component and stakeholder of educational processes, can also be considered among these changes and transformations. A set of skills are required to keep up with these changes and transformations, to give appropriate responses, to keep up with changing technologies, to obtain the information needed, to transform the obtained information into practice and turn this knowledge into a product. The so-called "Information Society" we live in entails skills named as "21st century skills" (Anagün, Atalay, Kılıç and Yaşar, 2016). 21st century skills are the common name of the skills consisting of three dimensions, including sub-skills : learning and innovation skills (knowledge and skill generation, learning to renew and learn), digital literacy skills (information literacy, media literacy, information and communication technologies literacy) and career and life skills (flexibility and adaptability, initiative and self-direction, intercultural interaction, leadership, productivity, and taking responsibility) (Trilling & Fadel, 2009). Creating the desired teacher profile plays a significant role in achieving desired educational outcomes. Teacher education has gained momentum in this regard. It is of vital importance that pre-service teachers, who serve as a guide of the future, have these values and characteristics (Özer and Gelen, 2008; Zhao, 2009; Orhan-Göksun, 2016).

Supporters and advocates of the 21st century skills movement asserts that educational reforms need to be realized to address social and financial needs of individuals in the 21st century (Larson and Miller, 2011). Emerging trends in the 21st century, the innovations related to information, information resources and the process of accessing information, globalization and accompanying multicultural structure have changed the needs and thoughts of people, and education systems have also been influenced by this change (Dağhan, Nuhoğlu Kibar, Menzi Çetin, Telli and Akkoyunlu, 2017). The main function of educational processes is to raise people who are qualified enough to meet social needs (Korkut and Akkoyunlu, 2008). Today, this function means raising qualified people who can cope with the 21st century's challenges. Teachers, who play a crucial role in raising well-educated people, therefore bear major responsibilities.

Recent developments have brought about transformations in the field of education as well as in many other fields. These developments range from the technological infrastructure of schools to teacher competencies. Students and teachers, who are the most important stakeholders of the education system, are also the most important elements of this transformation. In order to guide the education process effectively, a teacher should get to know his / her student well and plan the teaching process to better suit the needs and characteristics of his / her student (Melvin, 2011). These changes highlight the need for 21st century teachers who can be able to communicate well with 21st century students, know their characteristics, and guide them in the teaching-learning processes. Institutions that will meet the needs of qualified individuals, in other words, that will train 21st century teachers are faculties of education. For this reason, faculties of education are responsible for equipping pre-service teachers, each of whom is 21st century students, with 21st century skills.

Recently, many reports have emphasized that pre-service teachers need to improve their 21st century skills (Aydın, 2019). The recent regulations made by the Turkish Council of Higher Education (YÖK) in 2018 sstipulate"21st century skills and competencies have been reviewed and taken into consideration" with respect to all undergraduate teaching programs (YÖK, 2018). "The General Competencies for Teaching Profession" published by Turkey's Ministry of National Education's (MEB) in 2017 highlight 21st Century skills such as cooperation, effective time management, professional development, personal development, considering individual differences, analytical thinking, active participation, using information and communication technologies effectively, following the national and global agenda, critical perspective, sensitivity to protection

of the natural environment and the historical and cultural heritage (MEB, 2017a). The "Teacher Strategy Document (2017-2023)" prepared by the Ministry of National Education, pointed out that teachers , along with their pedagogical competencies, need to integrate their 21st century skills such as effective communication, leadership, critical thinking, being open to change with their professional characteristics. (MEB, 2017b).

Considering all these aspects together, it is understood that the 21st century skills is one of the core competencies in teacher education. In this sense, one of the fundamental objectives of this study is to analyze the pre-service teachers' competencies and perceptions of 21st century skills that are effectively present in today's world. It is believed that such a study will play a vital role in pre-service teacher education and in-service training process in the future whereby the required areas to build 21st century skills can be identified. In other words, the present study may contribute to understand the effectiveness of the elementary teaching program for gaining 21st century skills needed today. Such studies can be used as a self-reflection or self-assessment tool for current and future teachers to learn 21st century skills and identify the dimensions they can use effectively. This research can also help faculty members incorporate 21st century skills into the pre-service teacher education. To this end, the following questions were sought to answer in the study:
1. To what extent do pre-service elementary teachers have 21st century skills?
2. Is there a significant difference among the mean scores of the pre-service teachers on 21st century skills in terms of the variables of gender, grade point average and grade level?
3. What are the major barriers to teaching 21st century skills during pre-service teachers' education?
4. How can university and faculty members help to build these skills?

2. Method

2.1. Methodology of the Study

In the study, a mixed explanatory method was used to identify the adequacy of elementary teaching undergraduate programme in the acquisition of 21st century skills from pre-service teachers' perspectives. In the mixed method, both the existing situation and the reasons for this situation are revealed. A mixed explanatory method involves two phase design where the qualitative data is collected first, then qualitative data is collected and analyzed based on the quantitative results (Creswell, 2008). The main reason for choosing a mixed method in this study is that the combination of quantitative and qualitative methods, instead of using a single method, will provide a better understanding of the research problem. The data collected in the study through the qualitative research method enabled to validate the quantitative results obtained in the first phase and carry out an in-depth investigation into the causes and solutions of the problems experienced by the pre-service teachers. In this study, 21st century skills scale for pre-service teachers and semi-structured interview form were used as data collection tools. During the research process, quantitative data were first collected and analyzed, and then qualitative data were collected and analyzed based on quantitative data. The analysis results of both data sets were compared and interpreted to see if the results were compatible with each other.

2.2. Quantitative Phase

As the quantitative dimension of the study aims to reveal an existing situation, screening model was used. Screening model is a form of research that aims to describe the present or past situation as it exists. (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz and Demirel; 2011, Karasar, 2010).

2.3. Research Sample

The population of the research consists of the pre-service teachers studying in the department of elementary teaching. The sample is composed of 411 pre-service elementary teachers, 231 of whom (56.2%) are female, 180 of whom (43.8%) are male, and who study at a state university. The cluster sampling method was used in the study. The sample was selected using cluster sampling method. Cluster sampling technique is the sampling technique in which all clusters in the universe have equal chance to be selected individually (together with all elements) (Karasar, 2010). In this respect, the main objective of the study is to reveal whether there is a

difference between the adequacy level of the program being implemented and the classes in terms of the acquisition of 21st century skills.

2.4. Quantitative Data Collection Tool

The '21st Century Skills Competence Perceptions Scale' was used in the study. This scale was developed by Anagün, Atalay, Kılıç, and Yaşar (2016), and consists of 3 sub-dimensions and 42 items. The first sub-dimension is the "Learning and Innovation Skills" sub-dimension consisting of 18 items. The second sub-dimension is the "Life and Career Skills" sub-dimension consisting of 16 items. The third sub-dimension of the scale is the "Information, Media and Technology Skills" sub-dimension consisting of 8 items. It was stated that the total variance explained by the three sub-dimensions regarding the whole scale was 51.30%. This result is sufficient to cover all items in the scale. Additionally, the reliability of the study was calculated with Cronbach Alpha. Reliability coefficient can be defined as the degree to which a measurement tool provides sensitive, consistent, and random error-free measurements (Fraenkel and Wallen, 1996). The reliability coefficient of the scale was calculated as .84. The reliability of the total scores obtained from the sub-dimensions of '21st Century Skills Competence Perceptions Scale' was calculated and tabulated in Table 1.

Table 1: Cronbach's Alpha Reliability Coefficients

Scale and Sub-dimensions	Number of Items	Cronbach's Alpha
Learning and Innovation Skills	18	.82
Life and Career Skills	16	.84
Information, Media and Technology Skills	8	.86
Total Scale	42	.84

For reliability of the scale, the Cronbach alpha coefficient must be .70 and above (Palant, 2017). In view of this information, the scale is reliable.

2.5. Data Collection and Analysis

The research data were obtained by the researcher in the digital environment in the 2019-2020 academic year. Elementary pre-service teachers were informed about the scale and the study. The scale is a 5-point Likert type consisting of 42 items. Participants in the study can receive a minimum of 42 points and a maximum of 210 points on the scale. The present study was also analyzed according to the sub-dimensions of 21st century skills. The 21st century skills consist of three sub-dimensions: Learning and Innovation Skills, Life and Career Skills, Information, Media and Technology Skills. The adequacy level of each sub-dimension was determined. The total scores of the participants were calculated. Further, the skewness and kurtosis coefficients and Kolmogorov-Smirnov test were analyzed to identify the normal distribution of the scores whereby it was thus intended to decide further analysis. Consequently, the following results were obtained.

Table 2. Results of Normality Tests Regarding the Distribution of Scores

Scale	$\overline{X}$	Ss	Kurtosis		Skewness		K-S Test
			Coefficient	Standard Error	Coefficient	Standard Error	
Learning and Innovation Skills	76.14	7.063	-687	.240	-303	.120	**p=0.449**
Life and Career Skills	66.96	7.092	-599	.240	-399	.120	**p=0.215**
Information, Media and Technology Skills	32.97	4.061	-119	.240	-645	.120	**p=0.117**
Total of 21st Skills	176.44	17.713	-643	.240	-380	.120	p=0.611

According to the data in Table 2, the assumptions of normality and homogeneity of variances were tested. The skewness and kurtosis coefficients were checked for the normality assumption. When considering the skewness and kurtosis coefficients, the skewness and kurtosis values of all the sub-dimensions and the total scores of the scale fall between -2 and +2. In this frame, the scores obtained by 411 students demonstrate a normal distribution in terms of both the total scale and sub-dimensions. For this reason, t-test and one-way analysis of variance (ANOVA), which are parametric statistical techniques, were conducted to seek answers to sub-problems of the scale. The data were analyzed using the SPSS 16.0 software. For data analysis, the significance level (p) was accepted as 0.05.

2.6. Qualitative Phase

The study seeks to identify pre-service teachers' perceptions regarding the extent to which elementary teaching undergraduate program empower them to achieve 21st century skills. Thus, it is a phenomenological study. Phenomenology is a form of research that focuses on cases of which we are aware but do not have an in-depth and detailed understanding. Phenomena can appear in various forms such as events experiences, perceptions, orientations, concepts and situations in the world we live in (Yıldırım and Şimşek, 2018). In this respect, phenomenology, one of the qualitative research designs, was used in the qualitative dimension of the study in order to determine the opinions of pre-service teachers about their experiences on this matter. Based on the faculty experiences of the pre-service teachers, the data source of the study, the pre-service elementary teachers' perceptions of 21st century skills were determined. In the qualitative dimension of the study, a semi-structured interview form developed by the researcher was employed. With respect to the preparation of the semi-structured interview form, the theoretical knowledge obtained by scanning the relevant literature and expert opinions served as a basis. The semi-structured interview form was reviewed by three faculty members who are specialized in the field of elementary teaching and was revised and finalized in line with the suggestions of the experts. The data obtained were collected by focus group interview technique through the Zoom program. Among the pre-service teachers who answered the scale, a total of 13 (6 Male, 7 Female) pre-service teachers participated in the semi-structured interview. Qualitative studies were carried out with 4th grade pre-service teachers. The 4th grade pre-service teachers were chosen because they have taken the courses in the entire programme. Interviews lasted 35-40 minutes and were recorded with a tape recorder. Afterwards, the data obtained by voice recording was written down, and content analysis was performed.

The interview questions used in the study are as follows:
1. How does the elementary teaching undergraduate program guide pre-service teachers to acquire 21st century skills?
2. Within the framework of these skills, which sub-dimensions do you feel the strongest and weakest? Why?
3. Within the framework of the current program, what are the major barriers to learning 21st Century skills?
4. What other skills would you like to develop besides from these skills?
5. How can university and faculty members help to build these skills?

2.7. Validity and Reliability of Qualitative Data

For the validity and reliability of the study, the qualitative data were reviewed by two researchers. As a result of the data obtained from interview forms, the data were grouped in themes. The themes were reexamined according to similarities, and consequentially similar or different themes were identified. The reconciliation rate between the researchers was calculated as 87%.

3. Findings and Interpretation

3.1. Findings Related to The First Sub-Problem

The first sub-problem of the study is to determine the level of 21st century skills of pre-service elementary teachers. In this frame, the data obtained are given in Table 3. The mean score of pre-service elementary teachers was calculated 76.09 for the sub-dimension of learning and innovation skills, 66.93 for the sub-dimension of

Life and Career Skills, 32.39 for the sub-dimension of Information, Media and Technology skills, and 176.34 for 21st century skills measuring the whole scale. When we divide the mean scores by the number of items, it is seen that the level is 4.22 for Learning and Innovation Skills, 4.18 for Life and Career Skills, 4.04 for Information, Media, and Technology Skills, and 4.04 for the total of 21st century skills, and it is quite high.

Table 3: Descriptive Statistics Concerning the Pre-Service Elementary Teachers' 21st Century Skills

	N	Minimum	Maximum	$\overline{X}$	Ss
Learning and Innovation Skills	411	22	88	76.09	6.984
Life and Career Skills	411	47	78	66.93	7.041
Information, Media and Technology Skills	411	58	37	32.39,	4.032
Total of 21st Skills	411	128	203	176.34	17.547

3.2. Findings Related to The Second Sub-Problem

The second sub-problem of the study seeks to identify whether there is a significant difference between the mean scores of pre-service elementary teachers on twenty-first-century skills according to the variables of gender, undergraduate GPA and grade level. The results of the t-test regarding the comparison of 21st Century Skills of pre-service elementary teachers by gender are presented in Table 4.

Table 4: Comparison of Pre-Service Elementary Teachers' 21st Century Skills by Gender

Dimensions	Gender	N	Mean	Ss	Sd	t	p
Learning and Innovation Skills	Female	231	4.24	0.39			
	Male	181	4.21	0.38	409	.790	.430
Life and Career Skills	Female	231	4.20	0.44			
	Male	180	4.15	0.42	409	.997	.316
Information, Media and Technology Skills	Female	231	4.13	0.53			
	Male	180	4.10	0.47	409	.463	.638
Total of 21st Skills	Female	231	4.21	0.43			
	Male	180	4.17	0.40	409	.826	.406

When Table 4 was examined, no significant difference was found between the mean scores of female pre-service teachers ($\overline{x}$ = 4.24; Ss = 0.39) and male pre-service teachers ($\overline{x}$=4.21; SS=0.38) in the sub-dimension of "learning and innovation skills" (t = 0.790; p> 0.05). No significant difference was also found between the mean scores of female pre-service teachers ($\overline{x}$ = 4.20; Sd = 0.44) and male pre-service teachers ($\overline{x}$=4.15; Ss=0.42) in the sub-dimension of "life and career skills" (t=.997; p>0.05). Additionally, no significant difference was found between the mean scores of female pre-service teachers ($\overline{x}$=4.13; Ss=0.53) and male pre-service teachers ($\overline{x}$=4.10; Ss=0.47) in the sub-dimension of "information, media and technology skills" (t = 0.463; p> 0, 05). When the total scores of the 21st century skills scale were examined, no significant difference was found between the mean scores of female pre-service teachers ($\overline{x}$ = 4.21; Ss = 0.43) and male pre-service teachers ($\overline{x}$=4.17; Ss=0.40) (t = 0.826; p> 0.05). Given these results, it can be stated that gender variable has no effect on 21st century skills.

The results of the variance analysis related to the comparison of 21st century skills of pre-service elementary teachers by the undergraduate GPA variable are tabulated in Table 5.

Table 5: Comparison of Pre-Service Elementary Teachers' 21st Century Skills by the undergraduate GPA variable

Dimensions	Group	N	Mean	Ss	Sd	F	p	Differentiation
Learning and Innovation	(Low)	101	4.21	0.42				
	(Medium)	218	4.19	0.38	2-408	4.107	**.017**	**y>o-d**

Skills	(High)	92	4.32	0.35				
Life and Career Skills	(Low)	101	4.14	0.46	2-408	3.105	.046	y>o-d
	(Medium)	218	4.15	0.43				
	(High)	92	4.28	0.42				
Information, Media and Technology Skills	(Low)	101	4.11	0.55	2-408	3.785	.024	y>o-d
	(Medium)	218	4.07	0.48				
	(High)	92	4.24	0.47				
Total of 21st Skills	(Low)	101	4.17	0.44	2-408	3.524	.026	y>o-d
	(Medium)	218	4.16	0.40				
	(High)	92	4.30	0.39				

When Table 5 is examined, the mean score of the pre-service teachers with low grade point average in the sub-dimension of "learning and innovation skills" was found to be ($\bar{x}$ = 4.21; Ss = 0.42) whereas the mean score of the pre-service teachers with medium grade point average was found to be ($\bar{x}$=4.19; Ss=0.38), and the mean score of those with high grade point average was found to be ($\bar{x}$=4.32; Ss=0.35). As a result of the variance analysis, a significant difference was found between the pre-service teachers with high undergraduate GPA and the pre-service teachers with medium and low grade point averages in favor of students with high grade point averages. (F = 4.107; p = .017 <0.05). In other words, it can be argued that that pre-service teachers with a high undergraduate grade point average see themselves more adequate in terms of innovation skills. Regarding the "Life and Career Skills" sub-dimension, on the other hand, the mean score of the pre-service teachers with low grade point averages was found ($\bar{x}$ = 4.14; Ss = 0.46); the mean score of the pre-service teachers with medium grade point averages was found ($\bar{x}$=4.15; Ss=0.43) and the mean score of the pre-service teachers with high grade point averages was found ($\bar{x}$=4.28; Ss=0.42). Likewise, following the variance analysis conducted, a significant difference was found between the pre-service teachers with high undergraduate GPA and the pre-service teachers with medium and low grade point averages in favor of students with high grade point averages (F = 3.105; p = .046 <0.05). We can thus imply that pre-service teachers who have a high undergraduate GPA perceived themselves more competent in life and career skills.

Given the sub-dimension of "Information, Media and Technology Skills," the mean score of the pre-service teachers with low grade point averages was found ($\bar{x}$=4.11; Ss=0.55); the mean score of the pre-service teachers with medium grade point averages was found ($\bar{x}$=4.07; Ss=0.48) and the mean score of the pre-service teachers with high grade point averages was found ($\bar{x}$=4.24; Ss=0.47). As a result of the variance analysis, a significant difference was found between the pre-service teachers with high undergraduate GPA and the pre-service teachers with medium and low grade point averages in favor of students with high grade point averages (F=4.125; p=.024<0,05). This result denotes that pre-service teachers with high undergraduate grade point averages find themselves more adequate in terms of information, media and technology skills. When considering the pre-service teachers' total score on twenty-first-century skills, the mean score of the pre-service teachers with low grade point averages was found ($\bar{x}$=4.17; Ss=0.44); the mean score of the pre-service teachers with medium grade point averages was found ($\bar{x}$=4.16; Ss=0.40) and the mean score of the pre-service teachers with high grade point averages was found ($\bar{x}$=4.30; Ss=0.39). In a similar vein, following the variance analysis , a significant difference was found between the pre-service teachers with high undergraduate GPA and the pre-service teachers with medium and low grade point averages in favor of students with high grade point averages (F=3.524; p=.026<0,05). This finding reveals that academic achievement plays a major role in acquiring 21st century skills.

According to Table 6, the mean score of the 1st grade pre-service teachers in the sub-dimension of " Learning and Innovations skills" were found to be ($\bar{x}$=4.20; Ss=0.37); the mean score of the 2nd grade pre-service teachers were found to be ($\bar{x}$=4.17; Ss=0.35) ; the mean score of the 3rd grade pre-service teachers were found to be ($\bar{x}$=4.27; Ss=0.39) and the mean score of the 4th grade pre-service teachers were found to be ($\bar{x}$=4.24; Ss=0.42). As a result of the variance analysis, no significant difference was found in regard to the sub-dimension of "Learning and Innovation Skills" (F=1.451; p=.227>0, 05). When considering the sub-dimension

of " Life and Career Skills" the mean score of the 1st grade pre-service teachers were found to be ($\bar{x}$=4.12; Ss=0.43) ; the mean score of the 2nd grade pre-service teachers were found to be ($\bar{x}$=4.15; Ss=0.39); the mean score of the 3rd grade pre-service teachers were found to be ($\bar{x}$=4.21; Ss=0.48) and the mean score of the 4th grade pre-service teachers were found to be ($\bar{x}$=4.21; Ss=0.44). Following the variance analysis conducted, no significant difference was found in regard to the sub-dimension of "Life and Career Skills" (F=1.033; p=.378>0, 05). In the sub-dimension of " Information, Media and Technology Skills," the mean score of the 1st grade pre-service teachers were found to be ($\bar{x}$=4.04; Ss=0.55); the mean score of the 2nd grade pre-service teachers were found to be ($\bar{x}$=4.03; Ss=0.46), the mean score of the 3rd grade pre-service teachers were found to be ($\bar{x}$=4.24; Ss=0.48) and the mean score of the 4th grade pre-service teachers were found to be ($\bar{x}$=4.13; Ss=0.50). As a result of the variance analysis, a significant difference was found between the 3rd grade pre-service teachers and 1st and 2nd grade pre-service teachers in favor of the 3rd grade pre-service teachers (F=3.753; p=.011<0,05). In view of the results obtained, we can contend that the 3rd grade pre-service teachers perceive themselves more adequate in terms of "Information, Media and Technology Skills." According to the pre-service teachers' total score on twenty-first-century skills, the mean score of the 1st grade pre-service teachers was found to be ($\bar{x}$=4.14; Ss=0.41); the mean score of the 2nd grade pre-service teachers was found to be ($\bar{x}$=4.15; Ss=0.38); the mean score of the 3rd grade pre-service teachers were found to be ($\bar{x}$=4.25; Ss=0.44) and the mean score of the 4th grade pre-service teachers were found to be ($\bar{x}$=4.22; Ss=0.43). After the variance analysis, no meaningful difference was found related to the pre-service teachers' twenty-first-century skills (F=1.584; p=.193>0, 05).

Table 6: Comparison of Pre-Service Elementary Teachers' 21st Century Skills by Grade Level Variable

Dimensions	Groups	N	Mean	Ss	Sd	F	p	Difference
Learning and Innovation Skills	1st Grade	73	4.20	0.37	3-407	1.451	.227	
	2ndGrade	105	4.17	0.35				
	3rd Grade	106	4.27	0.39				
	4th Grade	127	4.24	0.42				
Life and Career Skills	1st Grade	73	4.12	0.43	3-407	1.033	.378	
	2ndGrade	105	4.15	0.39				
	3rd Grade	106	4.21	0.48				
	4th Grade	127	4.21	0.44				
Information, Media and Technology Skills	1st Grade	73	4.04	0.55	3-407	3.753	**.011**	**3>1-2**
	2ndGrade	105	4.03	0.46				
	3rd Grade	106	4.24	0.48				
	4th Grade	127	4.13	0.50				
Total of 21st Skills	1st Grade	73	4.14	0.41	3-407	1.584	.193	
	2ndGrade	105	4.15	0.38				
	3rd Grade	106	4.25	0.44				
	4th Grade	127	4.22	0.43				

3.3. Findings Related to the Third Sub-Problem

Pre-service teachers' views regarding the sub-dimension of "What are the major barriers to teaching 21st century skills during pre-service teachers' education?" were investigated, and consequently four themes were identified. The excerpt taken from the statements of the pre-service teachers and themes is given in Table 7.

Table 7: The Major Barriers to Teaching 21st century Skills in Pre-service Teachers' Education

Themes	Pre-service Teachers' Statements
	The fact that the desks are fixed to the ground does not provide an effective teaching environment. I do not know why they switched to this order.
The Physical Environment of Classrooms	The height of our teachers' chair creates a cooler atmosphere.
	Practices such as online attendance negatively affect our attendance at the

	beginning and middle of the course.
Insufficiency of Practical Courses	In teaching practice, mentor teachers leave the courses to internship students. That's why we can't learn anything from the teachers' experiences. Almost all of the elementary teachers working in the city center consist of teachers with multiple years of experience. Their experience may be an advantage, but not being aware of innovations also creates a disadvantage.
Insufficiency of Trainers	Some teacher educators think that student-centered education is about getting us to lecture the subject. Our lectures are generally instructed by faculty members, creative or critical thinking skills to emerge cannot be expected in this way anyway. There is still a teacher-centered education in our school. We are experiencing the difficulties of this process, that's why faculty members are very insufficient in terms of orientation. Even our instructors, who tell us to teach student-centered courses, teach teacher-centered courses. I do not think that the teacher educator adds anything to the students in terms of 21st century skills, as he/she only teaches the lectures on the subject in a straightforward manner within the scope of the curriculum.
KPSS Test Anxiety	21st century skills or something is not introduced as a question in KPSS. Honestly, that why I do not try very hard to acquire it. There is a test called KPSS that we have to pass in order to become a teacher, and anxiety about the future prevents us from improving. Everyone focuses only on the topics that will come out in the exam, even private tutoring courses. Whether we are teachers or not is determined only according to the KPSS test score, and it just measures knowledge. I'm not even counting the interview nonsense.

According to Table 7, the pre-service teachers reported the major barrier to acquiring 21st century skills was that although faculty members constantly stressed the importance of student-centered courses, they did not conduct their courses in this way. Allowing the students to give lecture within the framework of the student-centered education implies that the process has been misunderstood. Such practices can be noted as a mistake that occurs at all age levels. In addition to that, it is observed that the mentor teachers in teaching practice courses remain inadequate in guiding students to acquire 21st century skills. Because the teachers working in the city center are generally teachers with a multiple years of experience. For this reason, they can be unaware of innovations or resist such changes even if they are not inadequate. The fact that the classes in the Faculty of Education are physically inadequate to acquire 21st century skills emerge as a major obstacle to the acquisition of these skills. More specifically, however, we can highlight KPSS (Public Personnel Selection Examination) exam as the most important barrier at the 4th grade level. Because this exam mainly identifies knowledge-based goals. As a result, it causes students not to fully focus on their own improvement processes.

3.4. Findings Related to the Fourth Sub-Problem

As a result of the analysis of the pre-service teachers' views regarding the question of "How can university and faculty members help to build these skills?", four themes were identified. The pre-service teachers' statements and themes are detailed in Table 8.

Table 8: Recommendations to Improve 21st Century Skills in Teacher Education

Themes	Pre-service Teachers' Statements
The teacher educator should be a role model	In order to help students acquire 21st century skills, first of all, faculty members should use these skills. Faculty members should demonstrate techniques that really support these skills.

	A student-centered classroom environment should be created. Thus, an environment where students are more active can be provided.
Alternative assessment should be used.	Assessment should not be made in a single dimension. It makes things easier for us, but assessment should not be made only with multiple choice practices. Some of our teachers have even been asking the same questions for years. We don't even study for their exams. Different types of exams should be applied to make assessment process more consistent and valid.
Supervision should be done	When we examine 21st century skills, they are all very successful attainments in theory, but problems occur in practice. It should be tested whether the skills are acquired or not, which MEB is actually working on this matter. I think it will be useful if these practices are supervised. Many of our teachers have the knowledge of pedagogical formation, but being a teacher is not enough, they can change the methods and techniques they use. I guess they find it difficult, they talk about the same things all the time. I think our teachers have great responsibilities, there should be a control mechanism for the teachers. I mean if they do not improve themselves, there should be sanctions.
More practical courses should be available	Practical courses should not be limited to the fourth grade, but should be available every year. Practical skills related to the teaching profession are not the attainments that can be acquired in a single year, but we get to know their different dimensions as we experience them. We have the chance to see our shortcomings and to overcome these shortcomings. For teaching practice, there should be university-affiliated schools like Medical Faculties.

According to Table 8, it is seen that the most important action to be taken for the development of 21st century skills is the behavior of the faculty members from the pre-service teachers' perspectives. If faculty members use these skills in their own courses, they can be a very good role model for pre-service teachers. In addition to that, the use of alternative assessment methods and thus the ability to effectively measure 21st century skills will enable pre-service teachers to focus on these attainments. In order to acquire such professional skills, pre-service teachers should conduct activities promoting the acquisition of 21st century skills. This will only be possible with more practical courses. The inadequacy of the practical courses, which is the most important limitation of educational processes in Faculties of Education, is also seen as a major barrier to the acquisition of 21st century skills.

Discussion and Interpretation

The results obtained from the quantitative data indicate that the pre-service elementary teachers' general competency perceptions towards 21st century skills are high. In this context, the pre-service elementary teachers perceive themselves sufficient in developing their own thoughts and using alternative ways in solving the problems they encounter in daily life, in analyzing different thoughts and focusing on different dimensions, and in evaluating perspectives. Considering the relevant literature, the findings of previous studies also are consistent with the current study (Murat, 2018; Kozikoğlu and Altunova, 2018; Cemaloğlu, Arslangilay, Üstündağ and Bilasa, 2019). There are research results denoting that teachers working in secondary education outside of primary and secondary schools have a high level of 21st century skills (Gürültü, Aslan and Alcı, 2019). According to the existing literature, however, some studies revealed teachers' limitations with respect to the turning 21st century skills into practice and using these skills in classroom practices. (Bernhardt, 2015). Most of the criticisms related to the teaching of 21st century skills are that there is no systematic framework for applying these skills in courses. There are uncertainties about how teachers and students will be evaluated through these skills throughout the year (Bernhardt, 2015). On the other hand, it is difficult to predict students' progress

without the invaluable assessment of the 21st century skills. Further, the teaching programs in our country does not detail how to acquire the skills outlined in the program and there is no finding regarding whether these skills are acquired or not. Therefore, these skills are only defined in the program theoretically, and they are not achieved in practice. Further, as indicated in the qualitative data of the research, the KPSS exam is a major limitation for pre-service teachers to acquire professional skills, and guides them to theoretical knowledge rather than acquiring such skills.

According to the quantitative data of the study, the pre-service teachers consider themselves competent regarding information, media and technology at a certain level. When considering qualitative data, on the other hand, it is seen that these attainments do not emerge within the program. Because the curriculum does not involve a content which allows pre-service teachers to improve their skills in computer environment at the required level. In this respect, Basic Computer courses are only taught in the 1st grade. The pre-service teachers reported that it was just enough to prepare simple works and thus they easily passed the course. Therefore, they stated that the information provided in these lessons is very insufficient for today. They even uttered that students in lower age groups nowadays take courses such as coding, and even these courses surpass their technology knowledge. The finding of present study is also parallel to a study carried out by Clark (2008) who discussed teachers' competencies in acquisition of digital skills based on 21st century skills. The findings of the study reveal that most of the teachers benefit from technology-based tools such as Internet access and e-mail in their daily lives, which require a basic knowledge, however, they do not use these tools to acquire content such as 21st century skills that enable high-level attainments. The study also listed a lack of time, a lack of personal interest and lack of professional development as major barriers that preventing the teachers from integrating technology to develop high-level skills. In fact, as technology is used more intensely in today's societies, students' needs for digital technologies are at the forefront of education. The most important need in this process is the students' need to use technology to access, organize and evaluate the information acquired.

In this context, it is of utmost importance that 21st century skills should be integrated into education and training programs. The findings of the study conducted by Çakır and Güngör (2017) suggest that pre-service teachers have problems with respect to problem solving and using technology. In addition to that, the findings indicate that the current syllabi for the course are found to be ineffective in preparing pre-service teachers for 21st century teacher qualifications. Likewise, another study conducted by Göksun (2016) investigated the level of pre-service teachers 21st century learner skills use. According to research findings, preservice teachers often use cognitive acquisitions, along with theoretical knowledge, however, they use skills related to coping with problems they encounter in real life, such as collaboration and innovativeness skills above midlevel. Additionally, the findings of the present study also highlight the inadequacy of technology knowledge courses in Faculties of Education. Therefore, providing trainings in this regard will be effective in gaining 21st century skills. Unlike the findings of this study, in the study conducted by Çoklar (2008) with pre-service teachers from seven different universities in Turkey, it was found that PSTs' self-efficacy perceptions of educational technologies were high. Likewise, as a result of the study made by Dağhan, Nuhoğlu Kibar, Menzi Çetin, Telli and Akkoyunlu (2017), it was concluded that pre-service teachers are aware of 21st century learners' and teachers' characteristics.

Another significant findings of the study are that pre-service teachers' scores on twenty-first-century skills yielded significant difference in favor of only 3rd grade student in terms of grade level variable. The qualitative data of the study indicate that the education and training program is insufficient in terms of acquisition of 21st century skills. Qualitative data were obtained only from fourth grade students, and it was seen that they critically evaluated the teaching program. The qualitative data obtained showed that the strategies, methods and techniques utilized in elementary teaching programs were limited to traditional teacher-directed instruction, note taking and textbook. These findings imply that the instructors use traditional teaching strategies. This finding is consistent with the findings of research conducted by Ananiadou ve Claro (2009) on the learning and teaching process of primary schools in Turkey. This study was carried out in OECD countries and the basic skills acquired in the learning and teaching processes of the countries were identified. The results denote that although primary schools in our country emphasizes the importance of high-level thinking skills (creative , reflective, critical), communication skills, problem solving skills, and decision-making skills in the learning-

teaching processes, these skills are not implemented in the learning and teaching processes. The study also indicate that there are no assessment policies or teacher training programs specifically designed for these skills and competencies. Ananiadou and Claro (2009) discuss issues related to the teaching and assessment of 21st century skills and competencies in OECD countries drawing on the findings of a questionnaire study and other relevant background material such as white papers or curriculum documents. The findings show that there are few teacher training programmes that target the teaching or development of 21st century skills, although there exist several teacher training initiatives that focus on developing teachers" ICT pedagogical skills, most of them optional.

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Democracy Scale For Teacher Candidates: A Validity And Reliability Study

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Abstract

The aim of this study was to develop a valid and reliable measurement tool in order to determine the democracy levels of teacher candidates. During the scale development process in the research, the validity and reliability studies were conducted through three independent study groups. The first study group consisted of 627 students studying at the Faculty of Education in Inonu University in the 2020-2021 academic year, the second study group consisted of 324 students, and the third study group consisted of 87 students. "The Democracy Scale for Teacher Candidates" was used in the research. In the process of data analysis, SPSS 25 software was used for exploratory factor analysis and AMOS 21 software for confirmatory factor analysis. An item pool consisting of 50 items was created for the scale. The number of items was reduced to 40 by obtaining expert opinion in order to ensure the content validity of the scale. As a result of the factor analysis, it was determined that the total variance ratio explained by the single-factor scale with 17 items was 49.640%, and the internal consistency coefficient was .88. In addition to these, the values obtained as a result of the confirmatory factor analysis conducted to test the construct validity of the scale showed that the scale developed to determine the democracy levels of teacher candidates was valid and reliable.

Keywords: Democracy, Faculty of Education, Teacher candidate

1. Introduction

Democracy, which has a historical background of approximately 2500 years, is a concept that has been defined in different ways in the historical process, that has reached the present day by expanding its meaning and function every century and on which consensus cannot be achieved. In ancient Greek, the concept that comes from the combination of the words "people" (demos) and "sovereignty" (kratos) meant "people's sovereignty." Although many definitions of the concept, which is based on ancient Greek in terms of its origin, have been made from past to present, there is no consensus on it. The fact that the concept is multidimensional, that it contains an ideal in it, and that it has a dynamic structure that is constantly evolving and changing has a great role in this.

Abraham Lincoln made the best known definition of democracy, which is generally based on the sovereignty of the people (TDK, 2011). He expressed the concept of democracy as "the rule of the people by the people, for the people" (Heywood, 1992: 110). However, this definition is far from representing the depth of democracy (Erbil and Kocabaş, 2017). In addition, in the literature, the concept of democracy has been defined in different ways by many political scientists and thinkers from past to present. Sartori (1996: 166) defined it as "the renewal of leadership with a competitive method" Anthony Arblaster (1999) described it as "the upper system representing the people in government." Furthermore, defining it as "the political life style that gives the greatest freedom to the greatest number of individuals, recognizes and preserves the greatest possible diversity," Touraine (2004), unlike others, discussed the concept of democracy from a broader perspective. Dewey (1937) did not consider democracy only as a form of government, but emphasized that democracy is a phenomenon that exists in all areas of life individually and socially, and that enables people to develop and interact with each other. When we look at the definitions of democracy, it is seen that the idea of "the power of the majority or the people" comes to the fore. However, democracy includes the way of thinking, the art of living, the decision-making process, the communication between people and the set of values, beyond the sense of governance and being governed. Thus, seeing democracy only as a political system would mean focusing on only one aspect of the concept.

Democracy, which is the basis of the research, is explained as "being a democrat." The basic condition of being a democrat is only possible by adopting democracy in all its aspects (participation, freedom of expression, respect, equality, justice, tolerance, transparency, etc.). In this respect, family and school factors, in other words, education plays a big role in the adoption of the qualities of democracy, which is the basic condition of democracy, and in developing a democratic attitude. When these factors are briefly discussed, the family, which is the small model of society, not only prepares the individual for the society, but also functions as a small educational institution. The family, which is generally seen as the basic core of society and is a legal and social institution where the primary education of the individual begins, plays a major role in laying the foundations of democratic societies by transferring the structure, culture, values and democratic attitudes of the society to the next generations. For this reason, the importance and role of the family, where the first seeds of social values are planted and which has a basic function in making the child hold on to the life, in raising democratic citizens cannot be denied.

The most important educational institution where individuals gain basic democratic consciousness and values is the school. While the first seeds of democratic consciousness and social values are planted in the family, the germination and growth processes of these seeds are carried out by the schools. In this context, schools, which are the most important places for gaining democratic attitudes and behaviors (Erbil and Kocabaş, 2017), should be structured with a focus on raising individuals who know, adopt and apply democratic culture in daily life. In addition, if it is taken into consideration that democratic consciousness can only be assimilated through democratic life (Ertürk, 1985), the importance of democratic environments created in schools becomes more evident in individuals' adoption of democratic attitudes and behaviors. Democratic classroom environments affect students positively and provide an important convenience for them to gain democratic attitudes, behaviors and values (Gömleksiz and Çetintaş, 2011). Thus, in student-centered democratic classrooms, students who are active in the learning process, questioning, criticizing, taking responsibility, and able to express their opinions freely (Duman and Koç, 2004) play a major role in the construction of a democratic society.

Faculties of education are one of the important steps among educational institutions in terms of students' gaining democratic attitudes and behaviors. The effect of academicians on teacher candidates' gaining democratic attitudes and behaviors is extremely important, because their democratic practices, communication and learning processes in the classroom and outside of the classroom will enable teacher candidates to adopt and internalize democratic attitudes (Gömleksiz and Çetintaş, 2011). Ultimately, the constructed democratic educational environments can lead to the training of future teachers who are critical, questioning, open to new ideas, tolerant and absorbing democratic participation. Moreover, it will be an important step in the construction of democratic societies that teachers, who play an important role in students' adoption of democratic culture, adopt democratic attitudes and behaviors and present knowledge, skills and values to new generations by making them a lifestyle.

When the studies in the literature are examined, it is seen that many applied and theoretical studies have been conducted in Turkey and other countries on issues such as democracy, democratic attitude and democratic

participation. Especially in studies in Turkey, it is seen that studies aiming to determine the democratic attitudes of students, teachers and administrators are the majority (Yeşil, 2001; Kıncal and Işık, 2003; Gömleksiz and Çetintaş, 2011; Koçoğlu, 2013; Ural and Sağlam, 2011; Zencirci, 2010; Sönmez-Ektem and Sünbül, 2011; Elkatmış and Toptaş, 2015; Gül and Saraç, 2018). In addition, some studies on the development of a measurement tool have been conducted in order to measure democratic attitudes in different levels of education (Gözütok, 1995; Zencirci, 2003; Yazıcı, 2003; Kesici, 2006; Tutkun and Genç, 2013; Keçe and Dinç, 2015; Şimşek, 2011; Erbil and Kocabaş, 2017; Yeşil, 2010). Therefore, when the literature was examined, it was seen that there was no scale development study to determine the democracy levels of teacher candidates. In this respect, it is aimed that this study will contribute to filling this gap in the literature.

1.1. Purpose of the Study

The aim of this study was to develop a valid and reliable measurement tool in order to determine the democracy levels of teacher candidates. Furthermore, it is thought that this study will be a source for future studies in terms of determining democratic attitudes.

2. Method

2.1. Participants

In the process of developing the scale in this study, the validity and reliability studies were conducted through three independent study groups. Explanatory information about the working groups is given below.

The first study group: This study group consisted of 627 students studying at the Faculty of Education in Inonu University in the 2020-2021 academic year. The data obtained from this study group were used in the exploratory factor analysis and in determining the internal consistency reliability of the scale used in the research. When the forms returned from the students were examined, it was seen that some forms were filled incompletely. These missing forms were discarded and the remaining 621 forms were analyzed. While 351 (57%) of this study group were females, 270 (43%) of them were males and 127 (20%) of the study group were freshmen, 170 (27%) of them were sophomores, 146 (24%) of them were juniors and 182 (29%) of them were seniors.

The second study group: This study group consisted of 324 students studying at the Faculty of Education in Inonu University in the 2020-2021 academic year. The data obtained from this study group were used to determine the confirmatory factor analysis results of the scale used in the study. When the forms returned from the students were examined, it was seen that some forms were filled incompletely. These missing forms were discarded and the remaining 317 forms were analyzed. While 182 (57%) of this study group were females, 135 (42%) of them were males and 73 (23%) of the study group were freshmen, 82 (26%) of them were sophomores, 74 (23%) of them were juniors and 88 (28%) of them were seniors.

The third study group: This study group consisted of 87 students studying at the Faculty of Education in Inonu University in the 2020-2021 academic year. The data obtained from this study group were used to determine the test-retest reliability results of the scale used in the study. While 53 (61%) of this study group were females, 34 (39%) of them were males and 22 (25%) of the study group were freshmen, 24 (28%) of them were sophomores, 19 (22%) of them were juniors and 22 (25%) of them were seniors.

2.2. Data Collection Tool

"*The Democracy Scale for Teacher Candidates*" was used in the research. During the scale development process, firstly, a group of 45 students in the faculty of education were asked to write an essay on democracy. Next, the literature was reviewed along with the data obtained from the essays written by the students and a draft item pool was created using similar scales (Gözütok, 1995; Zencirci, 2003; Keçe and Dinç, 2015; Şimşek, 2011; Tutkun and Genç, 2013; Yazıcı, 2003; Sincar, Şahin and Beycioğlu, 2019; Shechtman, 2002). 50 items were placed in the draft item pool and as a result of revision on the draft items, expert opinion was sought on 45 items in accordance

with the aims of the research. As a result of the feedback received from 7 expert faculty members in Faculty of Education, Department of Social Sciences and Department of Educational Sciences of Artvin Coruh University, Bilecik Seyh Edebali University and Inonu University, it was decided to remove 5 items and revise 3 items, and validity and reliability studies of the measurement tool were conducted on 40 items.

2.3. Data Analysis

Before analyzing the data obtained in this study, descriptive statistics were used to determine whether there was an error in data entry and whether the values of skewness and kurtosis of the items ranged between "+1.00" and "-1.00" (Tabachnick and Fidel, 2012). In the analysis, it was also checked whether there was an extreme value in the data set. As a result of the analysis, it was determined that the values of skewness and kurtosis for the data set ranged from -0.75 to +0.88 and there were no extreme values in the data set. One of the most important features regarding the validity of the scale scores in the process of developing or adapting the measurement tool is the construct validity. Construct validity tests the validity of inferences about unobservable variables through observable variables (Çokluk, Şekercioğlu and Büyüköztürk, 2010). Factor analysis technique is often used to test the construct validity of scales developed in social sciences (Büyüköztürk, 2010). The two basic methods used in factor analysis are exploratory and confirmatory factor analysis. In the exploratory factor analysis (EFA), the researcher tries to define or summarize the data set by gathering together the variables that are related at the beginning of the research (Pallant, 2011; Tabachnick and Fidell, 2012). In confirmatory factor analysis (CFA), it is aimed to test the hypothesis or theory related to the structure formed by the relationship between variables with complex and high-level analyzes (Büyüköztürk, 2010; Tabachnick and Fidell, 2012). In this study, first EFA and then CFA was conducted to determine the construct validity of the trust in teacher scale. Before EFA, the Kaiser-Meyer-Olkin (KMO) coefficients were examined and the Bartlett's sphericity test was used to determine whether the data were suitable for factor analysis. While conducting EFA, the factor loadings of the items, the consistency of the items in terms of meaning and content, common factor variances for each item, eigenvalues of the factors, total variance and line chart is drawn according to eigenvalues were taken into consideration in discarding the items that could not measure the same structure and determining the number of important factors (Büyüköztürk, 2010; Çokluk, Şekercioğlu and Büyüköztürk, 2010; Kline, 2011; Pallant, 2011; Tabachnick and Fidell, 2012). While conducting EFA analysis, varimax rotation, one of the most frequently used orthogonal rotation techniques in social sciences (Büyüköztürk, 2010), was used. CFA was also conducted to evaluate the model data fit related to the factor structure obtained as a result of EFA. CFA was conducted using AMOS 21 software. The probability method was used the most in the analyzes. In the interpretation of the goodness of fit values obtained from the confirmatory factor analysis result, some generally accepted criteria in the literature were used. In the literature, "$\chi 2$ / df" ratio of 2 or less, GFI, AGFI, NNFI and CFI values of ".95" or above, RMSEA, RMR and SRMR values of ".05" or below are considered as evidence of good model-data fit. On the other hand, "$\chi 2$ / df" ratio of between 2 and 5, GFI, AGFI, NNFI and CFI values of ".90" or above, RMSEA, RMR and SRMR values of less than ".08" are considered as evidence of acceptable model-data fit (Brown, 2006, Çokluk, Şekercioğlu and Büyüköztürk, 2010; Schumacker and Lomax, 2010; Şimşek, 2007; Tabachnick and Fidell, 2012). For reliability studies, corrected item-test correlation coefficients, internal consistency coefficients and test-retest correlation coefficients were found.

3. Findings

Exploratory Factor Analysis (EFA) was conducted to determine the factor structure of the scale. As a result of the exploratory factor analysis, irrelevant items, items with a factor loading of below ".30", items with a high loading in more than one dimension (Büyüköztürk, 2010) were removed, and a one-dimensional 17-item scale (Table 1) was obtained.

Table 1: Exploratory Factor Analysis Results

Items	Factor Loadings	Common Factor Variance	Corrected Item-Test Correlations
I1 I accept democracy as a way of life.	.752	.645	.676
I2 I believe that everyone has the right to vote and be elected.	.738	.636	.658
I3 I think democracy and diversity are beneficial for the society.	.733	.624	.642
I5 I respect minority opinion on any matter.	.711	.618	.634
I6 I appreciate the criticism I received.	.671	.604	.621
I7 I can work with people of different cultures.	.635	.595	.611
I8 I listen to people with different views on political issues.	.624	.584	.601
I9 I take responsibility for political issues.	.611	.579	.596
I11 I respect the political preferences of others.	.604	.575	.584
I12 I would like different views to be represented in the society.	.597	.568	.576
I15 I make an effort to ensure that people have individual rights and freedoms.	.589	.564	.569
I17 I follow the rules of law.	.558	.555	.557
I18 I treat everyone equally.	.535	.534	.534
I25 I respect different opinions and accept them with tolerance.	.513	.502	.508
I27 I believe that men and women have an equal voice in politics.	.501	.497	.498
I37 I think women should take part in administration.	.496	.492	.494
I39 I think men and women should have equal rights.	.476	.468	.471
Eigenvalue		4.964	
Total Variance Explained		%49.640	
Cronbach's Alpha		.88	

It was determined that the factor loadings of the items in the scale ranged from ".476" to ".752", common factor variances ranged from ".468" to ".645", and the corrected item-test correlations ranged from ".471" to ".676". It was found that 17 items in the scale explained 49.640% of the total variance and the internal consistency coefficient of the scale was .88. In scoring the scale, 5-point Likert type rating ranging from "Disagree" to "Completely Agree" was used.

The one-dimensional structure of the scale obtained after the exploratory factor analysis was tested using confirmatory factor analysis (CFA) (Figure 1). The goodness of fit values for the confirmatory factor analysis are as follows: $\chi2/df=2.45$, GFI=0.94, AGFI=0.93, NFI=0.95, NNFI/TLI=0.95, IFI=0.95, CFI=0.96, RMSEA=0.041, RMR=0.032, SRMR=0.043. When the values obtained as a result of the confirmatory factor analysis are evaluated in terms of the criteria used in the literature, it can be said that they have acceptable and good fit.
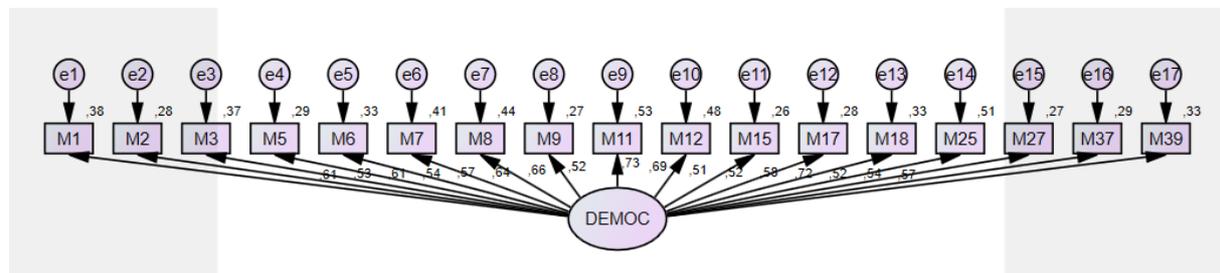
Figure 1: Tested Model

As a result of the analysis conducted for the reliability studies of the scale, the internal consistency coefficients were ".88" for the first study group and ".89" for the second study group. Kline (2011) stated that the reliability coefficient is excellent around ".90", very good around ".80", adequate around ".70" and insufficient below ".50". Based on the findings obtained from the research, it can be said that the internal consistency coefficients of this study are very good.

In the study, in order to determine the time consistency of the scale, the measurement tool was conducted twice with an interval of 15 days to 87 students studying at the Faculty of Education in Inonu University in the 2020-2021 academic year. As a result of the analysis of these data, the arithmetic averages, standard deviations, internal consistency coefficients and test-retest reliability coefficients of the scale are given in Table 4.

Table 4: *Test-retest reliability analysis results for the scale*

Application	$\overline{\text{X}}$	Sd	r	Cronbach's Alpha
I. Application	3.87	7.67		.89
			.85	
II. Application	3.84	7.58		.89

As can be seen in Table 4, it is seen that the arithmetic average of the scores obtained from the first application was 3.87, the standard deviation was 7.67 and the internal consistency coefficient was .89. The arithmetic average of the scores obtained from the second application was 3.84, the standard deviation was 7.58, and the internal consistency coefficient was .89. The correlation coefficient between the scores obtained from the first and second applications was found to be .85. In the light of these findings, it can be said that the scale is consistent despite the time interval.

4. Discussion, Conclusion And Recommendations

In the study, it was aimed to develop a scale for determining the democracy levels of teacher candidates. For this reason, a theoretical framework was established by emphasizing the role of faculties training teachers in developing democratic attitudes of teacher candidates in accordance with the aims of the study. Later, the literature was reviewed and similar scales were examined and it was determined that no scale on the democracy levels of teacher candidates was found. Ultimately, the scale development process was initiated and for this purpose, a group of 45 students in the faculty of education was asked to write an essay on democracy. Next, the literature was reviewed along with the data obtained from the essays written by the students and a draft item pool was created using similar scales (Gözütok, 1995; Zencirci, 2003; Keçe and Dinç, 2015; Şimşek, 2011; Tutkun and Genç, 2013; Yazıcı, 2003; Sincar, Şahin and Beycioğlu, 2019; Shechtman, 2002). 50 items were placed in the draft item pool and as a result of revision on the draft items, expert opinion was sought on 45 items in accordance with the aims of the research. In accordance with the expert opinion, 40 items were determined and the scale was made ready for pre-application. Later, as a result of EFA conducted for validity studies, it was seen that 17 items were grouped under a single factor. It was determined that the factor loadings of the items in the scale ranged from ".476" to ".752", common factor variances ranged from ".468" to ".645", and 17 items in the scale explained 49.640% of the total variance. Corrected item-test correlation coefficients were also found for the item validity and homogeneity of the scale. It was determined that the corrected item-test correlations ranged from ".471" to ".676" and the internal consistency coefficient of the scale was .88.

CFA was conducted to test the structure of the scale obtained as a result of EFA. The goodness of fit values for the confirmatory factor analysis are as follows: $\chi2/df=2.45$, GFI=0.94, AGFI=0.93, NFI=0.95, NNFI/TLI=0.95, IFI=0.95, CFI=0.96, RMSEA=0.041, RMR=0.032, SRMR=0.043. When the CFA results are evaluated, it can be said that the measurement tool has acceptable values and goodness of fit indexes according to the literature.

In the study, in order to determine the time consistency of the scale, the measurement tool was conducted twice with an interval of 15 days to 87 students studying at the Faculty of Education in Inonu University. As a result of the analysis of these data, the correlation coefficient between the first and second applications was found to be .85. According to this correlation coefficient, it can be stated that the scale is consistent despite the time interval.

When the literature was examined, although there were various studies and scale development studies on the democratic attitudes of teacher candidates (Genç and Kalafat, 2008; Gözütok, 1995; Sincar, Şahin and Beycioğlu, 2019; Keçe and Dinç, 2015; Tutkun and Genç, 2013), there was no scale for determining the democracy levels of teacher candidates in the literature. Since there is no scale for determining the democracy levels of teacher candidates, it can be said that this single-factor scale with 17 items will make a significant contribution to the field. The findings obtained from the validity and reliability studies conducted during the research revealed that the scale is a valid and reliable measurement tool that can be used in determining the democracy levels of teacher candidates. In this context, this scale is expected to reveal a different perspective for researchers in the studies conducted to determine the democracy levels of teacher candidates.

The democracy levels of teacher candidates can be determined with the scale developed as a result of this study, which aims to develop a scale for determining the democracy levels of teacher candidates. Thus, it can be said that this scale is important throughout the teaching profession of teacher candidates after their undergraduate education. From this point of view, it can be predicted that the future teachers will be able to realize democracy in their classroom practices and in their relations with the stakeholders of the school. In this context, it is expected that this scale will contribute to the education systems in putting democracy into practice. In addition, it is thought that this study will be a big step for future teachers to gain a democratic attitude, which is one of the most important steps of effective teaching method.

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The Views and the Effects of Materialist Philosophy and Socialist Ideology on Curriculums and Educational Administration

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Abstract
Materialist philosophy and socialist ideology are philosophical and ideological approaches that have deep influence and traces in public life practice. Along with the social, economic, and political fields, the field of education has been deeply influenced by materialist philosophy and socialist ideology in certain contexts. Main purpose of this study is to examine the effects of materialist philosophy and socialist ideology on the curriculum, educational administration and economic-political dimensions. The study is a systematic review study based on the review of the literature. It is aimed to synthesize the views and effects on education management with educational programs by making a systematic compilation of works on materialist philosophy, socialist ideology and education. The data of the study have been analyzed using content analysis. As a result of the study; considering perspective of materialist philosophy and socialist ideology on education, it is observed that theoretical humanistic values are generally advocated. However, many differences between theory and practice are observed in materialist philosophy and socialist ideology-related practices. In terms of curriculum dimension, materialist philosophy is important in terms of contributing to the creation of a new educational philosophy rather than being a direct educational philosophy. Considering social, political and economic dimensions; it can be stated that materialist philosophy and socialist ideology direct the liberal capitalist world towards social policies. In the research, it is suggested that researches should be conducted to examine the effects of different philosophies and ideologies on the curriculum and management of education.

Keywords: Curriculum, Educational Administration, Materialist Philosophy, Socialist Ideology

1. Introduction

Materialist philosophy and socialist ideology draw attention with their roots and influences on social, economic and political life. The effect of materialist philosophy, which dates back to the Ancient Greek civilization, on the social, economic and political universe has always been very controversial and vivid. An important difference of

materialist philosophy from other philosophies is that it has been transformed into a paradigm that leads the socio-economic and political processes and into a manifesto by many political groups and taken as guide in practice by its followers. In the historical development process, the undeniable effect of dialectical materialism on the world's political life is obvious, as it is an intellectual source for socialist ideology (Heywood, 2019; Fulcher & Scott, 2011). In this context, it can be said that materialism has turned into a body of thought, theory and ideology which offers an alternative interpretation of almost every issue, problem and situation from sociology to education, from politics to economy. Accordingly, it is, for instance, the intellectual source of the confrontational approach in sociology and has played a guiding role in politics especially for left and socialist parties for many years. In the field of education, it has offered a ground for many approaches and practices such as polytechnics and radical critical pedagogy.

"Maddecilik" and "özdekçilik" are used to mean *materialism* in Turkish. However, in general, it is observed that the concept of materialist has other implications in Turkish society. It is possible to collect these alternative meanings in two main groups. Materialism, with its meaning in the first group, carries a philosophical value. With the second meaning, it is observed that it is generally used by conservative circles to refer people who attach importance to material things (Akarsu, 2010).

Materialist philosophy derives its theoretical support entirely from the materialist theory of knowledge considering its meaning in the first group. It is the world view that sees the essence and basis of all kinds of reality not only objective, but also spiritual reality, in matter and claims that matter is the only substance. Materialism is a system of philosophical theory which argues that nothing exists except matter and its movements and changes. Those who adopt this view are called *"materialist," "maddeci"* or *"özdekçi"* (Akarsu, 1988, p.144).

The second meaning, or the meaning in popular culture, implies to be materialistic rather than spiritualist. In a sense, it is used to mean to attach more importance to material beings and physical comfort than spiritual values. The view which asserts that only matter is real; nothing exists other than matter and changes of matter; and existence can only be manifested in terms of matter adopts the understanding of existence advocating that matter is the only or fundamental component of the universe (Cevizci, 2000, p. 629). According to this understanding, which generally originates from a conservative or belief-based worldview, it is impossible to explain the functioning of the universe with a purely materialist approach. This perspective, which is based on the opposition of materialism and positivism, is, in a sense, conservative view which has a negative attitude against these approaches (Aybek, 2020).

The view of the materialist philosophy on the relations of social structure can be summarized as follows: It is possible to analyze the materialist philosophy in the historical process in the forms of First Age (Ancient) Materialism, Mechanical Materialism and Dialectical Materialism. Thales, one of the ancient materialists, considers the archaea of the universe as "unchanging." On the other hand, according to Herakletious, another thinker of the First Age (Ancient) Materialism, being arises from "Fire" which is in the form of matter and the fire changes everything and the universe by burning and demolishing everything. Mechanical materialism, on the other hand, argues that the real being in the universe is formed by matter and material existence (Cücen, 2012, p. 230-231). The most mentioned type of materialism, which has gone through various stages in the historical development process, is Dialectical Materialist philosophy.

It is a fact that materialist philosophy has gained a place as a movement in the social, economic and political areas rather than a philosophy. Some characteristics of this approach, which is in the form of Marxist or confrontational approach in the sociology literature, can be listed as follows: Societies consist of classes that are formed based on ownership of the means of production. According to Marx, the main determinant of the social class phenomenon is the ownership of the means of production and accordingly, two classes exist in the society as those who have the means of production and those who do not (Khilav, 2021). For example, in the capitalist society after the industrial revolution, those who owned capital, that is, capitalists formed the ruling class while the proletariat became the lower socioeconomic stratum. According to Marx, capitalism is essentially a class order in which class relations are characterized by conflict (Giddens, 2006). According to Marks, while

infrastructure is defined by economics-based concepts such as means of production, production forces, and relations of production; superstructure consists of cultural institutions such as religion, art, philosophy, science and morality (Kızılçelik, 1994). Marx is concerned with the economic domination of one class over another and emphasizes that workers are alienated from the products they produce because they cannot use them, and the work itself is reduced to a form of action merely for wages (Noddings, 2007). Marx defines the state as an instrument for class domination and considers political domination as a reflection of class conflict, arguing that the state will disappear as a classless society emerges (Wallace & Wolf, 2012).

Some of the theses which have been introduced by Karl Marx and his followers have produced different results than envisioned. Marx argued that as industrialization progresses, the exploitation of surplus value would drag workers into misery, but the historical developments have proved this prediction wrong (Sönmez, 2007). Technological growth has not always led to the concentration of property in an increasingly limited number of hands, as Marx argued; joint stock companies which distribute property, stocks, cooperatives, precautions are taken against harmful monopolies, trade unionism which empowers workers to bargain collectively, and social security measures have negated the predictions of Marxism. The effects of the equal and universal voting principle have also not been adequately evaluated. In countries which are governed by a democratic regime, equal and universal voting right pushed the political power to deal with the problems of the broad masses (Doğan, 2004).

It is possible to summarize the features of materialist philosophy in the context of its general fields of study as follows. *Ontologically*, the materialist philosophy suggests that archaea are the constant movement caused by the relationship between contradiction in matter and matter (Sönmez, 2015, p.113). This philosophy also argues that the cause of social phenomena is matter and that change is an inevitable phenomenon. This change is led by a process consisting of thesis, antithesis and synthesis. Materialism has a perspective of rebellious spirit and according to this understanding society is a system of powers that are held together based on the myth adopted about their legitimacy (Scruton, 2015).

Epistemologically, according to materialist philosophy, knowledge is created by the interaction between the dialectic of brain and the dialectic of nature. In materialist philosophy, it is matter that creates spirit and spiritual values, and the spirit without matter can never be observed. Matter exists outside of spirit. Unlike idealists, it is not our ideas that create 'things'; ideas are created from 'things' (Politzer, 2010, p.54).

According to the materialist philosophy, in the *axiological* context, values are in constant change. Values are the products of a reflection of the material world. Materialism, which regards visible and concrete elements as reality, contrasts with idealistic understanding and attitudes. As a matter of fact, it develops a negative attitude towards traditions based on revelation and superstitions and beliefs which are consecrated (Hilav, 2021).

In terms of world of thought, the most important contribution of the materialist philosophy is that it has introduced the dialectical way of thinking. It is possible to express the basic principles of dialectical materialist philosophy as follows: Everything in the universe is mutually interactive and interdependent. Everything changes and transforms. Quantitative accumulations cause qualitative changes over time. A constant struggle of opposites exists in the universe (Politzer, 2010, pp. 57 - 117). It can be said that it is based on the same ground with the theory known as Reflection Theory, since Dialectical materialism considers information as a reflection of reality and thought as a reflection of matter (Hançerlioğlu, 2015). Dialectical materialist movement has enabled large masses to think of events, phenomena or processes differently from the idealistic way of thinking. In addition, it formed the intellectual basis of socialist theory and real socialist practices before and after the first and second world wars. By creating an anti-thesis against capitalism and liberalism in economic life and idealism in philosophy, it has enabled the formation of such conceptions and syntheses as new social democracy and social welfare state.

It has increased the effect of materialism that it has gained a place especially in the political context. Especially in the twentieth century, the discussions and conflicts between different blocs resulted in materialism taking place in their social, economic and political agendas. Theoretical debates between capitalism and socialism, class

struggles, democracy and the development of mass media made it possible for materialism to reach larger audiences.

In the historical process, it is observed that materialism and socialist ideology have had different effects reflected on social life with its social, economic and political aspects. As a matter of fact, Marx and his fellows considered the history of changes in society as the history of class conflicts based on economy within the framework of the materialist understanding of history. Within this framework, Marx not only made an effort to explain the world, but also tried to change the world (Wallace and Wolf 2005). Thus, he proposed the classless society as a solution to capitalism and wanted to liberate people from the yoke of the capitalist system through his thoughts. According to him, the liberation of human beings would only be possible by annihilating all phenomena such as alienation, religion and ideology which prevent self-realization creating a false perception of reality (Yurdakul, 2018). Absolutization of the philosophical view is a mistake that is made about materialism. As a matter of fact, indifferent discussions Lefebvre (2006) emphasize the following views on Marx and dialectical materialism: Dialectical materialism is an open-ended method which constantly feeds on human practice rather than being dogmatic. This can be interpreted as materialism is open to new interpretations and improvement according to the concrete situation.

Materialism also draws attention in the context of its influence on social institutions and processes. In this context, it is possible to say that it has either direct or indirect effects in every field from economic functioning to family, from journalism to media, religion and education. At this point, certain approaches such as radical critical pedagogy, pedagogy of the oppressed, and polytechnic education are also reflections of the dialectical materialist approach in the field of education (İnal, 2020). From this point of view, the following inferences can be made regarding the interaction between polytechnic education and dialectical materialism: Polytechnic education is a trend of education and knowledge, whose history goes back to the ancient materialist philosophers and which understands materialism dialectically. Ancient philosophers Democritus and others, who interpreted the fundamental archaea of the universe, that is, the first or building blocks, as "matter" (atom, air, water, sun, fire, etc.) maintained a stance against idealism by arguing that human beings perceive the universe through senses and reason. Following this basic approach, post-feudal philosophers established relations between matter and motion and regarded natural causes, namely nature itself, as the main cause. The argument of modernism that the knowledge of nature can be obtained for man's well-being through scientific methods as human being is a part of material nature gained strength. Ultimately, Karl Marx formulated the polytechnic education at a historical point where people could socially participate in the production process and have the product of their labor (İnal, 2018).

In the historical process, materialism has changed substantially with the contribution by Karl Marx and Friedrich Engels. Marx and his followers have argued that in order to reveal the rational essence of Hegel's dialectic hidden in the "idealist shell" as "turned upside down," it should be reconsidered on a purely materialist basis. Hegelian dialectics and materialism; It can be stated that Hegelian dialectics and materialism are based on the same ground with reflection theory as both consider information and thought as the reflections of reality and matter, respectively (Thalheimer, 2020). In the historical development process of materialist philosophy, dialectical materialism has emerged over time with the contributions and comments of Marx and Engels. In a theoretical context, a synthesist understanding has been developed by combining the transformational dimension of the dialectic and the materialist interpretation of materialism through dialectical materialism. Thus, **dialectical materialism is enabled to function as a method and a theory** (Suslakov, & Yakovleva, 2017).

In the historical development process; dialectical materialism has served as a guide to social, economic and political readings. In fact, the implications of dialectical materialism regarding both theory and practice have further been developed by Marx and Engels and turned into a manifesto for the development of societies. Dialectical and historical materialism formed the basis of the general theory and methodology of Marxism (Hilav, 2021).

Dialectical materialism has introduced certain basic principles while interpreting events, facts, and life as a whole. It is possible to explain these principles, which are also known as the basic principles of dialectical

materialism or materialist philosophy in the field, as follows: The first is the principle that everything is interconnected. According to this, everything in the universe has a mutual effect and a universal connection and this is considered as a law. The second is the principle of change. According to this principle, everything and every situation are constantly changing. This is also called the law of universal change and uninterrupted development. It can be said that this principle is restatement of Heraclitus' famous saying "the only thing that does not change is change itself." Change is inevitable and it is caused by the struggle of classes, which is the product of the differentiation in production styles and relations (Altuntaş, 2015). The third principle is that quantitative changes cause qualitative changes in the universe. An example of this is the evaporation of the heated water when it reaches 100 degrees Celsius. Heated water is water, but it is vapor reaching one hundred degrees Celsius and its quality has changed. The fourth principle is the unity of opposites and the struggle of opposites. It refers to the coexistence of opposites such as life and death; good or bad in life. For example, it can be said that, in political life, democracy means democratic rights and freedoms for the bourgeoisie but authority for the workers. Likewise, according to socialist theory, socialism means democracy for the workers and authority for the former rulers and bourgeoisies (Politzer, 2010).

Socialist and Marxist theory grounds on interpreting social change according to production relations. At this point, social political systems are formed according to ownership of the means of production. Societies in the historical development process have experienced different society forms based on production relations and social and economic structures. In this context, societies left behind the stages of primitive communal society, slave society, feudal society and capitalist society. According to Marxism, following the capitalist society which has emerged after the industrial revolution, societies will reach the stages of classless society as communist society and socialist society. According to socialist theory, production is social, but property is individual in capitalism. In this context, the basic variable in the formation of societies is the ownership of the means of production which enable production to occur. Socialism will abolish the exploitation of public property and surplus value which the ruling classes acquire. It will achieve this through the working-class state, or in other words, the dictatorship of the proletariat (Heywood, 2019).

According to socialism, societies consist of classes and history is, in a sense, the history of struggle between classes. In societies where the ownership of the means of production is privately owned, capitalist production relations prevail. Conversely, if the means of production belong to the public, social relations of production are defined as socialist relations of production. In capitalist societies, the social class or stratum which owns the means of production exploit the surplus values created by others. The class which owns the means of production is at the same time the ruling, oppressive and exploitative class; the class which cannot own the means of production constitutes the ruled, oppressed and exploited class. The relations between these two classes determine the infrastructure of society (Rejai, 1995, p.90). The main contradiction in capitalist society is between the bourgeoisie, which owns the means of production, and the proletariat as the exploited class.

Socialist theory considers the phenomenon of class not only in terms of its formation but also its function. The concept of class is considered and defined from two angles according to socialist ideology: First, the concept of class can be defined as social categories formed by individuals with common positions. In the second, classes point to a structure formed by cultural and political social actors. Based on these notions, class is defined as a social reality created by individuals who have common positions in production relations. Approaching the subject from this point of view, it is observed that social classes are perceived as both social actors and conflict groups. Members of classes have common interests and goals. These individuals, who also have class consciousness, act in solidarity in achieving their common class goals (Arslan, 2004).

Socialist theory highlights the economic relations of production although it approaches social and economic political events in a holistic manner. According to socialists, the production relations of societies are determined based on the ownership of the means of production. The functioning of social institutions such as family, religion, education, and politics are determined based on production relations (Engels, 2015). In this context, relations of production have a decisive role in family, politics, trade, law and other social relations.

According to socialist ideology, social institutions are not apolitical or supra-class. The state is ideological and the aim of the ideological state is to make the ideology work by making the people adopt and apply the ideology which it has adopted, even if the people are against it. In order to find supporters for its official ideology among the people, the ideological state wants to provide its own legitimacy by running a smear a campaign against previous ideologies and state orders (Althusser, 2016).

Socialist alternatives to the negativities created by capitalist society and production relations are as follows: According to socialists, the way to eliminate exploitation and classes is public property and the working-class state. Socialists justify this view with the argument that socialism will provide real equality, freedom and justice through public property. According to socialism, the working class, in other words, the proletariat will come to power for the abolition of classes and exploitation. Socialism is the order in which the working class comes to power instead of the ruling capitalist class in the capitalist order, the means of production belong to public not private parties, underground and aboveground resources are expropriated, education, health, shelter, which are the most basic human needs, are met free of charge by the state. The general principle and aim of socialism are to receive labor from everyone according to their abilities and distribute value to everyone equally (Renault, Dumenil, & Löwy, 2012).

Critical views on materialist philosophy and socialist ideology can be addressed as follows: In addition to the criticisms made against socialism, criticisms of materialism and dialectical materialism as a philosophical approach draw attention. The most basic criticism of dialectical materialism is that its political aspect dominates over its philosophical approach. The second criticism addresses the law of unity of opposites. For example, it is criticized for not understanding democracy correctly as socialism exemplifies democracy from a materialist perspective as democracy for the bourgeoisie and an authoritarian regime for workers. However, it is stated by democrats and liberals that democracy, especially with its development in the twentieth century, gave important rights and freedoms to all social classes (Heywood, 2019).

The socialist classification of the developmental phases of societies has not worked in practice. Marx and his followers categorize the evolution of societies as primitive communal society, slave, feudal, capitalist and socialist societies, and classless community. Various lines take a critical view of this point. The categorization of the evolution of societies is similarly expressed by all sociologists excluding the stage of capitalist society. However, the categorization suggested by Marx is criticized because the post-capitalist socialist society and classless society prediction are considered wrong (Yayla, 2012).

It is criticized severely that the vision of socialist and classless society is utopian in practice. Socialist society, the fifth stage of the development of societies, did not develop in the direction Marx and Engels stated. The socialist system turned into an authoritarian one-party regime. It can be claimed that the communist society has remained a utopia that cannot find the possibility of realization. On the other hand, Marxists attribute the main reason for the problem to the deviation from Marx's views by socialist administrations (Holz, 2020). As a matter of fact, in the second international, Karl Kautsky and Eduard Bernstein, by criticizing the practices, turned towards democratic socialism or social democracy based on the revision of socialism through reformism. In the following period, the views suggesting reliance on the parliamentary regime and the revision of capitalism gained strength (Tosun, 2016).

Although it can be said that materialism-based studies in the field of education and administration are generally valid, these studies need to be supported with new ones. Undoubtedly, these studies, whose contributions are undeniable, mostly examine philosophical analysis or critical pedagogy and polytechnic education approaches. In general, it is necessary to address the effects of materialism-based polytechnic education and radical critical pedagogy on education originally.

The main purpose of the study is to examine the effects of materialist philosophy and socialist ideology on the curriculum, educational administration and economic-political dimensions.
Depending on this main purpose, answers to the following questions have been sought;

1. What are the effects of materialist philosophy and socialist ideology on the purpose, content-subject, teaching and learning processes; assessment and evaluation dimensions, which are the elements of the curriculum, and how do they affect the curriculum?
2. What are the effects and reflections of materialist philosophy and socialist ideology on the management of education as a social institution?
3. What are the effects of materialist philosophy and socialist ideology on education, in the economic-political dimensions and what are their effects and reflections on education as a social institution?

2. Method

The study is a systematic review based on field study. Field studies are the analysis and synthesis of the subjects based on the documents and the presentation of the results with a critical perspective (Galvan, 2006; Merriam, 1988). The literature reviews provide the integration of knowledge in the field based on analysis and synthesis. In such studies, also known as systematic reviews, it is aimed to synthesize findings, results and evaluations by analyzing two or more studies (Burns & Grove, 2009). Although some weaknesses can be mentioned in the context of scientific research, review studies have a wealth of theoretical debate and intellectual value in order to define general trends and to make broad general inferences (Kaşık, 2015).

In the study, it is aimed to examine the effects of materialist philosophy and socialist ideology on the curriculum, educational administration and economic-political dimensions. For this purpose, a systematic review of the studies which address the views and effects of materialist philosophy and socialist ideology on education has been made. Systematic review studies have five main phases a) description of the research subject; b) scanning key information sources; c) use of primary resources; d) use of secondary resources; e) synthesis of the studies (Gal, Gal, & Borg, 2007).

In the study, the effects of materialist philosophy and socialist ideology have been discussed in terms of *a) curriculum b) management of education; c) effects in the economic-political dimension.* The detailing of the study subject and the phase of pattern creating are summarized in Table 1:

Table 1: Detailing of the study subject and pattern creating

Dimensions of Study Subject	Definition - Explanation - Question
1) The effects of materialist philosophy and socialist ideology on education in the curriculum dimension	What are the effects of materialism on education in the dimensions of the curriculum elements (purpose, content-subject, teaching and learning processes, and assessment and evaluation)? Polytechnic education
2) The views and effects of materialist philosophy and socialist ideology on education in the dimension of educational administration management	What are the effects of materialism on educational administration? Local administration instead of centralization, Struggle for learner and parent to participate in management, self-management Anti-deregulation, advocating unionization and occupational organization Academic and administrative autonomy
3) The effects of materialist philosophy and socialist ideology on education in the economic-political dimension	Opposition to privatization in education, Advocacy of public education, Free education, Marketization of education, Weakening of the externality arguments of education
Interpretation Conclusion Discussion and Suggestions	Results, discussions and recommendations based on findings and determinations

Examining the table, it is observed that the sub-dimensions of purpose, content-subject, teaching and learning processes, measurement and evaluation and polytechnic education are the study subjects. Decentralization, participation in management, organization and autonomy in the dimension of education management; public education, anti-marketization and externality arguments in the economic-political dimension are among the sub-dimensions discussed in the study.

In the second phase, document scanning has been carried out depending on the purpose of the research. During the scanning of the documents, the works were initially themed under the titles of "Materialism or Materialist Philosophy," "Socialism or Socialist Ideology" and "Education." In this context, English and Turkish books, book chapters and articles with these titles or content were scanned using the keywords "Materialism and Education, Socialism and Education, Socialist Ideology and Education, Materialist Philosophy and Education, Polytechnic Education". The tags of the scanned works were removed and as a result, the studies which are accordant with the purposes of the study were handled within the scope of the study.

The data of the study have been analyzed using content analysis, one of the qualitative data analysis methods. In content analysis, it is aimed to reach concepts and relationships which can explain the collected data, rather than directly transferring the data (Yıldırım & Şimşek, 2011, p.223). Creating categories and subcategories in content analysis is critical in terms of correct interpretation and analysis of the content (Kuckartz, 2014). In the study, five educational management, educational philosophy and management field experts independently formed descriptive index in order to determine how the study questions were answered in the selected works. After the experts marked the appropriate theme for each purpose in the coding key based on the descriptive indexes which they created, the comparison of the coding and the reliability study phase started. In the comparison of the coding and reliability phase, the numbers of "agreement" and "disagreement" among the researcher and expert markings were revealed. Research reliability was calculated using the formula of Reliability = agreement / agreement + disagreement, (Miles & Huberman, 1994). According to this calculation, the reliability was found to be 0.84. In the literature, a reliability value of 0.70 and above is considered adequate for the research (Miles & Huberman, 1994).

3. Results

Dimensions, sub-dimensions and the relationships regarding the research are shown in Figure 1:
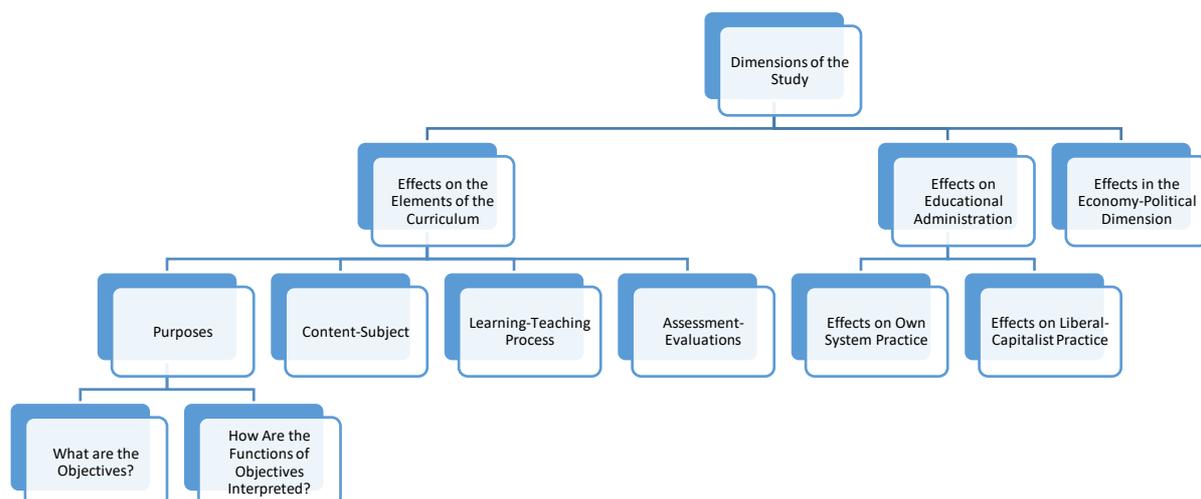
Figure 1: Dimensions of the study

The findings of the study are discussed under three themes as the effects of materialist philosophy and socialist ideology on the elements of curriculum, educational administration, and economy-politics. The effects of the first of these themes on the elements of curriculum consist of the sub-dimensions of objectives, content-subject, learning-teaching process and measurement-evaluation. The effects on educational administration which is the

second theme have been studied in the sub-dimensions of the effects of materialist philosophy and socialist ideology on its own system practice and liberal-capitalist practice.

3.1 Findings Regarding the Effects of the Elements of the Curriculum

The effects of materialist philosophy and socialist ideology on the elements of the curriculum have been studied under the headings of purpose, subject-content, learning-teaching process and assessment and evaluation.

3.1.1 Purpose

The first sub-problem of the study is expressed by the question of "What are the effects of materialism and socialist ideology on the purpose, content-subject, teaching and learning processes and assessment and evaluation dimensions which are the elements of the curriculum and how does it affect the curriculum?" Within the context of the aforesaid question, the dimension of purpose has been examined by dividing into two sub-dimensions: The first dimension is the matter of the purposes of materialist philosophy and materialism-based polytechnic education. The question of how materialist philosophy and socialist ideology generally interpret the functions of purposes in education constitutes the second sub-dimension of the dimension of the elements of the curriculum.

It is possible to make the following inferences about the purposes of materialist philosophy and materialism-based polytechnic education: In the context of curriculums, the intended meaning of purpose is that the focus on behaviors that are aimed for students to gain is essential. In this context, looking at the aims of polytechnic education in general, it can be said that polytechnic education is, in essence, the product of the perspective of education for work within production. The purposes of polytechnic education can be listed as to raise productive individuals, to ensure the unity of theory and practice, to grasp dialectical materialist principles, to ensure production-oriented education processes, to grasp the functioning and principles of the socialist system, to enable education to work as an industrial institution, to know the theories of socialist ideology, to develop behaviors in accordance with the theory-practical integrity, production improving their relationships, acquiring socialist discipline and morality (Sönmez, 2015).

3.1.2 Subject-content

The perspective which is taken as basis in the subject-content dimension of the curriculum of polytechnic schools is production-oriented courses. In this context, the most distinctive feature is that education is considered for production purposes. Contents of the curriculum should serve to application in the subject-content dimension, improve production processes and increase production. Laws of physics, chemistry and biology should be dominant in relation to the basic principles of technology (Aslan & Topçu, 2010). For example, economics, politics, philosophy, physics, chemistry, biology, mathematics, history, art and physical education and particularly technical courses should be taken as a basis.

3.1.3 Learning-teaching process

The materialist understanding of education approaches education in teaching and learning processes with its class essence and aims to ground education on the principles of scientific socialism. Curriculums should be based on the following principles: theory-practice integrity should be included in educational activities. In materialist education, depending on the principle of "education is for production," the school should also be an industrial institution. Collective consciousness should be created in individuals and the habit of working towards production should be developed. Character education should be included in the education environment. Dialectical reasoning should be taught and used by students (Sönmez, 2015, pp. 118-119). Scientific teaching activities should be synthesized. Teaching and learning methods in general education courses should be parallel to technology and production methods (Szaniawski, 1980).

3.1.4 Assessment and evaluation

It can be observed that in materialist education, following approaches are included in the measurement and evaluation dimension: First of all, whether the habit of working for production is acquired and the dialectical materialist way of thinking is understood or not is tested (Sönmez, 2015, p.120). Polytechnic education is a series of productive endeavors which have been revised and edited from a psychological, teaching and

educational point of view. It is an approach that goes beyond the assessment of what is taught in textbooks (Small, 2005).

3.2 Findings Regarding the Effects on the Dimensions of Educational Administration

The second sub-problem of the study is designed based on the questions of "What are the effects of materialist philosophy and socialist ideology on the educational administration as a social institution and how does it affect education as a social institution, how are their reflections?" In this problem dimension, the findings regarding the effects of materialism on educational administration are examined under two sub-headings. First dimension is the effects of materialist philosophy and socialist ideology on educational administration in its own system practice, and the second dimension as the effects of materialist philosophy and socialist ideology on the liberal capitalist world.

Materialist philosophy and socialist ideology in its system practice of educational administration aim at the adoption of the institutional socialist discipline, socialist democracy or socialist administration style by new generations. In this dimension, severe criticism is directed against the conflict between the theoretical view of materialism and world practice. Polytechnic education is ultimately educational set-ups which aim the production-oriented work of the school within the production process (Blonski, 2003).

The effects of materialist philosophy on the liberal capitalist world can be expressed as follows: Materialists and socialist ideology are of the opinion that education has **class characteristics** and all members of society should be provided with equal opportunities in the access of education as a public right. Materialists and socialist ideology argue that capitalism creates different social classes as a result of the law of unequal development. In this context, considering the opportunities to benefit from it, education is a means of constantly reproducing the system to the disadvantage of the lower social strata and to the advantage of the upper social strata. This is expressed as education reproduces class positions (Ünlü & Somel, 2020). As a matter of fact, Karl Marx expresses that education reproduces social values and structures which are governed according to the interests of the ruling classes, rather than assuming a transformative role in capitalist societies. According to Marx, education is one of the basic systems in the reproduction of an unequal society. According to him; It is against the basic principles of the system that child of a working family, whom he defines as the proletariat, moves up to the upper class through education (Newman, 2013). Critical and radical views, representing an important tradition of research and debate in the social and human sciences, which are the continuation of Marxist theory, underline a similar argument. They claim that changing and transforming roles of education is desirable, education has such a potential, but in capitalist societies, education and school systems cannot fulfill these changing and transforming functions which are expected from them (Yıldırım, 2010).

3.3 Findings Regarding the Effects on the Economy-Political Dimensions

Materialist philosophy and socialist ideology education describe education as a superstructure institution whose functioning is determined by the economic infrastructure. This perspective is, in a sense, the classic and stereotypical understanding of socialist ideology. According to this approach, production relations, which are the interaction of productive forces and production structure, form the infrastructure. Furthermore, education affects institutions and their activities and production processes. All institutions except economics are superstructure institutions and they function according to economic production relations (Politzer, 2010). However, functionalists are opposed to this view. According to the functionalists, all social institutions have their own functions and each of the social institutions is a critical component (Fulcher & Scott, 2011). Thus, a two-way interaction between economic and education processes can be mentioned as determining and affecting (Topses, 2006, p. 40).

Materialist philosophy and socialist ideology advocate public education. Socialists argue that capitalism restricts access to education due to privatization and social differences. They point to the law of private property and unequal development as the root cause of this negativity. Therefore, they especially defend the thesis that

education should be free and public (Council, 2012). It is assumed that lower social strata will benefit from the equality of opportunity thanks to free and public education.

Materialist philosophy and socialist ideology have the opinion that local administration is more effective than central administration. In particular, considering the political arguments in everyday life, it is observed that socialists mostly advocate local government policies. At this point, considering socialist practices in the Soviets, China, Cuba and similar countries and the socialist, communist or democratic socialist party programs in the capitalist system, it is observed that various perspectives exist. In real socialist countries, a single party domination with the understanding of central administration prevails. On the other hand, in the party constitutions of communist, socialist and democratic socialist parties, the understanding of local administration and decentralization is dominant in general (Esen, 2020; Arslan, 2019).

Materialist philosophy and socialist ideology suggest that learners and parents participate in the administration with the perspective of institutional democracy. In this context, they intend to strengthen the struggle with active democratic demands such as self-government. Considering educational practice, they want socialist parties and non-governmental organizations to participate in school administration (Sabuncu, 1985). Another issue which socialists emphasize and frequently underline is university autonomy. At this point, ensuring university autonomy in terms of administrative, financial and academic autonomy is a necessary condition (Bingöl, 2012).

Materialists and socialist ideology advocate anti-deregulation, unionism and professional organization. Especially after the collapse of the Soviets and real socialism, the tendency to employ workers without any regulation has constantly increased in the economic and business life. At this point, socialists are constantly fighting against unlawful and uninsured workforce empğloyement in the fields of work. Socialists also stand by the permanent union organization and professional organization. Considering the first trade union organizations in the field of education in Turkey, it is observed that left, democratic socialist and Marxist groups are dominant (Işıklı, 2005).

One of the effects of materialism and socialist ideology on education in the economic-political dimension is opposition to privatization and marketization of education. In the period after glasnost and perestroika, an intense privatization process was experienced in public services such as education and health, especially in capitalist societies. In this context, especially in the 1990s, capitalism, which was almost alone in the unipolar world, seemed to dominate the whole world with neo-liberal policies (Ercan, 1998). According to socialists, privatization in the fields of education and health has gone against the poor masses of people. Materialism and socialist ideology are against the marketization of education. Socialists are essentially opposed to marketization. For this reason, various institutions and organizations with socialist references are constantly opposed to privatization in education. Educational unions, which take the socialist ideology as reference, are constantly in the struggle against privatization in education (Gök, 2004).

4. Discussion

It is possible to theme the inferences in two dimensions with their positive and negative qualities based on the findings of the study. In this context, the results regarding materialist philosophy and socialist ideology are evaluated in terms of curriculum and educational administration, as well as social-economic and political dimensions (See Figure 2).
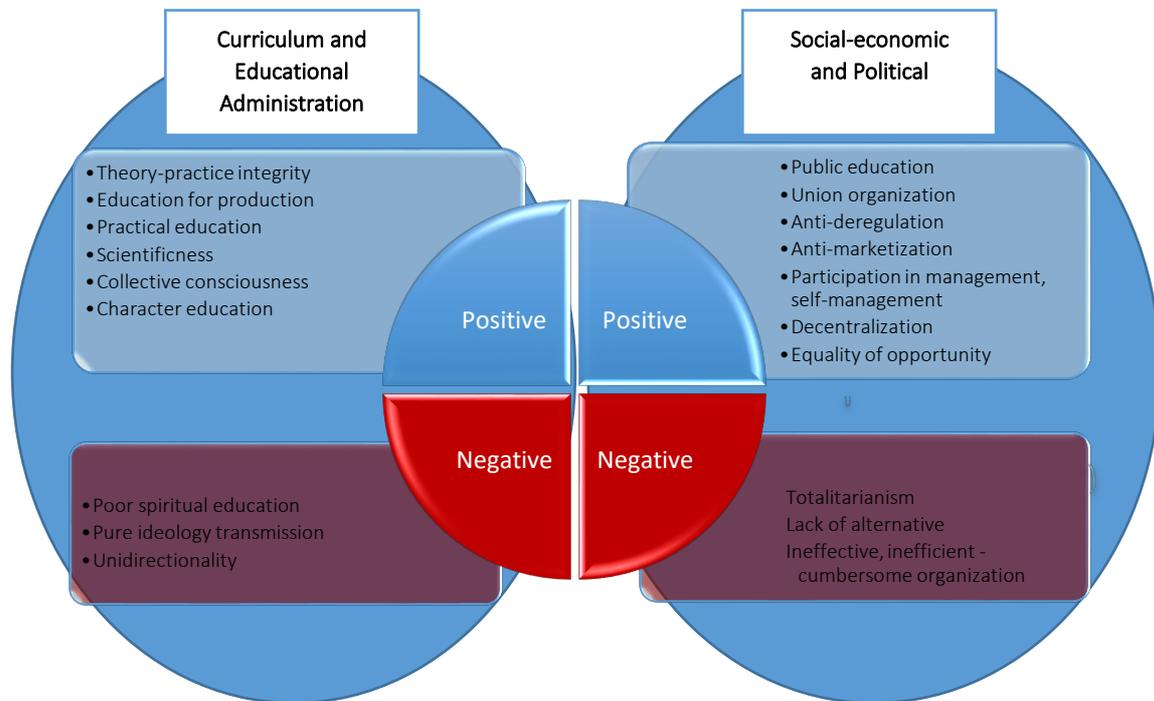
Figure 2: Reflections of materialist philosophy and socialist ideology

Considering the perspectives and reflections of materialist philosophy and socialist ideology on the elements of the curriculum and educational administration; the weakness of spiritual education, ideological absolutist / monist approach, and one-sidedness can be listed among the generally criticized negative qualities. As a matter of fact, the main arguments of materialism are that no reality exists other than matter and the changes in it, and metaphysics has no value even morally. On the other hand, issues such as theory-practice integrity, production-education-application relationship, scientificness, collective consciousness and character education can be considered as strengths in theory and practice.

In the social-economic and political context; totalitarianism, lack of alternative and the very formal organizational structure are described as the weaknesses or negativities of materialist philosophy and socialist ideology. However, issues such as public education, union organization, anti-deregulation and marketization, participation in management and self-management, decentralization and equality of opportunity are considered positive aspects.

It is possible to gather the results obtained from the findings under three main sub-headings: First; these are the results of theoretically expressed materialist philosophy and dominant practices of socialist ideology. Second group includes the results related to the curriculum, that is, pedagogical dimension. The third one is the results of the social, political and economic effects of materialist philosophy and socialist ideology on the educational administration in the capitalist world.

Firstly, considering perspective of materialist philosophy and socialist ideology on education, it is observed that theoretical humanistic values are generally advocated. However, profound differences between theory and practice are observed in materialist philosophy and socialist ideology-related practices. While, theoretically, materialist philosophy and socialist ideology envision participation, equality, public education, equality of opportunity, which are generally regarded positive, it is a reality that they have led to different results in practice. As a matter of fact, Laçiner (2007) stated that the international socialist movement had a severe depression period during the 1970s, the polarization between the Soviet Union and China, the socialist revolutions realized through the military coup as in Afghanistan, the forms of sanctions imposed on the opponents and the negative examples in the field of application of unquestioned real socialism can be given as negative examples.

Secondly; the following results have been reached in terms of the curriculum dimension: first of all, materialist philosophy is important in terms of contributing to the creation of a new educational philosophy rather than being a direct educational philosophy. It can be said that polytechnic education, which is put into practice especially in socialist countries, is a reflection of materialist philosophy in the field of education. In this context, educational processes have a social, economic and political focus and a class nature. On the basis of the materialist philosophy's perspective on education, the dominant view is that education has its class and material essence and that it is related to the economy as a infrastructure institution. This perspective is in harmony with "Material processes and economic processes are the main determinants of education, which is the supra-structural institution, and education transforms into matter, at a certain stage, as consciousness turns into matter" which is suggested by Canbaz (1998, pp. 11-12).

In the third dimension, considering social, political and economic dimensions; it can be stated that materialist philosophy and socialist ideology direct the liberal capitalist world towards social policies. As a matter of fact, many social-dimensional gains and practices such as participation in management, public and free education, and union organization in the liberal capitalist world can be interpreted as the effects of the socialist bloc. According to many intellectuals such as Turşucu (2008), Cem (2010), Güriz (2011), Tosun (2016), social policies function as "insurance" against real socialism for liberalism.

5. Suggestions

In the study, the effects of dialectical materialism and socialist ideology on the curriculum and administration have been investigated. The effects of different philosophies and ideologies on the curriculum and administration can be investigated.
The study has been designed as a document analysis. Other studies can be conducted to determine the views of academicians, experts and teachers on the effects of dialectical materialism and socialist ideology on the curriculum and administration.

In the study, the opposition of materialism and socialist ideology to privatization and the demand for public education have been found. Quantitative and qualitative studies can be conducted on the reasons for opposition to privatization and public education demands. In addition, studies on privatization in education and the reflection of public education on society and its functioning in practice are suggested.

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The Effect of Teaching Science through Storytelling on Students' Academic Achievement, Story Writing Skills and Opinions about Practice

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Abstract
This study aims to compare the effect of storytelling in teaching on students' academic achievement with the traditional teaching method. In addition, it aims to reveal the effect of story education given to students on students' story writing skills and their opinions regarding storytelling in teaching. The study was carried out in a public primary school. The mixed research method was employed in the study. A total of 61 primary school 3rd-grade students, 31 experiments and 30 controls, participated in the study. The "Academic Achievement Test" was applied to the experimental and control group students to collect quantitative data. The journey to the world of living beings unit was taught in the experimental group for four weeks by using the stories prepared by the researcher. At the end of each lesson, the students were asked to write a science story on the subject. The "Story Writing Skills Evaluation Scale" was used to determine the change in the story writing skills of the experimental group students, and the "Student Opinion Form on Storytelling" was used to reveal the students' thoughts about storytelling in teaching activities. The traditional teaching method was used in the control group. The quantitative data used in the study were analyzed using the SPSS statistical software. The qualitative data were analyzed using content analysis. Among the quantitative findings of the study, while there was no significant difference found between the pre-test mean scores of the experimental and control groups achievement test, a significant difference was found between the post-test scores in favor of the experimental group. The other quantitative finding of the study, in the evaluation of story writing skill, a significant difference was found between the first and the last story in favor of the last story. Positive findings were also obtained in the qualitative dimension of the study, such as the experimental group students are not unfamiliar with stories, it is fun for them to use in science lessons, and can be used in other lessons.

Keywords: Storytelling, Science Teaching, Academic Achievement, Writing Skill, Student Opinions

1. Introduction

1.1. Problem Definition

Storytelling in teaching is one of the methods used to embody abstract concepts. It is a technique that uses stories that students have heard from their families and people around them since their childhood. This technique is carried

out by reading the stories that the teacher has prepared in accordance with the subject. The reason behind this method is to provide students with permanent learning rather than giving information by rote (Kaptan & Korkmaz, 1999). With storytelling in teaching, the learning process is spread out in a certain order and over a long period. In this process, the teacher determines the subject, designs the storyline appropriate to the subject, determines the characteristics of heroes in the story, and prepares an interdisciplinary plan aimed at solving the problems of the subject and enabling the student to adapt the process to the problems they may encounter in real life. Students try to solve the problem they encounter in the lesson by using their imagination. Since students are actively involved in the course throughout the process, meaningful learning takes place.

There are many definitions for the story in the literature. The Turkish Language Association defines the story as "the type of writing that tells the fictional or nonfictional events." According to Gökçe (2011), stories are texts written in line with the axis of the event or situation that have a long-lasting and a certain tradition from the past to the present. Parlatır (1998), on the other hand, defined the story as the written or oral narration of real or fictional events. The storytelling technique has been developed in Scotland. This technique is based on making the learned information mentally meaningful by the student and being easily remembered. The storytelling technique utilizes the students' willingness to create a story. Thus, it is ensured that students achieve a sense of responsibility in their individual learning activities (Yiğit & Erdoğan, 2008; Köse & Yıldırım, 2019).

Today, having 21st-century skills is very essential for teachers. The concretization of the concepts to be taught to students is important in terms of meaningful learning. In particular, when primary school children are considered, the fact that many concepts to be taught in the science course are not directly observable by children, making it difficult for them to understand the topics of this course. The inability of students to configure the information given in the lessons correctly in their minds leads to mislearning. Therefore, it is important to benefit from various teaching methods and activities in lessons where difficult concepts are taught. Teaching the lesson with the support of storytelling leads students to concretize the concepts in their minds. According to the constructivist approach, being active in the lesson is essential for students in order to construct knowledge. Based on the fact that the constructivist approach suggests that stories have an important effect on children's learning, in this study, teaching activities were carried out with stories that students are active in the learning process in the light of a constructivist approach. In the study, storytelling in teaching and story-writing activities were carried out together for the active participation of the students. Writing is one of the tools that provides effectiveness in the communication process (Carter, Bishop & Kravits, 2002). In addition, writing is one of the four basic language skills in the Turkish course. Göçer (2016) defines writing as the transfer of one's emotions, dreams, ideas, and experiences on paper. Therefore, the study is generally defined as storytelling activities in teaching.

1.2. The Significance of the Study

Realizing the problems that exist in the stories they read and producing solution ideas improves students' problem-solving skills while creating a different storyline improves their creativity and imagination. Also, the stories support the language development of the students (Turgut & Kışla, 2015). In the literature, it has been stated that when storytelling activities are used in teaching, students feel comfortable, make connections between the information they have learned, can easily recall the learned information later and it is also stated that storytelling is effective on cognitive and affective characteristics (Öztürk & Otluoğlu, 2002).

When the studies examining the effects of storytelling activities in teaching on the academic achievement of students are reviewed, studies that reveal a significant difference in terms of academic achievement are frequently encountered. In the groups where storytelling in teaching activities was carried out, a remarkable difference was obtained in terms of academic achievement as well as meaningful and permanent learning (Yalnız, 2012; Özden, 2012; Arslan, 2014; Ünver, 2015; Külekçi, 2018). Another important aspect of storytelling in teaching is to develop students' imaginations. Students can improve their imagination and creativity by expressing the concepts in their minds. One of the ways to achieve this is for students to write their own stories. Studies involving story-writing activities that will contribute to the development of primary school students' creativity are rare in the literature (Gölcük, 2017). The present study is considered significant in terms of contributing to filling this gap in the literature.

In this study, besides analyzing academic achievement, which has been examined frequently in the literature, the effect and development of story writing skills, which was not examined before at the third grade level of primary school, was examined. Since it is thought it will contribute to the literature and will improve the writing skills of 3rd-grade primary school students, the present study is considered significant.

This study aims to reveal the effect of storytelling in teaching activities on the academic achievement of 3rd-grade students, their attitudes towards the lesson, their development in story writing skills, and their opinions about the process.

In this study, answers to the following questions are sought. These research questions are as follows:

1. Is there a statistically significant difference in the academic achievement of the experimental and control group students before and after the teaching activities?
2. Is there a statistically significant difference in the story writing skills of the experimental group students after the storytelling in teaching activities?
3. What are the experimental group students' opinions about the storytelling in teaching activities after the implementation?

2. Method

Research questions have a very significant role in determining the research method. In some cases, using only qualitative or quantitative research methods alone may not be sufficient to reach the answers to research questions. In this case, the mixed method, which includes both qualitative and quantitative methods, is used. In this study, the mixed research method, in which quantitative and qualitative research methods are used together, was used. The most significant feature of the mixed method is the demonstration of the research results with quantitative data, as well as the explanation of the reasons behind these results with qualitative data (McMillan & Schumacher, 2006).

2.1. Participants

The study was carried out in a public primary school in Gazipaşa district of Antalya province in the spring semester of the 2018-2019 academic year. A total of 61 primary school third-grade students, 31 experiments and 30 controls, participated in the study. In the quasi-experimental method, the sampling can be selected from easily accessible and feasible units. The convenience sampling method was used in the study.

2.2. Research Process

The study was initiated after prior necessary permissions were obtained from the Directorate of National Education and Alanya Alaaddin Keykubat University Ethics Committee (Table 1).

Table 1: Implementation Process of the Study

Weeks	Experimental Group	Control Group
Week 1 14.03.2019	Academic Achievement Test Lecture with interactive smartboard	Academic Achievement Test Lecture with interactive smartboard
Week 2 18.03.2019	"Word Game" Activity "Envisaged your story" activity "List Writing" Activity "Story mise-en-scene" Activity	Lecture with interactive smartboard Teacher guide book Question-answer technique Topics summary
Week 3 19.03.2019	"Story Types" Activity "Story Sections" Activity "Bright Ideas House" Activity "Story Completion" Activity	Lecture with interactive smartboard Teacher guide book Question-answer technique Topics summary
Week 4 25.03.2019	Lecture with interactive smartboard Story Reading	Lecture with interactive smartboard Teacher guide book

	Or Am I Alive Too?	Question-answer technique
	Story Writing Exercise	Topics summary
	Lecture with interactive smartboard	Lecture with interactive smartboard
Week 5	Story Reading	Teacher guide book
04.04.2019	Adventurous Friends	Question-answer technique
	Story Writing Exercise	Topics summary
	Lecture with interactive smartboard	Lecture with interactive smartboard
Week 6	Story Reading	Teacher guide book
11.04.2019	There Is No Other World I Can Live In	Question-answer technique
	Story Writing Exercise	Topics summary
	Lecture with interactive smartboard	Lecture with interactive smartboard
Week 7	Story Reading	Teacher guide book
18.04.2019	Little Seed Became a Giant Tree	Question-answer technique
	Story Writing Exercise	Topics summary
	Story Reading Activity	Lecture with interactive smartboard
Week 8	Fun Science Stories	Teacher guide book
25.04.2019	Filling out the "My Book" Form	Question-answer technique
	Lecture with interactive smartboard	Topics summary
Week 9	Academic Achievement Test	Academic Achievement Test
05.05.2019	Student Opinion Form on Storytelling	Lecture with interactive smartboard
	Lecture with interactive smartboard	

Academic Achievement Test was applied to control and experimental groups. The study covers nine weeks in total. Pre-Tests were applied to the control and experimental groups before the beginning of the study. Then, in the 2nd and 3rd weeks, the experimental group students were given story writing training in Turkish courses within the scope of storytelling activities for 4 hours a week. Story activities for each activity were distributed to all students in the experimental group. In the experimental group, in the 4th, 5th, 6th, and 7th weeks, science lessons were carried out with the stories prepared by the researcher related to the topics and objectives of the related curriculum (Table 2), then the students were asked to write a story about the topic.

Table 2: Stories and Learning Outcomes

Name of the Story	Learning Outcomes
Or Am I Alive Too?	Classifies entities as living and non-living, using examples in their environment.
Adventurous Friends	Identifies the differences between natural and artificial environments.
There Is No Other World I Can Live In	Recognizes the environment in which they live.
	They take an active part in the cleaning of their environment.
Little Seed Became a Giant Tree	Presents the results of observations of the life cycle of a plant.

Picture 1 shows different examples of stories written by students every week in accordance with the learning outcomes.
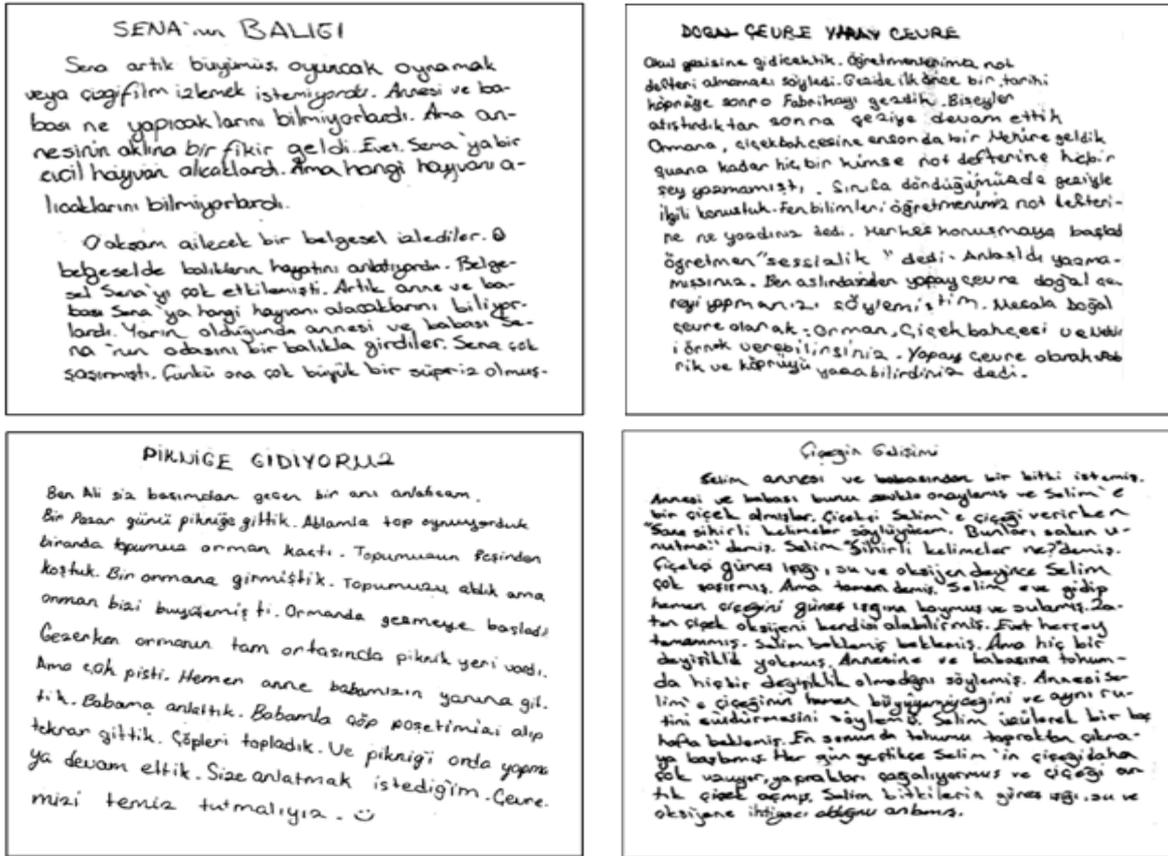
Picture 1: Examples of students' stories

2.3. Data Collection Tools

This section presents the data collection tools used in the implementation process of the study. In this study, quantitative data were collected using the "Academic Achievement Test and Story Writing Skills Evaluation Scale," and qualitative data were collected using "Student Opinion Form on Storytelling." Validity and reliability are two essential features for every measurement tool. Reliability refers to consistently achieving the same result by using the same measurement tool under the same circumstances. Validity refers to the degree to which an instrument accurately measures what it intends to measure without mixing with another feature (Demirali & Ergin, 1995). This section provides detailed information on the validity and reliability of data collection tools.

2.3.1. Academic Achievement Test

The academic achievement test was designed by the researcher in line with the subjects and goals in the curriculum by examining the relevant units of the 3rd-grade science textbooks. In order to determine the appropriateness of the academic achievement test, which consists of 25 items, with the objectives of the "journey to the world of living beings" in the science curriculum, and to ensure its validity, the opinions of two faculty members and two classroom teachers, who are experts in their fields and have worked on biology and science education, were consulted. As a result of the expert opinions, three items were removed from the test. In the pre-application of the academic achievement test, the 22-item test was applied to 48 students studying in the 3rd-grade of a state primary school as a validity and reliability study. After the application, item analysis was performed by calculating the item difficulty and discrimination indices of the data. After calculating the scores the students got from the test, 1 point was given for the correct answers and 0 points for the wrong answers in the test. For item difficulty index, $p = (RU + RL) / 2N$ formula was applied. For item discrimination index, $d=(RU-RL)/N$ formula was applied. (N: 27% of the whole group, RU: The number in the upper group who answered the item correctly, RL: The number in the lower group who answered the item correctly) (Çalık & Ayas, 2003). While evaluating the item discrimination index as a result of the item analysis, the criteria determined by Çalık and Ayas (2003) (Questions with zero or negative item discrimination index should not be included in the test; Questions with an item

discrimination index of 0.40 or higher are very good, do not need to be corrected; Questions with item discrimination index between 0.30-0.40 can be changed or used unchanged in case of necessity; Questions with item discrimination index less than 0.20 should not be used or should be rearranged) were taken into consideration. While evaluating the item difficulty index as a result of the item analysis, the criteria determined by Çalık and Ayas (2003) (Questions with item difficulty index of 0.29 or less: Very difficult; Questions with item difficulty index between 0.30-0.49: Medium difficulty; Questions with item difficulty index between 0.50-0.69: Easy; Questions with an item difficulty index between 0.70-1.00: Very easy) were taken into consideration. Table 3 shows the item analysis results of the academic achievement test consisting of 22 items.

Table 3: Academic achievement test item analysis results (22 items)

Questions	Item difficulty index (Pj)	Item discrimination index (rjx)	Item-Total Correlation Sig. (2-tailed) Value
1	0.87	0.38	0.954
2	0.87	0.38	0.414
3	0.87	0.31	0.360
4	0.89	0.31	0.628
5	0.83	0.31	0.595
6	**0.83**	**0.05**	**0.063***
7	0.72	0.43	0.407
8	0.59	0.81	0.597
9	0.48	0.68	0.241
10	0.85	0.25	0.395
11	0.85	0.44	0.677
12	**0.93**	**0.19**	**0.717**
13	**1.00**	**0.00**	**1.00***
14	0.80	0.25	0.368
15	**0.94**	**0.13**	**0.562**
16	0.85	0.44	0.835
17	0.85	0.31	0.651
18	0.93	0.25	0.927
19	0.87	0.31	0.837
20	0.91	0.25	0.396
21	0.85	0.44	0.703
22	0.78	0.38	0.485
Mean	0.835	0.331	0.675
Kuder-Richardson 20 (KR-20) reliability coefficient: 0.770			

According to the item analysis results, since it was determined that the 6th, 12th, 13th, and 15th questions of the academic achievement test consisting of 22 items, did not have the required item discrimination value, these questions were excluded from the test.

The academic achievement test was finalized with 18 items. Table 4 shows the item analysis results of the academic achievement test consisting of 18 items.

Table 4: Academic achievement test item analysis results (18 items)

	Item difficulty index (Pj)	Item discrimination index (rjx)	Item-Total Correlation Sig. (2-tailed) Value	Kuder-Richardson 20 (KR-20) reliability coefficient
Mean	0.815	0.351	0.675	0.733

As can be seen in Table 4, the KR-20 reliability coefficient of 0.733 shows that the academic achievement test is reliable.

2.3.2. Story Writing Skills Evaluation Scale

The story writing skills evaluation scale was used to determine the change in students' story writing skills. The story writing evaluation scale consists of 9 items with a five-point Likert-type. The ranges are stated as Excellent (5), Complete (4), Good (3), Incomplete (2), Very incomplete (1). The story writing skills evaluation scale was taken from page 184 of the "Traditional-Complementary Assessment and Evaluation Techniques Teacher's Handbook" written by Bahar, Nartgün, Durmuş, and Bıçak (2006). The stories that the experimental group students wrote in accordance with the outcomes at the end of the course during the 4-week implementation process were evaluated according to the "Finding an appropriate title for the text, Integrity in the story, The appropriateness of the description used in the story, Coherence of place, time, person, and events, Eligibility of supporting examples, Order of events according to chronology, Using spelling and punctuation marks, Proper use of Turkish tense and modal suffixes, The originality of the text" criteria of the story writing skills evaluation scale. The opinions of an expert scholar, a science teacher, two classroom teachers, and a Turkish teacher were received to ensure the validity of the assessment tool. The agreement of the opinions of the same experts was checked to determine the reliability of the scale. The correlations between these evaluations were determined by Pearson Correlation Analysis. Table 5 shows Pearson's correlation coefficients, which show the agreement rate between observers regarding the story texts of the students.

Table 5: Pearson's correlation coefficients related to the stories

Finding an appropriate title for the text	r = .94
Integrity in the story	r = .90
The appropriateness of the description used in the story	r= .91
Coherence of place, time, person, and events	r = .92
Eligibility of supporting examples	r = .93
Order of events according to chronology	r = .85
Using spelling and punctuation marks	r = .80
Proper use of Turkish tense and modal suffixes	r = .85
The originality of the text	r = .90

Köklü et al. (2006) stated the ranges in which the correlation coefficient can be found as follows: "If r = 0.00, there is no correlation; r = 0.01-0.29, low correlation; r = 0.30-0.70, moderate correlation; r = 0.71-0.99, high correlation; r = 1.00 perfect correlation." As can be seen in Table 5, the Pearson correlation coefficients obtained as a result of the analysis show that the story writing skill evaluation scale is reliable in basic dimensions.

2.3.3. Student Opinion Form on Storytelling

Opinion forms are a type of data collection tool used to get information about a specific subject, where the researcher conveys the questions prepared by the researcher to the participants and receives their opinions (Yıldırım & Şimşek, 2011). The opinion form consisting of seven questions was prepared by the researcher, taking into account that the students were in the concrete operational period.

1. Have you created a story before?
2. Do you like science lessons being told with stories? Why?
3. Have you been able to establish a relationship between your story and real life? Can you explain with examples?
4. Do you think story writing can improve any of your skills? What are these skills? Why do you think you have improved these skills?
5. What difficulties did you encounter while writing the story? Can you explain? How can these difficulties be solved, what are your suggestions?
6. Would you like to create a story in another lesson? Why?
7. Do you have any suggestions for using storytelling in the Science course? What would you recommend for this method to be more effective?

2.4. Data analysis

Data analysis is presented under the titles of analysis of quantitative data and analysis of qualitative data.

2.4.1. Analysis of quantitative data

The quantitative data obtained from the research were arranged, computerized, and transferred to the SPSS Statistics Software. Whether the experimental and control groups differ statistically before and after the implementation was examined. A t-test for dependent groups is used to determine whether there is a statistically significant difference between the means of two measurements for the same groups. Independent group t-test is used to determine whether there is a statistically significant difference between the means of two measurements for different groups. A hypothesis test was written to determine whether there is a difference between the pre-test and post-test scores of the application within and between groups.

- H0: Experimental Group pre-test = Experimental Group post-test or H0: Experimental Group pre-test= Control Group post-test
- H1: Experimental Group pre-test $\neq$ Experimental Group post-test or H1: Experimental Group pre-test $\neq$ Control Group post-test
- H0 hypothesis: there is no statistically significant difference within or between groups.
- H1 hypothesis: there is a statistically significant difference within or between groups.

Whether the pre-test-post-test difference of the groups showed normal distribution was determined by the Kolmogorov-Smirnov test and evaluated according to the 0.05 significance value. According to Can (2017), if p> 0.05 in significance tests, there is no significant difference; if p≤0.05 there is a significant difference. For the academic achievement test and the attitude scale, in which normality assumption was provided in the evaluation of the scores within the group, the t-test for the dependent groups was performed.

The academic achievement test consisting of 18 items was applied to the groups, and the scores obtained from the achievement test were analyzed in the SPSS statistical analysis software. Table 6 shows the findings of the data obtained.

Table 6: Descriptive statistics values of the academic achievement test

	Experimental Group pre-test	Experimental Group post-test	Control Group pre-test	Control Group post-test
Number of Students	31	31	30	30
Mean	15.54	17.08	14.86	15.36
Median	16.00	17.00	16.00	15.50
Standard deviation	1.679	1.017	2.833	2.321
Kurtosis	-.072	-.906	-.829	-.765
Skewness	-1.128	-.168	-.469	-.142

When the normality test conducted before starting the research is examined, the assumptions are tested. According to the results of the analysis, the kurtosis and skewness values between -2 and +2, as seen in Table 6, indicate that the data are distributed normally (İmrol, Saatçioğlu & Demir 2016). This condition reveals that the experimental and control groups are equal to each other in terms of success.

2.4.2. Analysis of qualitative data

On the qualitative aspect of the study, the content analysis was used to reveal the experimental group students' opinions regarding storytelling in teaching activities. Content analysis provides access to concepts and relationships that can be used to explain the data collected (Gökçe, 2006). While stating the students' comments, a code was created for the students. For example, it was expressed as "according to S1." Themes were determined by combining similar codes. The analysis of student views and stories was conducted by experts in the field to ensure the validity and reliability of the qualitative aspect of the research. The consistency of the codes employed by researchers independently was determined by scoring them as "Agreement" or "Disagreement." The codings that the researchers made the same in the student views were accepted as consensus, and different codings were accepted as disagreement. In cases where the researchers conflicted, the coding was done by taking the separate

opinions of different researchers. The reliability of the research was calculated using the formula of Agreement / (Agreement + Disagreement) x 100. To ensure reliability, the agreement between the researcher and the expert should be 90% and above. (Miles & Huberman, 1994). The mean reliability was found to be 90%.

3. Findings

This section presents the analysis results of the academic achievement test and the story writing skills evaluation scale, quantitative data tools, and the student opinion form on storytelling, the qualitative data tools.

3.1. Is there a statistically significant difference in the academic achievement of the experimental and control group students before and after the instructional activities?

3.1.1. Experimental and control group academic achievement pre-test and post-test findings
Since the difference between the academic achievement pre-test scores of the experimental and control groups provided the assumption of normality, independent groups t-test was conducted (Table 7).

Table 7: Independent groups t-test for academic achievement pre-test data

	Groups	N	Mean	Standard deviation	Dd	t	p
Pre-test	Experiment	31	15.54	1.679	46	1.022	.312
	Control	30	14.86	2.833			

Dd: Degree of dependence p: Significance

As can be seen in Table 7, in the study with a study group of 61 participants, in which the effect of storytelling in science teaching on academic achievement test, independent groups t-test was conducted to determine the change between pre-test scores. As a result of the t-test, it was determined that there was no significant difference between the pre-test (mean pre-test = 15,54) and the post-test (mean post-test = 14.86) scores [t (46) = 1.022 p> 0.05].

Since the difference between the academic achievement post-test scores of the experimental and control groups provided the assumption of normality, independent groups t-test was conducted (Table 8).

Table 8: Independent groups t-test for academic achievement post-test data

	Groups	N	Mean	Standard deviation	Dd	t	p
Post-test	Experiment	31	17.08	1.017	46	3.212	.003
	Control	30	15.36	2.321			

Dd: Degree of dependence p: Significance

As can be seen in Table 8, in the study with a study group of 61 participants, in which the effect of storytelling in science teaching on academic achievement test, independent groups t-test was conducted to determine the change between post-test scores. As a result of the t-test, it was determined that there was a significant difference between the pre-test (mean pre-test = 17,08) and the post-test (mean post-test = 15.36) scores [t (46) = 3,212 p<0,05].

Figure 1 shows the graph of the academic achievement pre-test and post-test total scores of the experimental and control group students.
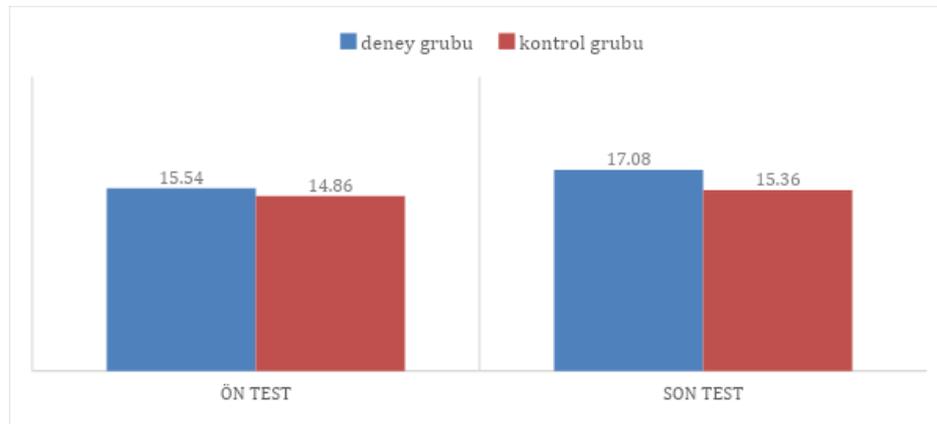
Figure 1: Experimental and control group academic achievement test pre-test and post-test chart
Note. Experimental group, Control group

When the graph is examined, it can be seen that the academic achievement post-test scores of the experimental group students are higher than the pre-test scores, and the academic achievement post-test scores of the control group students are close to the pre-test scores.

3.2 Is there a statistically significant difference in the story writing skills of the experimental group students after the storytelling in teaching activities?

3.2.1.   Findings Regarding the Story Writing Skills Evaluation Scale

Table 9 shows the mean scores for a total of four stories written by the experimental group students every week after the application in accordance with the gains of the topics covered.

Table 9: Experimental group Skill scale story averages

Skills	Story 1	Story 2	Story 3	Story 4
Finding an appropriate title for the text	3.789	3.684	3.8	4.316
Integrity in the story	3.737	3.684	3.8	3.947
The appropriateness of the description used in the story	3.526	3.474	3.8	4.053
Coherence of place, time, person, and events	3.579	3.737	3.85	4.316
Eligibility of supporting examples	3.684	3.579	4	4.263
Order of events according to chronology	3.737	4.053	3.95	4.316
Using spelling and punctuation marks	3.737	3.789	3.8	4.053
Proper use of Turkish tense and modal suffixes	3.842	4.105	3.95	4.158
The originality of the text	3.947	3.947	4	4.368
Mean	3.730889	3.783556	3.883333	4.198889

As can be seen in Table 9, story 1, story 2, and story 3 mean scores are above 3 "good," and the story 4 mean score is above 4 "Complete." It was observed that the skills progressed towards story 2, story 3, and story 4, respectively, in the categories of "Coherence of place, time, person, and events," "Using spelling and punctuation marks," "The originality of the text," "Finding an appropriate title for the text," "Integrity in the story," "Appropriateness of the description used in the story," and "Eligibility of supporting examples." Figure 2 shows the graph of the skill scale mean scores of story 1, story 2, story 3, and story 4, written by the experimental group students.
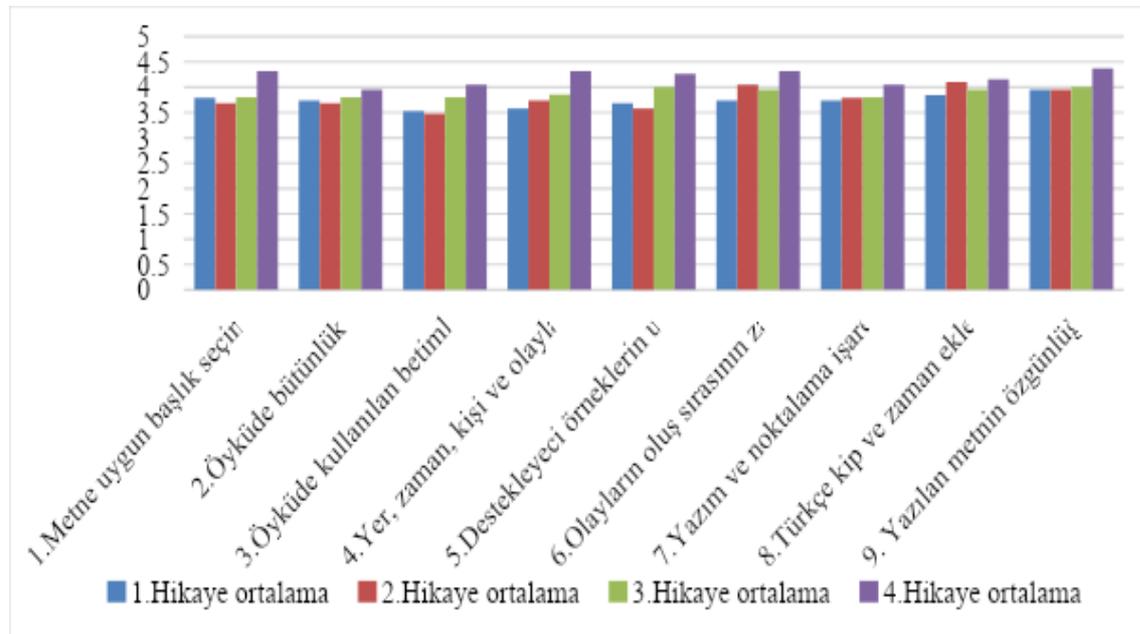
Figure 2: Experimental group story 1, story 2, story 3, and story 4 mean scores

Finding an appropriate title for the text, 2.Integrity in the story, 3. The appropriateness of the description used in the story, 4. Coherence of place, time, person, and events, 5. Eligibility of supporting examples, 6. Order of events according to chronology, 7. Using spelling and punctuation marks, 8. Proper use of Turkish tense and modal suffixes, 9. The originality of the text

Note. 1st story average, 2nd story average, 3rd story average, 4th story average.

Since the story writing skill of the experimental group provides the assumption of normality between the first story and the last story, the dependent group t-Test was conducted (Table 10).

Table 10: Dependent group t-Test for experimental group skill scale

Stories	N	Mean	Standard deviation	Dd	t	p
First story	31	3.78395	.783334	17	-3.223	.005
Last story	31	4.17901	.696645			

As can be seen from Table 10, dependent groups t-Test was used to determine the difference between the first story and final story scores in the experimental group, in which the effects of storytelling in science teaching and story writing training on the change in students' story writing skills were examined. As a result of the t-test, it was determined that there was a significant difference between the pre-test (mean pre-test = 3.78) and the post-test (mean post-test = 4.17) scores [t (21) = -1,319 p <0.05].

3.3 What are the experimental group students' opinions about the implementation after the storytelling in teaching activities?

3.3.1. Student Opinions Findings on Storytelling in Teaching Activities
The "Student Opinion Form" regarding storytelling in teaching activities consists of seven questions. Themes were determined according to the answers given to the questions, student expressions were grouped according to themes, and tables were prepared, supported by frequency data. Content analysis was performed on the data obtained from the form, and the findings were interpreted. In the analysis, students were coded with the letter "S," and direct quotations were included.

Table 11 shows the responses of students to the question "Have you created a story before?"

Table 11: Story creation status of students

Have you created a story before?	Frequency
Yes	29
No	2
Total	31

As can be seen from Table 11, the students (f = 29) who create a story before are in the majority.
Table 12 shows the responses of students to the question "Did you like the science lessons being told with stories? Why?"

Table 12: Student opinions about storytelling in science course

Theme	Code	Frequency
Yes	I had fun	8
	It is a different method	6
	I learned new information	6
	I like stories	5
	My dream world has evolved	4
No	I felt like a Turkish lesson	2
Total		31

As can be seen in Table, the majority of the students (f = 29) stated that they liked the science lesson being told with stories. The students stated that they had fun in the lesson (f = 8), that was a different method (f = 6), they learned new information (f = 6), they liked stories (f = 5), and their imaginations developed (f = 4). One of the students (S1) who made these statements expressed her opinion as follows: "*I liked it because science lessons were previously ordinary, but reading and listening to stories changed the lesson a lot.*" On the other hand, two students stated that they do not want stories to be used in science lessons. The student (S30) expressed his opinion as *"No, I did not like it because I felt like a Turkish lesson."*

Table 13 shows the responses of students, who participated in the interview regarding the use of stories, to the question "Do you think that creating stories developed any personal skills? What are these skills?"

Table 13: Skills that developed with story creation

Theme	Code	Frequency
Mental skills	My imagination developed	13
	It developed my mind	5
	Writing skill	4
	I was able to convey my knowledge	1
Affective skills	I gave up some of my habits	1
	My self-confidence has increased	1
Psychomotor skills	My handwriting has become better	3
	I don't think so	3
Total		31

As can be seen from Table 13, students stated that story-making mostly (f = 24) improved their mental skills. Most of the students stated that their imaginations developed (f = 13), some students stated that it developed their minds (f = 5), their writing skills improved (f = 4), and they could able to convey their knowledge (f = 1). Among the students who made these statements (S3) said: "*Yes, I think so. As we write stories, my evolving skills are self-confidence and gathering my thoughts.*" While (S4) said: "*In short, it improved everything for me. It improved my speaking skills, imagination, story, and so on.*" Under the affective skills theme, one of the students stated that "some of my habits changed" (f = 1), another one stated that "my self-confidence increased" (f = 1). Under the

theme of psychomotor skills, the students stated that their handwriting has improved (f = 3). On the other hand, it was observed that there were students who thought that any of their skills did not change (f = 3).

The students who participated in the interview regarding the use of stories were asked, "What kind of difficulties did you face while creating the story?" Table 14 shows the responses of the students.

Table 14: Difficulties faced while creating a story

Theme	Code	Frequency
Difficulty faced	Story building process	12
	I get tired when I write	3
	I am bored	2
	My handwriting is bad	2
	Character selection	1
	I didn't face any difficulty	11
Total		31

As can be seen in Table 14, most of the students (f = 20) stated that they had difficulties in the process of creating a story. The students mostly stated that they had difficulties in the process of creating stories (f = 12), getting tired while writing (f = 3), getting bored while writing (f = 2), having bad handwriting (f = 2), and choosing characters (f = 1). The student (S4) said: "*I have difficulty writing stories mostly because my handwriting is bad.*" Also, some of the students stated that they did not have any difficulty while writing the story (f = 11).

Table 15 shows the responses of students, who participated in the interview about the use of stories, to the question "Do you have any suggestions for overcoming the difficulties you faced while creating a story?"

Table 15: Students' suggestions to overcome the difficulties

Theme	Code	Frequency
Solution suggestion	I should think more	2
	I have to read more	2
	I have to write more	2
	I have to trust myself	1
	I have to clear my mind	1
Total		8

As can be seen in Table 15, students stated their solution suggestions as think more (f = 2), read more (f = 2), write more (f = 2), self-confidence (f = 1), clear the mind (f = 1). The student (S4) said, *"I need to increase my writing studies."*

Table 16 shows the responses of students, who participated in the interview about the use of stories, to the question "Do you want to create a story in other courses?"

Table 16: Students' opinion on creating a story in other courses.

Theme	Code	Frequency
Yes	I like to write stories	7
	It is entertaining	7
	It makes it easier to learn in other courses.	3
	It develops mind/imagination.	3
	It contributes to the correction of spelling.	1
No	It does not fit other classes.	4
	Writing is tiring	4
	Not liking the stories related to other courses	2
Total		31

As can be seen in Table 16, most of the students (f = 21) want to create stories in other courses too. Regarding the use of storytelling in other courses, students stated that they like to write stories (f = 7), find it entertaining (f = 7), think that it facilitates learning in other lessons (f = 3), think that it improves their imagination (f = 3), and think that it improves their writing (f = 1). On the other hand, some students (f = 10) did not want to create stories in other courses. The students stated that the stories were not suitable for other courses (f = 4), writing stories was tiring (f = 4), and they would not like stories from other lessons (f = 2). Student (S2) said, "*No, because I do not want stories in mathematics, life studies, English and Turkish lessons. I don't like stories about them. I just love science now.*"

Table 17 shows the responses of students to the question "Do you have any suggestions for the effective use of storytelling in science courses?"

Table 17: Students' suggestions for the effective use of storytelling

Code	Frequency
Stories should be exhibited	3
More stories could be written	2
Writing stories with everyone's ideas	2
Hidden concepts within the story can be increased	1
Having teachers who are a good storyteller	1
I did like it	1
Total	12

As can be seen in Table 17, for the effective use of storytelling in courses, students suggest that the stories should be exhibited (f = 3), more story should be written (f = 2), stories should be written with everyone's ideas (f = 2), hidden concepts in the stories should be increased (f = 1), and there should be teachers who are good storytellers (f = 1). The student (S5) stated that *"I wish the stories we wrote were exhibited"*.

4. Discussion

As a result of the data analysis regarding the effect of storytelling in teaching activities on the academic achievement of the students, it was concluded that there was a significant difference in favor of the experimental group at the level of $p < 0.05$, which is considered to be the statistical significance level. Based on this result, it can be stated that storytelling in teaching has a positive effect on student achievement. There are studies that examined the effect of the storytelling method on the academic success of students. In Özden's (2012) study to determine the effect of the storytelling method on the achievements and conceptual learning of 5th-grade students, a significant difference was found, in terms of independent groups t-Test, between the experimental group, in which teaching activities based on storytelling method were applied to 5th-grade students, and the control group, who only participated in the activities in daily teaching plans. Arslan's (2014) study examined the effect of the storytelling method on students' academic success in the 7th-grade Social Studies course and found that the storytelling method had improved the academic success of students. In Unver's (2015) study, which was examined the effect of storytelling technique on the discovery step of the learning cycle teaching model in learning the concepts of the digestive system by 5th-grade students, since the success scores of the experimental group students, where the storytelling technique was used in teaching, were higher than the success scores of the students in the control group, it was determined that the storytelling technique had a positive effect on success. In the study conducted by Doğan (2016), the effect of storytelling technique on teaching concepts in science course was examined, and between the posttest scores of the students' "Academic Achievement Test," a significant difference was determined in favor of the experimental group. It was concluded that the applied teaching method did not have a significant effect on the attitude towards science and technology courses. Köse and Yıldırım (2019) conducted a study to determine the effect of teaching the circulatory system to 6th-grade students in the science course with story-supported in-class activities on academic achievement and permanence, and they determined that the experimental group post-test success scores were higher than the control group and there was a significant difference between

them. Considering the difference in the experimental and control groups, it was concluded that the story-supported classroom activities contributed positively to the students' success in the circulatory system unit and to ensure permanence learning. It has been reported that storytelling in teaching activities in science will make the lessons more productive (Banister & Ryan, 2001; Fensham, 2001). Considering the results of the studies in the literature, the fact that the teaching with the stories caused a significant difference in favor of the experimental group, between the academic achievement posttest scores of the experimental and control groups, supports the result of the study.

The experimental group students, in which the teaching activities with stories were applied, were asked to write a story about the subject every week after the story training was given. At the end of the seven-week process, a significant difference was found in the analysis results to determine the difference in writing skill between the first story and the last story (p <0.05). This finding suggests that storytelling in teaching activities contributes positively to writing skills. The literature supports this finding. In the study of Kayahan (2010), which examined the effect of the storytelling method on creativity in visual arts education, it was determined that the experimental group students produced original ideas with the storytelling method, they look for different names for their works, and the storytelling method contributed positively to the creativity of the students. In the study conducted by Takımcıgil and Özcan (2014), to determine the effect of 4th-grade students' writing motivation on their story writing skills, students were asked to write stories and evaluated using the story writing rubric. As a result of the study, it was determined that female students' motivation to write was higher than male students' motivation, and a significant correlation was found between writing motivation and story writing skill. Bulut Gül (2018) examined the relationship between the story writing skills of primary school 4th-grade students and their problem-posing skills; It was determined that there was a moderate, positive, and significant relationship between the students' problem-posing scores and their free story writing, story writing from visuals, story writing from story map, and story completion scores.

After the storytelling in teaching activities for seven-week, positive findings were obtained in the experimental group students' opinions about the storytelling in teaching activities, such as they had fun in the lessons, their mental skills improved, they wanted to create stories in other lessons, they wanted to exhibit their stories, they wanted to have teachers who are good storytellers, and they had difficulties in the story-making process in general; as a solution suggestion, positive findings were obtained stating that more reading, writing, and thinking is required. When the studies in the literature are examined, the findings obtained from the study are supported. In the study conducted by Kuş (2014), the effect of presenting sections from the life stories of scientists who have contributed to the science of biology on students' attitudes towards biology lessons was examined. Also, data were collected from the experimental group students with a structured interview questionnaire to determine the students' views about the use of this method in lessons. As a result of the data analysis, it was concluded that such practices relaxed the students towards the lessons, save the lesson from ordinariness, and made it more enjoyable. The study of Gönül (2016) aimed to determine students' interests and attitudes towards the lessons by using stories and images in the 4th-grade social studies course. At the end of the application, data were collected with a semi-structured interview form designed by the researcher to determine the students' opinions about the course. In line with the findings, it was concluded that the use of stories and images attracted the attention of the students, and the students gained empathy skills. This situation led to the interpretation that students were excitedly waiting for the social studies course. The study by Gölcük (2017), examined the effects of science education supported by scientific stories on the creativity and affective characteristics of middle school students and the effect of scientific stories on student views; it was concluded that science education supported by scientific stories increases students' interest, curiosity and willingness towards the course, and this method has a structure that is sensitive to the events around it, makes abstract concepts understandable and helps the permanent learning. Similar studies in the literature have shown that storytelling in teaching activities is seen by students as extraordinary, and since it makes the lesson more enjoyable and saves the lesson from ordinariness, they want it to be used more frequently in lessons. Although storytelling in teaching is often used in primary education, it can also be used for students of different levels (Kee & McGovan, 1998; Banister& Ryan, 2001; Pilling, Holman & Waddington, 2001). Since storytelling stimulates emotions in students, science can become more meaningful to them (Banister & Ryan, 2001).

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Participatory Practice "Teach Less, Learn More": A Case of Srikranuanwittayakom School

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Abstract

This research aimed to improve the quality of students in Srikranuanwittayakom School using the concept of *Teach Less, Learn More*. The method used in this study was Participatory Action Research, and there were twenty teachers voluntarily participating. The study had been done in two semesters of the academic year 2020. The three expectations from the development outcomes were: (1) the improvement under the identified indicators: a) teacher performance, b) organizing teaching activities and c) the students characteristic, (2) the researcher, the research participants, and the entire teaching staff learned from practice, and (3) the body of knowledge, which had been obtained from the practice as a foundation theory in this school context. The results of the study revealed three key features. Firstly, the average means of teacher performance, organization of teaching activities, and student characteristics after the 1st and after the 2nd cycles were higher than before the operation. Secondly, after adopting a participatory approach, researchers, co-researchers, and the entire teaching staff learned the importance and benefits of team collaboration. Lastly, the knowledge gained from the practice of this research consists of the ideas and strategies of the following concepts: 1) Expected change, 2) Driving factors for change, 3) Resistance to change and 4) Overcoming resistance drive change. The details of each issue can be used as a model for the students' quality development according to the concept of *Teach Less, Learn More* continuously. Moreover, the concept can be applied to other new conceptual developments.

Keywords: Teach Less, Learn More, Participation, Action Research

Introduction

The National Education Plan 2017 - 2036 defines that a key aim of national education is to focus on the assurance of educational opportunities and equality, employment, and job creation. Our education has been developed within the economic and social context of the country and the world that are driven by innovation and creativity, including dynamism to enable Thailand to overcome the trap of middle-income countries into developed countries. This concept is in line with the provisions of the Constitution of the Kingdom of Thailand National Education Act and national strategy, which aims to develop Thai society into a learning society focusing on creating cooperation to join forces towards sustainable national development under the philosophy of sufficiency economy. The goal is to develop every learner with the characteristics and learning skills of the 21st century. (Office of the Education Council Secretariat, 2017). The content taught should be excellent and skillful, aiming to develop the desired outcomes for the students in the future, such as having advanced thinking processes, being creative, innovative, flexible, and adaptive, having leadership and cross-cultural learning skills, and basic knowledge in various skills. (Hongkhuntot, 2016).

Over the past two decades, there have always been efforts to reform national education, but it is still not successful. In particular, the educational crisis of the new generation of Thais reveals that the learners' knowledge is under standard, and educational achievement is continuously low, as we can see in the results of the Ordinary National Educational Test (O-Net). Moreover, the Programmer for International Students Assessment test (PISA) results show that only 1% of Thai students have science knowledge at a high level. Despite spending more than 8 hours a day learning, 74% of Thai students are still illiterate. They can neither read, comprehend, interpret, nor use the language in other subjects (Thongroj, n.d.). The Education Index by Human Development Report 2011 (UNDP), which was used in the study by Rajpongsa (2016), showed the literacy ranks of 187 countries, which revealed that Thailand was at the 103rd and classified into the low level of human development country group. Whereas the other ASEAN countries, such as Singapore was at the 26th and Brunei was at the 33rd rank. They both are classified into the high level of human development countries. The index illustrated that Singapore had adopted the *Teach Less, Learn More* policy to achieve dramatic education development. The concept of *Teach Less, Learn More* (TLLM) is relevant to Thailand's national education management concept. It is based on the constructivist theory, which lessens the teaching roles in teachers and encourages independent learning roles in students. This educational management concept develops learners to be thinkers and grows knowledge of innovation and creativity to apply it in real life. Therefore, it focuses on efficiency in teaching and learning and preparing students for their living. It is the transition from quantitative educational management to qualitative education management and enables learners to learn effectively and acquire advanced thinking skills (Angkhanaphatkhachorn, 2012).

Srikranuanwittayakom School is located in Kranuan District, Khon Kaen Province. It is a high school for Mathayom Suksa 1 - 6 (Grades 7-12). There were 189 teachers and 2,653 students in the academic year 2020. The school's educational administration vision aims at a) developing the potential of learners with the knowledge, academic skills, life skills, professional skills according to the 21st-century characteristics, b) developing professional teachers and educational personnel, c) developing educational institutions curriculum and providing international standards education, and d) developing an integrated educational management system by coordinating cooperation between educational institutions, parents, communities, organizations and international networks. However, the school's Self-Assessment Report (SAR) revealed that the students needed to improve their skills in creative thinking, critical thinking, self-directing learning, communications, presentation, discussion, reasonable exchanging of knowledge, and appropriate problem solving (Planning Department of Srikranuanwittayakom School, 2018).

In the words of Mr. Tharman Shanmugaratnam, Singapore's Mister of Education said, "The teacher is the heart of "Teach Less, Learn More" (TLLM). TLLM is not a call for "teacher to do less." It is a call to educators to teach better, engage our students, and prepare them for life rather than teaching for tests and examinations. This is why TLLM aims at the core of quality in education. It is about a richer interaction between teacher and student — about touching hearts and engaging minds." (Kagan, n.d.). Moreover, the analysis of 16 scholars' perspectives shows that *"Teach Less, Learn More"* means the implementation of the following 11 concepts: *Student-Centered Learning, Project Based Learning, Problem Based Learning, Learning by Doing, Self-Directing Learning, Learning by Constructivism Theory, Inquiry-Based Learning, Backward Design Learning, Higher Order of Bloom's taxonomy, Lifelong Learning Skills, and Professional Learning Community.*

The 11 concepts are a new paradigm of learning management for 21st-century education. Therefore, as the director of this school, the researcher was interested in improving the quality of students with the concept of "Teach Less, Learn More" by using Participatory Action Research (PAR). PAR is action research in which the researcher and the research participants are involved in working cooperatively and equally. The research method is altered from "on them" to "by them or for them" based on the process of Planning, Acting, Observing, and Reflecting in a spiral cycle movement with infinitely continuous operation. The focus is on the expected sustainable change caused by the commitment and participatory role at all stages.

Research objectives

This research aimed to improve the quality of students with the concept of *Teach Less, Learn More* in Srikranuanwittayakom School. Three development outcomes were expected: (1) the improvement of identified

indicators: (a) the improvement under the identified indicators: a) teacher performance, b) organizing teaching activities and c) the students characteristic, (2) the researcher, the research participants, and the entire teaching staff learned from practice, and (3) the body of knowledge, which had been obtained from the practice as a foundation theory in this school context.

Literature Review

Understanding the theoretical concepts of "Teach less, Learn More" in Participatory Action Research is essential because the researcher must be knowledgeable and theoretical sensitive in the area that the study aims to develop. Therefore, theories can be applied to strengthen the thinking and practice of the research participants effectively. According to the idea that says, "Practice without theory is like a blind person. He cannot go any further, but he can only walk around the old corner.", the researcher, therefore, studied the theoretical concepts of "Teach Less, Learn More" from Aka (2015), Angkhanaphatkhachorn (2012), Buachan (2014), Bus & Neuman (2009), Chalarak (2015), Hongkhuntod (2015), Meeraka (2017), Panich (2012), Prasertsan (2015), Predikul (2015), Pinitphuwadol, Niamhom & Rachapongsa (2016), Rodchuen (n.d.), Sukcharoen (2013), Teo, Deng, Lee, & Lim-Ratnam (2013), Turner, Petkong, Haohan & Mamak (2017), and Waichompoo & Jarachit (2012). The analysis of scholars' perspectives shows that "Teach Less, Learn More" means implementing the 11 concepts. The details are discussed below.

1) *Student-Centered Learning* This concept focuses on allowing students to build their knowledge and solve problems using thinking skills. The learners gain critical and rational thinking skills.

2) *Project Based Learning*   It is a systematic work experience for students, like working in real life. The concept gives students direct experience in solving problems, obtaining actual knowledge rationally, experimenting and proving things themselves, and planning the work as a leader and follower.

3) *Problem-Based Learning* This concept uses problems to motivate students to make assumptions and determine the cause and mechanism of the problem. It includes researching basic knowledge related to the problem and solutions. It aims to encourage students to pursue knowledge to solve problems, make proper decisions, and learn to work as a team.

4) *Learning by Doing* The students can do things by themselves in the natural environment.

5) *Self-Directing Learning* It is a learning process where the learner initiates self-directed learning based on interests, needs, and aptitudes, acquiring learning resources. Learners can choose a learning method and assess their learning progress by themselves or in collaboration with others.

6) *Learning by Constructivism Theory* It is a learning process where students are self-enriched. The teacher is responsible for organizing students to enhance their intellectual structure by setting situations related to prior knowledge and leading to intellectual conflicts.

7) *Inquiry-Based Learning* It may come from thinking, study, experiment, research, or practice independently. The learners then analyze the obtained knowledge to generate new knowledge related to the existing knowledge, such as knowledge in the classroom, knowledge from various sources.

8) *Backward Design Learning* It is learning management that focuses on the desirable characteristics of the learners. Learning assessments are defined with methods, criteria, workloads, inventions, and pieces of work. The results demonstrate an understanding of the standard of learning. The learning is then designed to meet the expected learning outcomes. A learning experience is provided to obtain evidence that emphasizes a deep understanding of the work by allowing the learners to learn to create their knowledge.

9) *Higher-Order thinking skills of Bloom's taxonomy* It is classified into six levels, and all illustrate actions: 1) Remembering –recognizing, listing, describing, identifying, retrieving, naming, locating, and finding 2) Understanding - interpreting, summarizing, inferring, paraphrasing, classifying, comparing, explaining, and exemplifying 3) Applying - implementing, carrying out, using, and executing, 4) Analyzing - comparing, organizing, deconstructing, attributing, outlining, finding, structuring, and integrating, 5) Evaluating - checking, hypothesizing, critiquing, experimenting, judging, testing, detecting, and monitoring, and 6) Creating - designing, constructing, planning, producing, inventing, devising, and making.

10) *Lifelong Learning Skills* It is about knowing how to acquire knowledge without time limitations, leading to continuous personal development. The learners need to have lifelong learning skills: 1) thinking skills consisting of analytical, synthetic, and critical thinking skills. Initiative and creative skills numeracy skills and problem-solving skills, 2) learning skills consisting of information literacy skills, self-directed learning

skills, teamwork, human relations skills, and research skills; and 3) information and communication technology skills, consisting of information technology and communication skills.

11) *Professional Learning Community* It is a collaboration of teachers, administrators, and educators. It is based on the relationship culture with a shared vision, value, goal, and mission to achieve the quality of learning management that emphasizes the success or effectiveness of the learners.

Methodology

There are various scholarly views related to Participatory Action Research (PAR). These concepts share some standard features and express some differences. The researcher adopted the concepts created by Sanrattana (2018), which analyzed from the studies of Arhar, Holly, & Kasten (2001), Carr & Kemmis (1992), Coghlan & Brannick (2007), Creswell (2008), James, Milenkiewicz, & Bucknam (2008), Jantasuriyawong (1985), Kaewthep (1989), Kemmis & McTaggart (1992), McTaggart (1991), McTaggart (2010), and Mills (2007). The essential principle of PAR is bottom-up research, in which the researcher participated in the research with the research participants in a collaborative and equal manner. The researcher changes the role from being passive to active or participant. The research method is altered from "on them" to "by them or for them" based on the process of Planning, Acting, Observing, and Reflecting in a spiral cycle movement with infinitely continuous operation. The focus is on the expected sustainable change caused by the commitment and participatory role at all stages. However, there was a limit on the length of the graduate study program at the university; the researcher had set up two cycles, one cycle for each semester. In the 2020 academic year, 20 voluntary teachers were research participants, and 603 students were targeted for development. The details of each cycle are as follows.

Cycle 1

Step 1 Preparation This step consisted of 3 activities as described below.
1) The researcher clarified the research outline to the research participants to ensure their perception and understanding of the content and method of the research. Their understanding helped them decide to participate in the research voluntarily and willingly according to the code of conduct that said, "The researcher must demonstrate the nature of the research process from the outset including providing suggestions and benefits to the research participants."
2) The researcher and the research participants understand techniques for research such as planning, implementation, observation, recording, and research tool building.
3) Lesson learned process

Step 2 Planning This step consisted of 4 activities as follows:
1) The researcher conducted the brainstorming process based on basic knowledge and experience by asking questions, " How to develop the "Teach Less, Learn More" according to your existing knowledge and experience? What development approaches should be developed and how? ". Based on the principle that said, "The research participants are a stream of experiences with the knowledge and experience accumulated. They are not empty glass, but they have the potential and knowledge. "
2) The researcher presented the theoretical development path to the research participants, " What theoretical views do you want to suggest in order to develop the "Teach Less, Learn More? " It was based on the principle that said the researcher is an academic stream with theoretical knowledge and sensitivity in matters to be developed and to create positive attitudes to the research participants that theory and practice go hand in hand. They are not a parallel that never converges.
3) The researcher conducted brainstorming to converge streams of experience and academics to combine the development path determined by the research participants and the development trend from the theoretical point of view presented by the researcher. It was based on the principle that said, "Practice without theory is like a blind person. He cannot go any far, only walks around the old corner." The result of this activity was an action plan.
4) Lesson learned process.

Step 3 Acting This step aimed to achieve the results of the action plan set out in step 2. It was based on the principle of "Focus on change and actions to achieve results." It consisted of 4 activities as follows.

1) Preparation of achievement evaluation forms for 3 phases: pre-practice, post-practice in cycle 1, and cycle 2
2) Evaluation of current condition (pre-practice in Cycle 1)
3) Implementation of the jointed action plan
4) Lesson learned process

Step 4 Observing This step used different types of research tools to collect information on the results of the operations at this stage.

Step 5 Reflecting The researchers used Kurt Lewin's Force-Field Analysis conceptual framework (Lunenburg & Ornstein, 2000). The analysis covered the following aspects: a) What are the current conditions?, b) What are the desired conditions?; c) What is the force for change? d) what are resistances to change? and e) What are suggestions to increase the force and to reduce the force resistance?. The findings were used for the force improvement in Cycle 2 operation.

Cycle 2

Step 6 Planning It consisted of 2 activities: 1) The researcher and the research participants jointly evaluated and created a new action plan after the revision of performance results from the cycle and 2) conducted the lesson transcription.

Step 7 Acting It consisted of 2 activities: 1) implementing the specified action plan and 2) lesson learned.

Step 8 Observing It was similar to Step 4, using different types of research tools to collect information on the results of the operations at this stage.

Step 9 Reflecting It adopted Kurt Lewin's concept of Force-Field Analysis which was similar to Step 5.

Step 10 Summarizing the performance results in Cycle 1 and Cycle2 It was implementing observations, interviews, audits, notes, assessments, and lessons learned from each step, including the results in step 5 and step 9. According to the objectives set, the researcher and the research participants met in the seminar to conclude the research results. *(See the illustration in the appendix)*

Research instruments

The researcher set the research tools according to the Mills conceptual framework (2007), which was classified into four groups: 1) Observation, 2) In-depth Interview and group interviews, 3) Examining / Record forms such as Journal, Maps, Audiotapes and Videotapes, Artifacts, Field Notes and 4) Evaluation form for the achievement of development.

The researcher and the collaborators played a role in collecting the data at every step using the tools mentioned above. The quantitative data were analyzed by using descriptive statistics, i.e., mean and standard deviation. Inferential statistics are not used because Participatory Action Research is context-specific. It is not experimental research that requires research results from a sample to a population. Qualitative data present events that occurred factually and neutrally of storytelling, supporting evidence including statistics, photographs, and documents.

Research Results

Do the results of the research change according to the given indicators?

The researcher and the research participants implemented an action plan called *"Teach Less, Learn More"*: 1 teacher for 1 innovation" (20 participating teachers, 20 innovations) as follows:

1) Enhancing the Learning Achievement of Mathayom Suksa 4 Students in Thai Language Course; *Niras Narin, The Poem* with The Innovation "HUGNA MODEL.

2) STEAM TO STAR to Develop Academic Achievement, Problem-Solving Skills, and Student Satisfaction in Basic Earth, Astronomy, and Space Course Mathayom Suksa 6 Students.

3) Organizing Learning Activities Using Jigsaw Techniques towards English Reading Skills of Mathayom Suksa 6 Students.

4) Development of English Speaking Ability of Mathayom Suksa 3 Students Using Role Play and Cooperative Learning.

5) The Teaching and Learning about the Surrounding Messages of Mathayom Suksa 1 Students Using A Community Base Through A Sustainable Natural Resource and Environmental Management System.

6) S.K.N.S. MODEL to Develop Essays in The Imaginary World of Mathayomsuksa 6 Students.

7) Development of Teaching Basic Mathematics in Mathayom Suksa 6 Using Math League Teaching Techniques.

8) Development of Mathematics Achievement in Elementary Calculus of Mathayom Suksa 6 Using IC MODEL.

9) The Development of Innovations in The Teaching and Learning of Mathematics: A Linear Permutation of All Different Objects for Mathayom Suksa 1 Students Using CP MODEL.

10) Use of Electronic Books (E-Book) to Promote Biology Class: Transcription and Code Translation for Mathayom Suksa 4 Students Using a Passive Learning Process.

11) Development of Critical Thinking Ability Using LIDA MODEL Learning Management in ASEAN Studies Courses for Mathayom Suksa 5 Students.

12) Development of Magic Vocabulary in English Mathayom Suksa 1 Students by the Teaching Language for Communication.

13) The Development of English Communication Skills of Mathayom Suksa 1/12 Students Using NID Model Concept and CLT Teaching Theory.

14) Management of Learning Using the 5G Model to Develop the Ability to Analyze the Principles of Building Thai Language Words of Mathayom Suksa 5 Students.

15) Development of a Cooperative Learning Activity Plan on The Development of Thai History During the National Reform Period for Mathayom Suksa 3 Students.

16) Organizing Biology Learning Activity on DNA of Mathayom Suksa 4 Students Using a Model-Based Model.

17) Development of a Problem-Based Biology Teaching Management Model in Conjunction with "TONG MODEL" for Mathayom Suksa 6 Students.

18) Cooperative Learning Development Operations Social Studies *North America Religion and Culture* in Mathayom Suksa 3 Students.

19) Biology Instructional Management Ecological of Mathayom Suksa 6 Students with A Predict Observe Explain (POE) Teaching Process.

20) Blended Learning Model to Promote Reading Comprehension Ability of Mathayom Suksa 4 Students.

After implementing the action plan mentioned above, the teacher performance level, the level of organization of teaching activities, and the student's characteristic level were evaluated in 3 phases: pre-practice Cycle 1, post-practice Cycles 1, and 2. The results of the analysis are discussed below.

1. **Comparison of changes in the teacher performance levels in 3 phases: pre-practice Cycle 1 to post-practice Cycles 1 and 2.**

The results of the teacher performance evaluation of 12 identified indicators from 81 participating teachers and school administrators showed that the indicated indicators were improved in every dimension. The comparison illustrated that the pre-practice mean was 2.91 while the means of post-practice in Cycle 1 and Cycle 2 were 4.50

and 4.73, respectively. It was noted that the overall values of Standard Deviation (S.D.) in 3 phases were not high: 0.55, 0.61, and 0.43, respectively, which means that the opinion of the informant was at low variance. The results of the data analysis are shown in Table 1.

Table 1: Comparison of changes in the teacher performance levels in 3 phases: pre-practice Cycle 1 to post-practice Cycles 1 and 2.

Indicators	pre-practice		post-practice Cycle 1		post-practice Cycle 2	
	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.
1. The teacher uses the Student-Centered Learning concept	3.09	0.32	4.52	0.67	4.96	0.19
2. The teacher uses Project Based Learning concept	2.38	0.66	4.33	0.63	4.58	0.57
3. The teacher uses Problem Based Learning concept	3.06	0.24	4.16	0.80	4.43	0.57
4. the teacher uses the Learning by Doing concept	3.40	0.66	4.77	0.43	4.93	0.26
5. The teacher uses the Self-Directing Learning concept	3.15	0.39	4.31	0.74	4.46	0.53
6. The teacher uses the Learning by Constructivism Theory concept	3.22	0.47	4.36	0.68	4.58	0.52
7. The teacher uses the Inquiry-Based Learning concept	2.43	0.81	4.43	0.85	4.78	0.55
8. The teacher uses the Backward Design Learning concept	2.36	0.55	4.79	0.41	4.96	0.19
9. The teacher has Higher Order Thinking Skills of Bloom's taxonomy	2.38	0.70	4.65	0.50	4.84	0.40
10. The teacher has Lifelong Learning Skills	3.31	0.68	4.57	0.55	4.70	0.51
11. The teacher has Professional Learning Community	3.20	0.60	4.64	0.51	4.78	0.45
Overall	**2.91**	**0.55**	**4.50**	**0.61**	**4.73**	**0.43**

2. **Comparison of changes in teaching activities organization levels in 3 phases: pre-practice Cycle 1 to post-practice Cycles 1 and 2.**

The results of teaching activities organization evaluation of 20 identified indicators from 81 participating teachers and school administrators showed that the indicated indicators were improved in every dimension. The comparison illustrated that the pre-practice mean was 2.88 while post-practice in Cycle 1 and Cycle 2 were 4.64 and 4.95, respectively. It was noted that the overall values of Standard Deviation (S.D.) in 3 phases were not high: 0.55, 0.57, and 0.22, respectively, which means that the opinion of the informant was at low variance. The results of the data analysis are shown in Table 2.

Table 2: Comparison of changes in teaching activities organization levels in 3 phases: pre-practice Cycle 1 to post-practice Cycles 1 and 2.

	Indicators	pre-practice		post-practice Cycle 1		post-practice Cycle 2	
		$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.
1	The teacher has detailed knowledge	3.04	0.19	4.69	0.46	4.98	0.16
2	The teacher is enthusiastic about studying teaching and learning theories from books.	3.06	0.33	4.58	0.52	4.93	0.31
3	The teacher spends proper time explaining to students.	2.96	0.56	4.63	0.51	4.89	0.35
4	The teacher has consistent self-development.	3.05	0.27	4.64	0.48	4.95	0.22
5	The teacher makes a proper teaching plan before teaching.	2.75	0.96	4.70	0.46	4.95	0.22
6	The teacher provides questioning and consulting time to students.	3.07	0.38	4.60	0.66	4.96	0.19
7	The teacher maintains a proper image when being with co-workers and students.	3.16	0.56	4.64	0.48	4.98	0.16
8	The teacher has proper relationships with students and their parents.	2.83	0.61	4.72	0.45	4.98	0.16
9	The teacher keeps encouraging and putting effort into students' development.	3.06	0.76	4.72	0.45	4.93	0.26
10	The teacher prioritizes work and does the most important thing.	2.23	0.58	4.38	0.85	4.91	0.28
11	The teacher is confident and relaxed when giving a presentation.	2.83	0.61	4.62	0.77	4.96	0.19
12	The teacher can communicate well.	2.80	0.56	4.53	0.84	4.98	0.16
13	The teacher is always loyal.	2.83	0.61	4.73	0.45	4.88	0.33
14	The teacher pays attention when students interact.	3.00	0.47	4.44	0.84	4.94	0.24
15	The teacher spends time praising students.	3.07	0.38	4.64	0.66	4.91	0.28
16	The teacher is self-confident and can do every kind of work.	2.95	0.52	4.84	0.37	4.96	0.19
17	The teacher can confront any class situation.	2.26	0.65	4.78	0.42	4.90	0.30
18	The teacher is enthusiastic about a responsible job.	2.52	0.69	4.64	0.66	4.98	0.16
19	The teacher can control the class properly.	3.04	0.78	4.73	0.45	4.98	0.16
20	The teacher is creative and has leadership.	3.15	0.63	4.58	0.65	4.98	0.16
	Overall	**2.88**	**0.55**	**4.64**	**0.57**	**4.95**	**0.22**

3. **Comparison of changes in students' characteristic levels in 3 phases: pre-practice Cycle 1 to post-practice Cycles 1 and 2.**

Students' characteristic evaluation of 20 identified indicators from 603 participating students showed that the indicated indicators were improved in every dimension. The comparison illustrated that the pre-practice mean was 2.92 while post-practice in Cycle 1 and Cycle 2 were 4.36 and 4.54, respectively. It was noted that the overall values of Standard Deviation (S.D.) in 3 phases were not high: 0.77, 0.82, and 0.70, respectively, which means

that the opinion of the informant was at low variance. The results of the data analysis are shown in Table 3.

Table 3: Comparison of changes in students' characteristic levels in 3 phases: pre-practice Cycle 1 to post-practice Cycles 1 and 2.

Indicator	pre-practice		post-practice Cycle 1		post-practice Cycle 2	
	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.
1. You have chances to talk to other students.	2.95	2.95	4.40	0.80	4.57	0.67
2. You have chances to talk to other students about the searching and examining methods	2.86	2.86	4.36	0.81	4.53	0.69
3. You can participate in exchanging ideas with others.	2.94	2.94	4.39	0.81	4.59	0.67
4. You can participate in learning with other students in class.	2.95	2.95	4.51	0.77	4.62	0.66
5. You search and collect data by yourself.	2.91	2.91	4.38	0.81	4.55	0.69
6. You search for the answers by yourself.	2.86	2.86	4.29	0.85	4.50	0.70
7. You express your ideas and opinions in class.	2.96	2.96	4.14	0.98	4.28	0.93
8. You practice and think inactivity practicing.	3.02	3.02	4.36	0.85	4.56	0.72
9. You do the activity with your ability happily.	2.97	2.97	4.35	0.85	4.55	0.72
10. You deeply understand how to be the better learner.	3.00	3.00	4.28	0.83	4.52	0.70
11. You interact with your peers as part of the classroom learning, receive help and support from classmates to complete assignments, and/or receive peer feedback to revise assignments.	2.93	2.93	4.47	0.73	4.61	0.60
12. You have the opportunity to demonstrate your work quality assessment while implementing and/or modifying guidelines when facing obstacles in achieving long-term goals.	2.87	2.87	4.34	0.80	4.46	0.72
13. You develop brain potential, including thinking, problem-solving, and applying knowledge.	2.85	2.85	4.31	0.79	4.49	0.69
14. You build knowledge and organize your own learning process.	2.82	2.82	4.33	0.83	4.53	0.71
15. You are involved in learning in terms of knowledge and interaction.	2.86	2.86	4.35	0.82	4.55	0.68
16. The students learn to share responsibility, work discipline. And share duties and responsibilities	2.92	2.92	4.52	0.74	4.56	0.67
17. The teacher organizes activities that create situations for students to read, speak, listen and think.	2.94	2.94	4.36	0.84	4.57	0.70
18. You have developed your thinking process skills to a higher level.	2.90	2.90	4.33	0.82	4.52	0.70
19. Teachers allow learners to maximize their participation in the learning process.	2.94	2.94	4.39	0.81	4.61	0.65
20. There are interactions between students and teachers and students and students.	2.95	2.95	4.40	0.85	4.62	0.70
Overall	**2.92**	**0.77**	**4.36**	**0.82**	**4.54**	**0.70**

What learning from practice aspects did research results generate?

The lessons learned process from each phase of the research revealed that the researcher and the research participants learned the difference in the efficiency of centralized working versus teamwork or cooperative work. We originally used to work alone. However, the research principle on teamwork encouraged everyone to participate and provided the opportunity to act. We realized that working as a team or working as a participant had improved our work. The teachers from other classrooms who were not research participants but had the opportunity to observe the teaching development process realized the importance of improving students' quality by *Teach Less, Learn More*, and bringing this concept into their practice.

What kind of body of knowledge from practices did research results generate?

Coghlan & Brannick (2007) and James, Milenkiewcz, & Bucknam (2008) suggested that Participatory Action Research is specific context research. Therefore, the body of knowledge from the practice in this research is mainly in the context of Srikranuanwittayakom School. It cannot be a reference to other schools. However, the conclusion from lessons learned and reflections processes generated a body of knowledge which is correlated to Kurt Lewin's Force-Field Analysis conceptual framework: *Expected Change, Force for Change, Resistance to Change and Overcome Obstacles* as follows:

1. Expected Change

Expected Change found in the improvements under the identified indicators: 1) teacher performance (12 indicators), 2) organizing teaching activities (20 indicators), and 3) the students characteristic (20 indicators) as shown in Tables 1-3.

2. Force for Change

   2.1 *The concept of development* in this research had been defined as a direction for the researcher and the research participants' collaboration as follows: 1) Everyone must be aware of and perceive the problems and goals of development, 2) Everyone must be involved in collecting and analyzing data to define options and choose best practices, 3) Everyone has to mobilize his / her potential to formulate a fully collaborative action plan, 4) Everyone must be creative in implementing the plan and 5) All performance results are required to be evaluated for continuous improvement.

   2.2 *The strategy for development* in this research had been defined as a framework for the researcher and the research participants as follows: 1) Create a clear understanding of the goals, 2) Have a clear work goal, 3) Have a plan and follow it strictly, 4) Strengthen and support work with prudence, patience, and perseverance, 5) Encourage teamwork with care, determination and responsibility and 6) Establish a method for a performance review to evaluate and lead to further development.

   2.3 This research established *the development path* as a driving force for highly significant change. It is an action plan called *"Teach Less, Learn More"*: 1 teacher 1 innovation with 20 co-teachers and 20 innovations (please refer to the research results item 1).

3. Resistance to Change

Teach Less, Learn More concept itself was the resistance to change because it was a new educational paradigm for the 21st century. It focuses on student-centered learning or active learning. However, teachers, especially older teachers, were familiar with the 20th-century paradigm, such as teacher-centered learning or passive learning. Therefore, it was an evolution from the old paradigm to a new paradigm which was difficult because it depended on the existing attitude, thoughts, beliefs, and behaviors.

4. *Overcome Obstacles*

Even the transition from the old paradigm to the new paradigm was difficult. It was a challenging development to use in the researcher's leadership. Strengthening self-leadership using the concept of Teach Less, Learn More, the researcher focused on creating love and commitment in the profession. In addition, he needed to demonstrate a commitment in the expected direction, inspiration, encouragement, and positive motivation to raise awareness of new ideas that affect the students' quality.

Discussion

The research results generated the improvement of the identified indicators.

The results of the 3 cases evaluations: 1) the teacher performance (12 indicators), 2) the teaching activity organization (20 indicators), and 3) the students characteristic (20 indicators) showed that the overall mean in the post-practice Cycle 1 was higher than the pre-practice's means. Moreover, the post-practice mean in Cycle 2 was higher than in Cycle 1 (as detailed in Table 1-3). Obviously, the implementation of this research had resulted in a more remarkable change in the specified indicator at every stage. The reasons behind the results can be explained as follows:

1) It results from Participatory Action Research which focuses on democratic leadership where researchers and research participants share in a collaborative way. Everyone has an equal status in planning, acting, observing, and reflecting. It is consistent with the other research results adopting a similar research methodology. The examples of those studies are "The Development of Appropriate Digital Classroom at Chandawittyakhom General Buddhist Scripture School" by Suphakitcho, Sanrattana, & Namsiri (2018), "E-Learning Development for Professional Learning Community in Mahamakut Buddhist University, Isan Campus" by Thacha, Phrakrusuteejariyawat, & Pongpinyo (2018), and "Development of a Learning School in Wat Srichan School, Khon Kaen Province" by Chanthago, Phrakrudhammapissamai & Jantaragaroon (2020). It illustrates that the use of Participatory Action Research, which focuses on democratic leadership, has a more significant effect on efficiency and productivity than authoritarian leadership. This is consistent with the view of famous leadership theorists such as Robert Tennenbaum, Warren Schmidt, Rensis Likert, and Ralph Stogdill, among others (Sanrattana, 2012).

2) It is the result of an action plan called *"Teach Less, Learn More: 1 teacher per 1 innovation" (20 co-research teachers, 20 innovations)*. The researcher believed that it was a robust measure of changes. Each research participant followed the principle of participation in working as a team. and needed to adjust themselves to be more creative to produce innovation. The implementation of creative thinking skills affected improvement, which benefited students in many ways. Moreover, Vikas in The Concept School (2020) stated that, "*Increasingly, innovation in education at school is more than just a buzzword. It is fast becoming a way of learning and teaching for both students and teachers, respectively. Innovation in education encourages students and teachers to research, explore, and use all the tools to uncover something new. Innovation involves a different way of looking at problems and solving them. It also improves education because it compels students to use a higher level of thinking to solve complex problems. Innovation does not just mean using technology or new inventions, though these can contribute to innovation. Innovation involves a new way of thinking, thereby helping students develop their creativity and problem-solving skills.*"

The research results generated learning from practice

The lessons learned process from each phase of the research revealed that the researcher and the research participants learned the difference in the efficiency of centralized working versus teamwork or cooperative work. We originally used to work alone. However, the research principle on teamwork encouraged everyone to participate and provided the opportunity to act. We realized that working as a team or working as a participant had improved our work. The teachers from other classrooms who were not research participants but had the opportunity to observe the teaching development process realized the importance of improving students' quality by *Teach Less, Learn More*, and bringing this concept into their practice. This evidence confirms the importance of the word "Action" and "Learning by Doing" or "Phenomenon-based Learning" and "The benefits of having an example are

based on real phenomena." The famous quotes related to this concept are "*Well done is better than well said.*" - Benjamin Franklin, *"You do not write your life with words. . . You write it with actions. What you think is not important. It is only important what you do."* Patrick Ness, *"A lot of people are all talk, what they say and what they do are two different things. As the saying goes, talk is cheap. Without actions behind the talk, it is all useless."* Catherine Pulsifer, and *"If you talk about it, it's a dream, if you envision it, it's possible, but if you schedule it, it's real."* Anthony Robbins. (Words of Wisdom website, n.d.). Therefore, the Participatory Action Research process (with collaborative action) results in learning the effectiveness of working as a team. It is valuable learning and beneficial and affect the change in thinking, attitudes, beliefs, and behaviors of individuals to develop other jobs. Teamwork has many benefits, for example, fosters creativity and learning, blends complementary strengths, builds trust, teaches conflict resolution skills, promotes a wider sense of ownership, and encourages healthy risk-taking." (Mattson, 2017)

The research results generated a body of knowledge from practice.

The research results generated the body of knowledge in the specific context of the Srikranuanwittayakom School, which correlated with Force-Field Analysis by Kurt Lewin. It is a body of knowledge that is consistent with the objectives of Participatory Action Research because this kind of research *"focuses on change and aims to achieve action"* (Sanrattana, 2018). Therefore, action to achieve must take into account at least four components of change management: expected change, the force for change, resistance to change and overcome obstacles.

The knowledge gained from research in these 4 components is the starting point for improving the quality of students with the concept of *Teach Less, Learn More* for better change in the future. James (1964) stated that "Change is not an event, it's a process." Furthermore, the nature of action research is the continuous development of the spiral drill circuit of planning, practice, observation, and reflection. In addition, the nature of the educational administration in schools is never-ending because there are always new students come to study. Therefore, Srikranuanwittayakom School should take the knowledge gained from this research as a starting lesson to enhance students' quality development with the concept of *Teach Less, Learn More*. At the same time, school teachers should be aware of the importance of change. As we can see in the quotes by famous people such as "*To improve is to change; to be perfect is to change often*." - Winston Churchill, *"It's only after you've stepped outside your comfort zone that you begin to change, grow, and transform."* - Roy T. Bennett, *"Change will not come if we wait for some other person, or if we wait for some other time. We are the ones we've been waiting for. We are the change that we seek."* - Barack Obama, *"If we don't change, we don't grow. If we don't grow, we aren't really living."* - Gail Sheehy, *"Not everything that is faced can be changed, but nothing can be changed until it is faced."* - James Baldwin, *"Progress is impossible without change, and those who cannot change their minds cannot change anything."* George Bernard Shaw, *"Nothing happens unless something is moved."* - Albert Einstein, and *"If you don't like something, change it. If you can't change it, change your attitude."* Maya Angelou. (Lagacé, 2021)

Nevertheless, several other challenging issues should be addressed for change in Participatory Action Research. Nowadays, there are many new paradigms for the 21st century, i.e., research-driven, web-driven, global classroom, multiple literacies of the 21st century, and outcome-based learning (Sanrattana, 2013). There are also many skills for teachers such as 1) critical thinking, collaboration, communication, and creativity, 2) information, media, and technology literacy, 3) flexibility, leadership, initiative, productivity, and social skills and 4) connectivity, emotional intelligence, and self-responsibility (Haranaka, 2018). There are also other skills for 21st-century students: 1) creativity and innovation, 2) collaboration and communication, 3) critical thinking & problem solving, 4) global citizens, 5) technology literacy, and 6) lifelong learners (Jones, 2013)

Recommendations

The results of this research are the specific context of the Srikranuanwittayakom School. Therefore, the research recommendations are focused on the application of this school in particular. The learning experience and knowledge gained from this research are used as lessons to further enhance students' quality development with the concept of *Teach Less, Learn More* every academic year. The school should always be aware of the statements

about the nature of change mentioned above. Mr. Tharman Shanmugaratnam, Singapore's Mister of Education who initiated the concept of *Teach Less, Learn More,* stated that "The teacher is the heart of "Teach Less, Learn More" (TLLM). TLLM is not a call for "teacher to do less." It is a call to educators to teach better, engage our students, and prepare them for life rather than teaching for tests and examinations. This is why TLLM really goes to the core of quality in education. It is about a richer interaction between teacher and student — about touching hearts and engaging minds." (Kagan, n.d.) At the same time, it is essential to consider introducing new ideas such as the new paradigm of education for the 21st century, skills for teachers and skills for 21st-century students, and Participatory Action Research to transform schools. However, other schools can then use the findings of this research as a model or as a case study for their development. Coghlan & Brannick (2007) and James, Milenkiewcz, & Bucknam (2008) stated that, "…despite its limited reference and publication, the ideas of participatory action research are applicable for different contexts to generate similar patterns of results…."

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Appendix

Photo of an academic seminar for presenting results and summarizing the research results in the 10th step, which is the final stage of the research.

Emergency Remote Teaching during COVID-19:

A Comparison of Student Perceptions

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Abstract

The pandemic has shaken up the higher education landscape around the world, with responses from institutions falling into three categories: retaining in-class teaching with social distancing, adopting hybrid models (blended learning, limiting the number of students on campus), or transitioning to fully online teaching. However, there is a significant difference between emergency remote teaching and a genuine shift to online/hybrid learning, with the key distinguishing term being "emergency." In response to the global pandemic, the higher education community is now working on the continuous development of action plans in a quest to identify means to manage the crisis more efficiently. The purpose of this paper is to analyze the perceived performance of ERT from the perspective of undergraduate students. For that purpose, samples (n=332) were taken in two different geographical settings, i.e., Thailand and Sweden. Moreover, it is the objective to compare both samples and identify similarities and inadequacies which help stakeholders to manage ERT more efficiently in the future.

Keywords: Emergency Remote Teaching, Higher Education, Virtual Classroom, ERT, Thailand, Sweden

1. Introduction

All research undertaken during the pandemic represents a transient response from instructors and institutions. The sustainability of university education is one of the concerns expressed during the global COVID-19 epidemic. According to Muftahu (2020), the pandemic generated extremely difficult economic conditions that jeopardize university education's long-term viability. He further said that uncertainty and insufficient funding is likely to lead to a lack of support for university courses and potentially jeopardize the long-term viability of higher education. The global COVID-19 pandemic has also brought attention to the need for higher education institutions to develop more adaptable teaching methods (Schlesselman, 2020). The pandemic led all universities around the world to cancel classes, affecting the vast majority of the student population. Some institutions were able to offer remote learning or online education, but the majority of institutions were unprepared to respond quickly and mitigate the effects of COVID-19's absolute lockdown (Hodges et al., 2020; Schlesselman, 2020; Muftahu, 2020). It is the purpose of this paper to share the latest work-in-progress research concerning the perceived performance by undergraduate students concerning emergency remote teaching in two different geographical settings, i.e., Thailand and Sweden, and compare their perceptions.

2. Methodology

2.1. Secondary Data

The sample representing the data collected in Thailand was taken from an earlier study (Fuchs & Karrila, 2021). Henceforth, the data will be referred to as "secondary data" for this paper. The design of the questionnaire, sampling procedure, and data analysis were adopted from Fuchs and Karrila (2021). However, the data was further modified to allow for easier comparison with the empirical data collected in Sweden. These modifications included the removal of responses from students in their fourth and fifth years. The included sample accounts for 174 responses (n^1=174) from Thailand (Table 1).

2.2. Empirical Data

The sample representing the data collected in Sweden was collected from undergraduate students in a full-time business degree program in the second quarter of 2021 during a nationwide lockdown as the result of COVID-19. The collected data will be referred to as "empirical data" for this paper. The design of the questionnaire, sampling procedure, and data analysis were adopted from Fuchs and Karrila (2021) to allow for easier comparison with the secondary data collected in Thailand. The included sample accounts for 158 responses (n^2=158) from Sweden, as shown in Table 1 below.

2.3 Profile of the participants

The aggregate of both samples yielded 332 eligible responses (n_1= 174; n_2= 158) that were included for further analysis in this paper. The corresponding socio-demographic profile of the participants can be found in Table 1.

Table 1: Socio-demographic profile of respondents (summarized from surveys)

Characteristics	Thailand (n_1=174)		Sweden (n_2=158)	
	Absolute	Percent	Absolute	Percent
Gender				
Female	122	70%	76	48%
Male	52	30%	82	52%
Year of study				
First-year	49	28%	83	53%
Second-year	83	48%	49	31%
Third-year	42	24%	26	16%
Age range				
20 years or below	126	72%	90	57%
21 years or above	48	28%	68	43%
Nationality				
Local	149	86%	93	59%
Foreign	25	14%	65	41%
Preferred mode of study				
Traditional Classroom	138	79%	69	44%
Virtual Classroom	36	21%	89	56%

It can be stated that in the Thai sample, seven out of ten students were female, while the sample from Sweden contained an almost balanced distribution of gender (male=52%; female=48%). Additionally, it is noteworthy that the Thai students were younger than their peers in Sweden. In Thailand, 72% were 20 years or younger, while that number was at 57% for the Swedish students. Another notable characteristic is the preferred mode of study, wherein 79% of the students in Thailand prefer an on-site study arrangement with the traditional classroom, while 56% of students in Sweden prefer emergency remote teaching that was conducted fully virtually. Lastly, the ratio of local students to foreign students is higher in Thailand than in Sweden. 14% of the

Thai sample were foreign degree students, whereas three times as many (41%) from the Swedish sample were foreign.

3. Results and Analysis

3.1. Student perceptions about ERT by geography

The results from both surveys can be seen in Table 2, wherein the Thai sample indicates mean ratings ranging from 3.47 (No. 1) to 4.07 (No. 4). In comparison, the results from the Swedish sample range from 2.87 (No. 1) to 4.23 No. 3). Similarly, the distribution of responses from the sample taken in Thailand is narrower, wherein the gap increases with the Swedish sample. The same observation is confirmed by the higher standard deviation (SD) noted in the empirical data compared to the secondary data from Thailand. Furthermore, independent T-tests were performed for each attribute on the assumption that « Mean2 $\neq$ Mean3 », wherein a violation of the assumption was observed for four attributes (No. 1; No. 4; No. 6; No. 10) between both samples. Based on the ten attributes that were surveyed when students were asked to evaluate their perception of the performance of emergency remote teaching, six items ranked higher in Thailand, wherein the remaining four items ranked higher in Sweden.

Table 2: Perceived performance ratings given by students (summarized from surveys)

No.	Attribute Description[1]	Mean[2]	SD[2]	Mean[3]	SD[3]	t-value	p-value
1	The teacher begins the class with a review of the previous class	3.47	1.01	2.87	0.91	-5.714	< .001[a]
2	The teacher presents the material in an interesting and engaging way	3.55	1.06	3.99	1.19	3.573	< .001
3	The teacher presents the material in an organized and coherent way	3.71	1.03	4.23	1.12	4.407	< .001
4	The teacher is knowledgeable about the content of the course	4.07	1.02	3.77	1.23	-2.452	0.015[a]
5	The teacher is friendly and patient with the students	3.97	0.99	3.89	1.08	-0.643	0.520
6	The course material is well and professionally prepared	3.75	1.00	3.59	1.20	-1.363	0.174[a]
7	The course material is easy to access in the LMS	3.84	1.01	3.82	1.11	-0.140	0.888
8	Students are engaged to actively participate in the discussion	3.76	1.00	3.89	1.06	1.127	0.261
9	I am learning something which I consider valuable	3.68	1.05	3.87	1.16	1.557	0.120
10	I am finding the course challenging and stimulating	3.52	1.22	3.44	1.38	-0.522	0.602[a]

[1] *Ratings obtained from a Likert-type five points scale ranging from lowest rating (1) to highest rating (5), i.e.*
Not At All Satisfied (1), Not Very Satisfied (2), Somewhat Satisfied (3), Very Satisfied (4), and Extremely Satisfied (5)
[2] *Mean rating of responses (mean) and standard deviation (SD) calculated from the sample taken in Thailand*
[3] *Mean rating of responses (mean) and standard deviation (SD) calculated from the sample taken in Sweden*
[a] *Levene's test is significant (p < .05), suggesting a violation of the assumption of equal variances*

The largest disagreement between both samples was noted with attribute No. 3, which asked the students to rate the performance about "the teacher presents the material in an organized and coherent way." Students in Sweden gave a relatively high score of 4.23 and the students in Thailand rated this attribute 0.55 points lower, at 3.71. Another noteworthy result is the low mean rating for attribute No. 1, which asked the students if "the teacher

begins the class with a review of the previous class." The responses from the Swedish sample indicate a rating of 2.87 compared to a rating of 3.47 from the Thai sample. Amongst both samples, there is an agreement that this attribute was perceived with the lowest performance in both countries (Table 2).

3.2. Student perceptions about ERT by preferred mode of study

Next, the following graphics visualize the distribution of total responses (n=332) based on the preferred mode of study (Figure 1), as well as the year of study (Figure 2). The same analysis was conducted for gender and age range. However, the former did not reveal any noteworthy results, wherein the latter is correlated to the characteristic year of study and displays similar results. Based on the preferred mode of study, it can be noted that students who prefer the virtual classroom (Figure 1; green line) gave a higher performance rating compared to students that prefer the traditional classroom (Figure 1; blue line). In particular, the attributes "the teacher presents the material interestingly and engagingly" (No. 2) and "the teacher presents the material in an organized and coherent way" (No. 3) received the largest deviations in responses. The students that preferred the virtual classroom expressed that they were very satisfied (4.04 and 4.18 respectively) with how the teacher presented the course material and that the material was presented interestingly and engagingly. Irrespective of their preferred mode of study, both groups of students had a relative agreement with items No. 4, No. 5, and No. 7, where the variance was less or equal to 0.10 (Figure 1). Moreover, it should be mentioned that none of the ten attributes received a mean rating below the neutral threshold, i.e., 3.00, for either group of students. Both groups of students gave the lowest performance rating for item No. 1, which asked about a review of the previous class at the beginning of each lecture. It could either be that the lecturer did not place much emphasis on this aspect, or that this action was merely neglected in both locations by the course instructor.
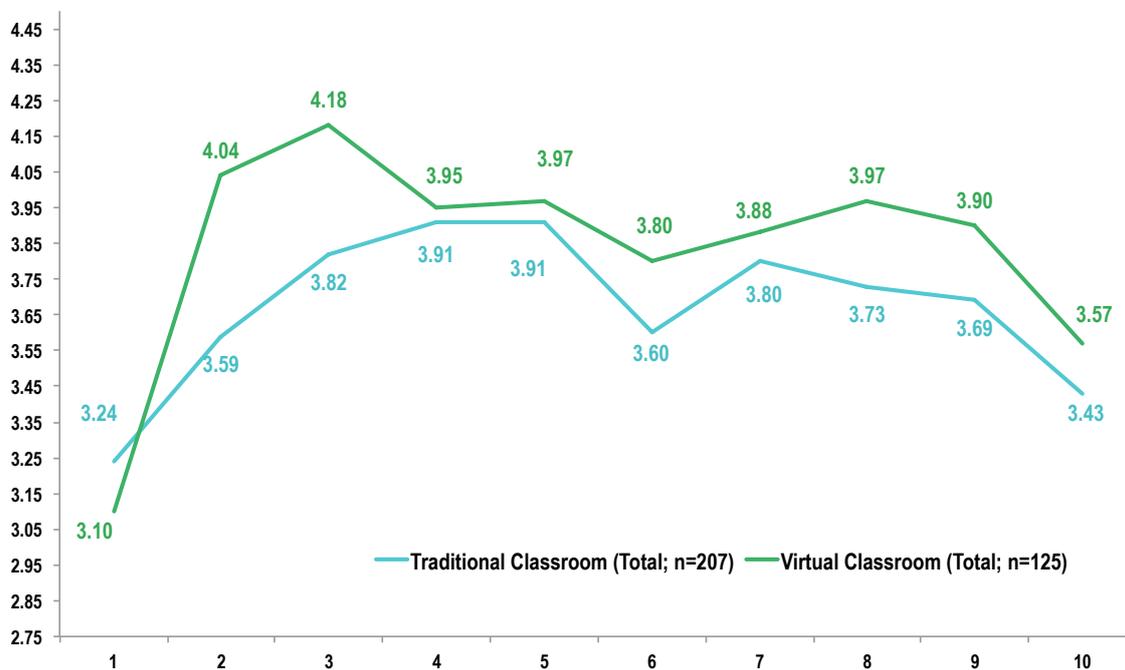
Figure 1: Comparison of responses by preferred mode of study (summarized from surveys)

It can be conclusively stated that both groups of students, regardless of their preferred mode of study, were generally satisfied with the performance of their ERT classes during the COVID-19 pandemic. A similar hypothesis was observed through a related case study, which attested "that students achieved better results under emergency remote teaching" (Iglesias-Pradas, Hernández-García, Chaparro-Peláez, & Prieto, 2021). Iglesias-Pradas et al. (2021) further claim that "the choice of delivery mode did not seem to affect students' academic performance," which is something this paper did not investigate. However, it could serve as a possible explanation for the relatively high approval rating for the virtual classroom by the sampled undergraduate

students in this study. The reasonably high satisfaction amongst both groups of students – those that prefer the virtual classroom as well as those that prefer the traditional classroom –validates similar case studies on emergency remote teaching (Agarwal & Kaushik, 2020) that attest to the high satisfaction of students with the alternative mode of studying.

3.3. Student perceptions about ERT by year of study

Also, there is an agreement amongst multiple attributes when grouping the responses by year of study, as shown in Figure 2. Notably, the perceived performance amongst first-year students ranks the lowest (Figure 2; red line) and increases with the year of study. Based on this observation, it can be hypothesized that students have higher satisfaction with ERT classes as they progress to the next year in their studies. A similar occurrence was already mentioned in a case study that reported first-year students' dissatisfaction with emergency remote teaching due to a lack of socialization and peer interaction (Fuchs, 2021). An Albanian case study (Xhelili et al., 2021) concluded with a noteworthy finding that suggested, "online learning cannot replace the classroom. […] students' are not familiar enough with technology-based education". Based on this finding, paired with the results shown by *the year of study*, it could be theorized that the students become more proficient with digital technologies as they progress in their studies and, therefore, their satisfaction increases with online-based education as seen in Figure 2.

Students in the third year of study rated five out of ten items higher than 4.00, which demonstrates their high satisfaction. In opposition to this sentiment, students in the first year of their study did not rate any attribute above 4.00, while 3.88 (No. 5) was the highest-rated item corresponding to the statement "the teacher is friendly and patient with the students." Another noteworthy observation is that students in the first, second, and third year of study agreed that "the teacher begins the class with a review of the previous class" (No. 1) was perceived with their lowest satisfaction rating amongst all ten attributes. Moreover, all three groups agreed that the teacher presented the class material in an organized and coherent way (No. 3), which is reflected in their respective satisfaction ratings (Year 1 = 3.87; Year 2 = 4.00; Year 3 = 4.03).
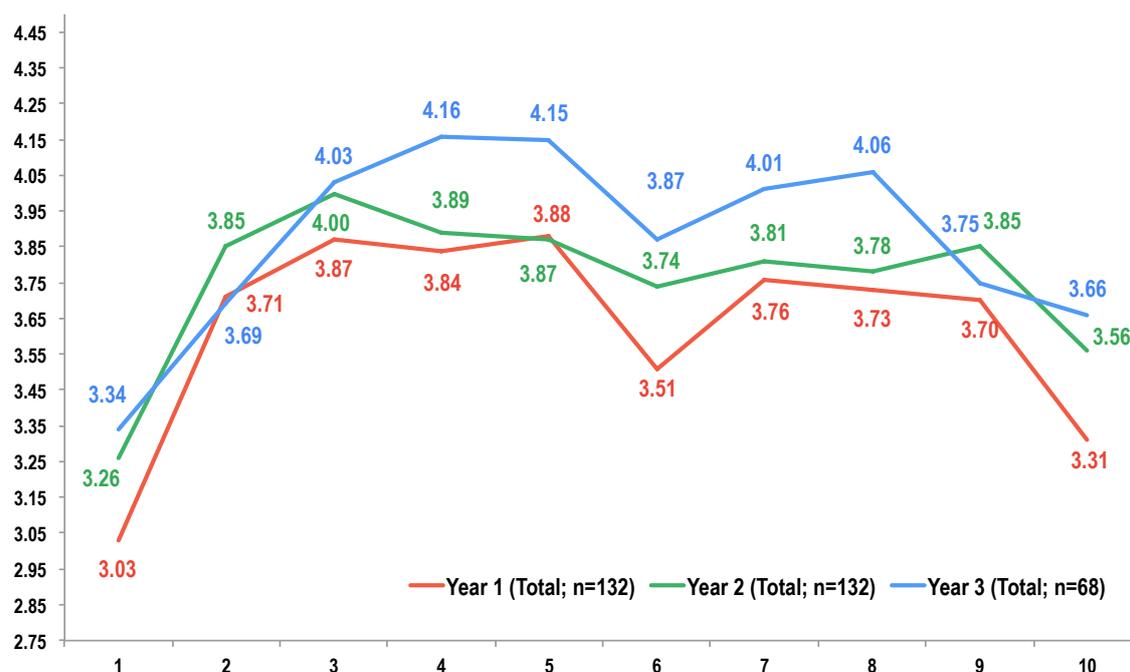

Figure 2: Comparison of responses by year of study (summarized from surveys)

Van Nuland, Hall, and Langley (2020) discovered that "universities are looking to e-learning tools to facilitate what used to be face-to-face laboratory experiences in an online environment" more rapidly due to the ongoing

pandemic. This observation could offer a possible explanation concerning the lower satisfaction ratings amongst students in their earlier studies. Most of the practice-based classes and laboratory exercises are usually held in the first and second year of study, wherein the third year is more theory-based with the development of applied concepts. Notably, none of the student groups gave a very high satisfaction rating for finding the course challenging and stimulating (Year 1 = 3.31; Year 2 = 3.56; Year 3 = 3.66).

4. Conclusion and Future Works

The outcomes that were revealed as the result of this study were threefold: Firstly, students in Thailand and Sweden are generally satisfied with the perceived performance of their respective emergency remote teaching. Furthermore, students that prefer the virtual classroom during ERT gave higher satisfaction ratings compared to students that prefer a traditional classroom arrangement before COVID-19. Finally, first-year students appear to be less satisfied with emergency remote teaching than their older peers. The study revealed that as the year of study progresses, the perceived satisfaction with emergency remote teaching increases. As noted by Barbour et al. (2020) in their technical review about emergency remote teaching, "the threat of COVID-19 has presented some unique challenges for institutions of higher education". Therefore, it is not too farfetched to assume that educators and students wish to move beyond the current impacts of this global pandemic. With little doubt, this is a stressful circumstance and, when it is over, universities will be able to determine how well they were able to apply ERT to maintain instructional continuity. Plenty of research has been conducted over the last months since the initial outbreak of COVID-19 in January 2019. Even though emergency remote teaching does not occur regularly, it is safe to assume that some regions in the world will be confronted with it again at some point in time. This research has raised more questions than it has provided answers. Thus, more research into this issue of student perceptions related to emergency remote teaching should be carried out with the implication to increase the preparedness and quality in the near future.

Acknowledgments

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The Relationship Between Primary School Students' Social Skills and Attitudes towards Social Studies Course and Their Academic Achievement

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Abstract

In the current study, it was aimed to examine the relationship between fourth grade students' social skills, their attitudes towards Social Studies course and their academic achievement. In line with the purpose, the present research adopted a convergent parallel design, one of the mixed type research methods. Quantitative data were collected from 172 fourth grade students who were enrolled in state school in İstanbul. The quantitative phase of the study conducted using 'Social Skills Evaluation Scale' and 'The Attitude Scale Towards Fourth- Grade Social Studies Course.' The qualitative data were collected from 30 students through simple random sampling method. 'Structured Interview Form' was employed in order to collect qualitative data. Analysis of the quantitative data included simple linear regression while the analysis of qualitative data included content analysis. Results showed that social skills and students' attitudes towards Social Studies courses were a low-level, significant and positive predictor of their academic achievement.

Keywords: Social Skill, Attitude, Social Studies, Academic Achievement

1. Introduction

Human beings, as social entities, tend to communicate and establish healthy relationships with others in their surroundings. Accordingly, an individual needs social skills. It may be troublesome for certain individuals to constituting the social adaptation process which is at the bottom of these skills, while it may not for others. According to Karataş (2020), a set of factors such as family atmosphere, personality traits, environment and education play a significant role to develop social skills. These skills do not develop independently; instead, individuals convert their social skills into behaviours, thereby forming a development process. In addition, social skill facilitates the arrangement of educational and instructional activities by measuring behaviours across scales (Bacanlı, 2020). Taking into account the fact that personality is not independent of social skills, it can be posited that this is indeed a favourable criterion to reveal personal traits and social competencies.

The children who are relatively more social entities compared to adults constantly interact with their surroundings. Social skill is regarded as a need in order for the child to develop self- concept. When faced with a problem, the children with high level of social skills can have a wider range of alternatives compared to those with low level of social skills (Samancı and Uçan, 2017). Therefore, providing education towards the acquisition of those skills needed by the children in every step of their lives is considered important. The vitality of social skills acquired during the childhood period is better understood in the coming years of the life.

Social skills, a multidimensional concept, include such abilities to start and maintain a relationship, to collaborate, to control anger, to solve a problem and to have academic skills (Karataş, 2020). These are not separate dimensions, but the structures are complementing one another. Considering that what is learned during childhood period is more permanent, it would be more appropriate to commence social skill education in this period. Social skills are generally acquired during childhood period through imitation and role modelling. However, not just positive behaviours but also negative ones are acquired during this process. For this reason, social skills must be included in curricula instead of expecting random learning. Social skills as well as academic ones play a pivotal role in their lives and lack of those skills causes social incompatibility and low academic achievement (Samancı and Uçan, 2017). Those skills vary significantly based on parental educational level. In this regard, the significance of social skills curricula can be witnessed. It has been seen that social skills curricula foster students' level of social skills (Kam, 2019). The children with high level of social skills are able to adapt more easily to their environment since they have the ability to express their feelings and thoughts in a more comfortable way. This adaptation may affect academic achievement positively. In addition, this adaptation also requires establishing a relationship between the Social Studies course which is one of the main courses where students' social skills are improved and other disciplines.

When looking at Social Studies curriculum, it has been seen that it is aimed to raise individuals who are to follow innovations and developments, produce information, has critical thinking, offers solutions to certain kinds of problems and select the most appropriate one, lives together with the society in harmony and makes contributions to the society (Ministry of National Education, 2018). Furthermore, it has been alleged that the Social Studies curriculum serves for enhancing a set of skills since, only in this way is it possible to raise individuals having those properties. Those skills may undoubtedly be provided through different courses; however, it has been acknowledged that Social Studies, by definition, is highly effective course in order to make individuals acquire social skills (Akbaba and Aksoy, 2019). It can be said that this reflects to individual's attitudes and behaviours.

An individual's attitude as well as his/ her social skill influences his/ her behaviours. An attitude refers to set of positive or negative tendencies towards a particular object, person, thing or event. A positive attitude increases the likelihood of behaviours towards a particular object, person, thing or event whereas a negative attitude reduces. An individual's attitude may develop either in a positive or negative way depending on the environment or social groups s/he lives in. The objective of Social Studies courses is to make students have positive attitudes towards the behaviours approved by the society (Coşkun, 2019). Moreover, individuals' attitudes have an impact on their point of view on the environment and interests. As a result, all those factors play a key role in academic achievement. In order for the objectives to be gained and for the Social Studies course achievement to be increased, it is a must to ensure students to have positive attitudes towards the course. Since social skill and attitude factors can have an effect on academic achievement, it is crucial to measure both levels of effect. Thus, students' academic achievement may be increased by developing certain processes to improve their social skills and attitude. Taken into account the significance of both factors, positive developments can be seen in students' personal lives, communication and adaptation skills through planned activities.

In the related literature, there are not any studies investigating the variables of academic achievement, social skill and attitudes towards the course through mixed method. To gain an in- depth understanding of the topic, this study has been carried out using quantitative and qualitative research methods.

The purpose of the present study is to investigate the relationship between students' attitudes towards Social Studies course, their social skills and academic achievement. In line with this objective, the answers to the following questions have been sought:

1. What is the predictor role of students' social skills on their academic achievement in Social Studies course?
2. What is the predictor role of students' attitudes towards Social Studies course on their academic achievement in Social Studies course?
3. What are the students' feelings and thoughts about Social Studies course?

2. Method

2.1. Research Model

In this research, a convergent parallel design, one of the mixed type research methods was utilized. A convergent parallel design entails that the researcher concurrently conducts the qualitative and quantitative elements in the same phase of the research process, analyses the two components independently and interprets the results together (Creswell and Plano Clark, 2018). 'Mixed methods' is a research method whereby researchers have a broader perspective on research problem (Gültekin, Gürdoğan Bayır and Yaşar, 2020). The convergent parallel design involves the simultaneous collection of qualitative and quantitative data. However, this approach involves independent analyses. The researcher weighs the qualitative and quantitative data equally (Creswell and Plano Clark, 2018). In the present study, the research data were collected simultaneously and were aimed to complement one another. Analysed independently, the qualitative and quantitative data were integrated and interpreted.
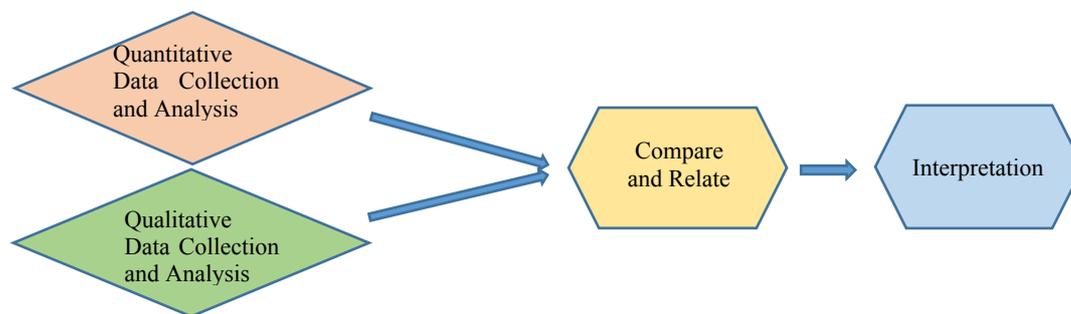
Figure 1: The schematized version of the phases of convergent parallel design (Creswell and Plano Clark, 2015).

2.2. Study Group

Quantitative data were collected from fourth grade students who were enrolled in state school in İstanbul and voluntarily participated (N= 172). Of all the participants, % 44.19 (N=76) were female and % 55.81 (N= 96) were male students. The participants were fourth grade students and their mean age was $\bar{X} = 9.96$. The school where the study was carried out was selected due to the fact that it was easy- accessible and the school management and teachers were voluntary to participate. To gain a micro- size and in- depth understanding, all fourth grades in this school were included in study group of the research. For the purposes of the study, only one school was selected considering the fact that differentiation in academic achievement resulting from different schools may have an adverse effect on the research results.

In the qualitative phase of the study, the study group consisted of 30 students, in each class, selected through simple random sampling. As simple random sampling is a sampling technique where every item in the population has an even chance and likelihood of being selected in the sample (Balcı, 2004), it has been preferred in the current research.

2.3. Data Collection Tools

'Social Skill Evaluation Scale' and 'An Attitude Scale towards Social Studies Course' were used as quantitative data collection tools. 'Social Skills Evaluation Scale' (for ages 7- 12), with 69 items and 12 sub- dimensions, was developed by Akçamete and Avcıoğlu (2005). The purpose of the scale is to determine students' social skill levels. The sub- dimensions of the scale were as follows: basic social skill, basic speaking skill, advanced speaking skill, building a relationship skill, maintaining a relationship skill, collaboration skill, emotional skills, self- controlling skills, dealing with aggressive behaviour skills, bearing the result skills, giving instruction skills and cognitive skills. The Cronbach alpha coefficient of the original scale is .98; however, in the present study, it was determined as .96. In addition, 'The Attitude Scale towards Fourth- Grade Social Studies Course' was developed by Ulu Kalın and Topkaya (2017). The Cronbach alpha coefficient for reliability of the original scale which consists of 12 items is determined as .84; nevertheless, in this study, it was found as .90. In the qualitative stage, structured interview form, developed by the researcher, was used. The students were asked, (1) 'Do you like Social Studies course? Why?' and (2) 'How would you have this lesson if you were the teacher?'

Personal Information Form includes each student's academic achievement score in Social Studies course stated by their classroom teachers. The steps for developing structured interview form were followed one by one. In order to ensure validity and reliability, 3 experts' views were taken and, in this respect, the form was created.

2.4. Data Collection and Analysis

The research data were collected by the researcher in 2019- 2020 academic year. Quantitstive and qualitative data collection tools were applied simultaneously. The researcher carried out the applications in the classroom at a certain time determined by the teachers.

In order to reveal the predictor role of social skill on academic achievement, students' marks in Social Studies course and total score of social skill evaluation scale by performing simple linear regression analysis. The main purpose of simple linear regression analysis is to describe the relationship between one dependent and one independent variable using a straight line (Stock and Watson, 2011). In addition, same analysis was conducted with the aim of indicating the effect of students' attitudes towards Social Studies course to predict academic achievement.

For the qualitative data analysis, content analysis was used. Content analysis is 'a research tool used to make valid inferences, to quantify qualitative information and to make objective and systematic classifications of the documents or communication artefacts in terms of meaning and/ or grammar' (Tavşancıl and Aslan, 2001, p.22). Content analysis requires the researcher to probe into the research data and to gain certain concepts, categories and themes. The researcher focuses on presence and occurrence of certain statements and identifies code units. Categories are made up of the code units and themes are formed by categories and interpreted (Merriam and Grenier, 2019; Bengtsson, 2016; Crabtree and Miller, 1999). In the research, the questions were stated in a clear and proper manner and the researcher abided by initial data. For this aim, direct quotes were used and the phenomenon was depicted clearly. Each participant in qualitative study group in the research has been represented using the letter 'P' accompanied by a number (i.e., P1, P2, P3…P30). The themes and sub- themes were presented for to 3 experts and the codes gained were compared. In this process, the data were examined in terms of consistency and the final version of themes and sub- themes was obtained. For the reliability of the research data, the formula described in Miles and Huberman (1994) as 'reliability= number of agreements/ (number of agreements+ disagreements) x 100' was used and the reliability was found as % 86. As stated by the regulation of MoNE (2018) (Article - 33), grading system is as follows: 0-44 is Failed, 45- 54 is Pass, 55-69 is average, 70- 84 is Good and 85- 100 is Very Good.

3. Findings and Remarks

The findings regarding research questions determined bin line with the study objective have been presented respectively.

3.1. Findings regarding the first research question

Table 1 shows the results concerning the predictor role of social skills on students' academic achievement in Social Studies course.

Table 1: The Regression Analysis Results on Social Skill and Academic Achievement in Social Studies Course

Academic Achievement in Social Studies Course	B	S.E.	β	T	p	R	R^2	F	p
Constant	103.044	2.701		38.143	.000				
Social Skill Evaluation Scale Total	-.105	.020	-.365	-5.112	.000	.365	.133	26.133	.000**

*p<0.05, **p<0.01 (N=172; dF(1,170)

As seen in Table 1, social skills explain % 13 of total variance for the prediction of students' academic achievement in Social Studies course.

The result indicates that social skills are a low- level, significant and positive predictor of students' academic achievement in Social Studies course. The students with high level of social skills may have a greater level of self- confidence, self- reliance to question the points they do not understand and attendance in-group works. Thus, it can be posited that permanent learning is realized, thereby prepossessing students' academic achievement levels.

3.2. Findings regarding the second research question

Table 2 presents the results concerning the predictor role of students' attitudes towards Social Studies course on students' academic achievement in Social Studies course.

Table 2: The Regression Analysis Results on Students' Attitudes towards Social Studies Course and Their Academic Achievement in Social Studies Course

Variables		B	S.H.	β	t	p	R	R^2	F	p
Social Stu.	Constant	95.177	1.990		47.836	.000				
	Attitudes Towards Soc. Stu.	-.274	.093	-.221	-2.958	.004	.221	.049	8.750	.004*

*p<0.01 (N=172; dF(1.170)

As manifested in Table 2, students' attitudes towards Social Studies course explains % 5 of total variance for the prediction of their academic achievement in Social Studies course. The results revealed that students' attitudes towards Social Studies courses are a low-level, significant and positive predictor of their academic achievement in Social Studies courses. It can be thus claimed that the students who engagedly follow the course, voluntarily take part in learning processes and enjoys learning course subjects may have greater academic achievement thanks to the higher motivation s/he possesses.

3.3. Findings regarding the third research question

Table 3a and Table 3b show students' answers to the questions of 'Do you like Social Studies course? Why?' and 'How would you have this lesson if you were the teacher?'

Table 3a: Students' Feelings and Thoughts towards Social Studies Course

Theme	Code	Sub- Codes	f	Academic Achievement
The status of liking Social Studies Course	I like (n=18)	Enjoyable	11	Very Good
		New information	8	Very Good/ Good
		Related to daily life	8	Very Good
		Interesting	7	Very Good
		Easy	7	Very Good
		Academic Achievement	3	Very Good
		Teacher's teaching style	1	Very Good
	I do not like (n=12)	Boring	12	Good/Average
		Not interesting	8	Good/ Average
		Demanding excessive memorizing	6	Very Good/ Good
		Few activities	5	Good
		Demanding excessive reading	4	Good
		Difficulty in learning	4	Good/ Average
		Academic failure	4	Average
		Demanding excessive writing	3	Good/ Average

According to Table 3a, 18 students said 'yes' and 12 students said 'no' to the question of 'Do you like Social Studies course?' As for the reasons, the students stated different opinions as follows: 'Quite an enjoyable lesson' (n= 11), 'I learn new information' (n=8), 'It helps me with my social life' (n=8), 'The subjects are really interesting' (n=7), 'Quite an easy lesson' (n=7), 'I get high grades' (n=3), 'I like my teachers' style' (n=1). The students' views on the Social Studies course and their statements regarding the reasfors of their views have been presented below:

Example 1. P1; "No, because it is boring."(Academic Achievement Score: Good)

Example 2. P22; "No, I do not like it because I am having difficulty in this course" (Academic Achievement Score: Average)

Example 3. P8; "I do not like writing. Our teacher wants us to write so much in this course. We also need to memorize so much. I do not have a good score in this lesson already. I just do not like this course!*"*

Example 4. P14; "I like Social Studies course because it is quite enjoyable and educational and my favourite course."(Academic Achievement Score: Very Good)

Example 5. P20; "I like because I can use the things I learn in the course in my daily life."(Academic Achievement Score: Very Good)

As seen in the examples above, the academic achievement scores of the students stating that they like Social Studiescoursese are relatively higher than the ones saying that they do not like Social Studiescoursese. According to the quantitative results, students' attitude towards Social Studiecoursesse is a significant predictor of their academic achievement in the course. In addition, this argument is supported by qualitative results obtained. The students saying that they likethe d Social Studies course stated that the course was interesting, enjoyable and related to the daily life. On the contrary, those saying that they did not like Social Studies course

stated that the course included few activities, was not interesting, demanded excessive memorizing, reading and writing and they also said that they did not like teacher's lecturing style. It can be inferred that all these factor affect students' attitudes towards the course.

Table 3b: Students' Expectations on the Teaching of Social Studies Course

Theme	Code	Sub- Codes	f	Example Statements
Expectations on the teaching process of the course	Activity, Based Process(n=36)	Activity	11	P1: "I would have this lesson with more activities and games for quick and clear learning." P22:"I would carry out lots of entertaining and educational activities"
		Game	9	P13: *"I would make my students play games in order for them to have a better understanding the subject"* P24:*"I would teach my students by entertaining. "*
		Theatre and drama	7	P15: *"I would teach the subjects by performing a theatre."* P1:*"I would allow my students to perform in order to see what they do in their social lives."*
		The diversity of examples	3	P21:*"I would allow my students to play games and give lots of examples to make the lesson easier"*
		Smartboard	3	P5:*"I would allow my students to watch documentaries on smartboard."* P17: *"I would carry out question –answer activities on smartboard."*
		Trip- observation	2	P14:*"I would arrange lots of trips and activities."*
		Reading with comics	1	P28: *"I would make my students read books with comics, thereby following the lesson engagedly."*
	Group work	Group Works	3	P3:*"I would carry out group works for each learning unit."*
		Competition	1	P20:*"After explaining the subject, I would line up my students and ask questions and end the activity with the last two students."*
	Relation to the student	Relation to the interest and expectations	2	P9: *"I would explain the subjects in an interesting way without boring my students."* P17: *"I would help until all students understand the subject."*
		Answer to each question	2	P2:*"I would explain the subjects in- depth and try new ways to re- explain the points that my students do not understand."*

In Table 3b, the answers given by the students to the question of 'How would you have this lesson if you were the teacher?' are as follows: 'I would carry out lots of activities' (n=11), 'I would allow my students play more games' (n=9), 'I would perform theatres and drama more' (n=7), 'I would have the lesson by giving lots of examples' (n=3), 'I would use smartboard more often' (n=3), 'I would arrange trips and have my students make observations more often' (n=2) and 'I would make my students read books with comics' (n=1). The

aforementioned answers were presented under the theme of *activity- based process*. Such answers as 'I would carry out group works more often' (n=3) and 'I would arrange competitions at the end of each unit' (n=1) were included in the theme of *group work*. However, certain answers as 'I would answer each question' (n=2) were presented under the title of *relation to the student*.

With reference to the students' answers, it can be claimed that their views have been mostly covered in the theme of *activity- based process*. In this regard, it has been seen that the activities carried out based on students' interests and needs play a pivotal role in their effective learning. This result implies that students prefer activity-based processes, in which they undertake an active role and interact with their friends and teachers, with a greater extent due to the fact that they acquire the opportunity of learning to reach and constructing information in practice. Besides, it can be said that this situation may result from that fact that the students are game- aged in terms of their development.

4. Discussion and Result

In the current study, it was aimed to examine the relationship between fourth grade students' social skills, their attitudes towards Social Studies course and their academic achievement. According to the results, social skill is a low- level, significant and positive predictor of students' academic achievement in Social Studies course. This result correlates with similar studies indicating a relationship between the level of social skill and academic achievement in primary school education (Coşkun and Samancı, 2012). Samancı and Diş (2014) revealed that the students with low levels of social skill also had low academic achievement. The fact that students' academic achievement in Social Studies course increases while their levels of social skill do not improve at the same level is considered as an expected situation. This is due to the fact that lessons are exam- based and parents mostly focus on their children's cognitive skills. As a result, this causes individuals to have high level of academic achievement but to lack of social skills.

In the current study, the results have also shown that students' attitudes are significant and positive predictor of their academic achievement in Social Studies course. This result is accordance with those in similar studies. Yılmazer and Demir (2014) articulated that students' positive attitudes towards Social Studies course are influenced by getting good grades in the exams of the course. In the same study, it was emphasized that the students saying that Social Studies course was their favourite were the ones having more positive attitudes towards the course compared to other students. Likewise, Yüce (2008) found that the higher grades students got in Social Studies course, the more positive attitudes students had towards the course. Accordingly, Demir (2010) unearthed a low- level, significant and positive relationship between students' grades in Social Studies course and their attitudes towards the course. In addition, there are other studies showing similar results in the literature (Oğur, 2009; Ergin, 2006; Tay and Akyürek Tay, 2006; Altıntaş, 2005). In the related literature, the studies argue that the increase in students' academic achievement in Social Studies course led to an increase in their positive attitudes towards the course. Moreover, in lights of the research results, it can be posited that students' interests and attitudes towards the course promote academic achievement. There have been several studies indicating that students' attitudes and level of academic achievement increase or decrease correspondingly, showing that enhancing students' positive attitudes towards the course would raise their academic achievement (Coşkun and Samancı, 2012; Keskin, 2007; Koçkan, 2004). Furthermore, there are other studies highlighting that students' interest towards the course prepossesses learning and acquisitions as well as their attitudes (Yılmaz and Şeker, 2011; Çetingöz and Özkal, 2006; Öztürk and Baysal, 1999). It may be said that positive attitudes towards the course have a greater impact on course achievement compared to interest.

The students noted that they would prefer activity and game- based process in Social Studies course. Assuming the fact that students' expectations may affect their attitudes positively in terms of the subject they are to learn, it can be said that those results are based on their ages and developmental characteristics. In order for the teaching process to be successful, applying certain strategies, methods and techniques which are in accordance with the course and subject and well- planned is of great importance. Consequently, teachers should pay attention to arranging activities considering students' ages and interests, ensuring qualified and permanent teaching and guiding the students to help them notice their skills (Demirel, 2009).

It has been concluded that students had positive attitudes towards game- based activities in Social Studies course. On the condition that they are arranged depending on students' ages and developments, games are among the leading methods and techniques providing qualified, interesting, enjoyable and permanent learning. Games include a wide range of skills, foster self- confidence and social skills, have its own dynamics and rules and serve for qualified learning where children have the opportunity to entertain (Gözalan and Koçak, 2014). Games are the times when each individual, in their childhood, were able to express their feelings and explore themselves and their surroundings (Öğretir, 2008). The purpose of the game may not always be for certain and the game is played with or without rules. However, games are the learning processes which children always want to be included in; provide a basis for their cognitive, affective and psychomotor developments; prepare them for life and offer the most significant and qualified learning for them (Kaya and Elgün, 2015).

In addition to educational games, material use has also been considered important in terms of appropriate methods and techniques for the course. In particular, there have been several studies revealing that visual materials used in Social Studies course enhance student achievement (Altınışık and Orhan, 2002; Yaşar, 2004). In this regard, it has been concluded that visual material use in Social Studies course has positive effects on increasing academic achievement.

5. Suggestions

- According to the results of the study, more social activities have been recommended to be carried out in schools in order to develop students' social skills. Besides, further experimental studies may be conducted to gain a deeper understanding of social skills and attitudes towards Social Studies course.
- Teachers are required to make efforts to get their students to have positive attitudes towards the course, and to determine negative ones. In this regard, in order to eliminate the negative attitudes, different methods, techniques, activities and examples should be used during the course. Teaching process should be carried out based on the principles of multiple intelligence theory.
- Teachers are not recommended to merely focus on academic achievement. Instead, they should aim to make their students acquire life skills. Moreover, eligible learning environments where course acquisitions can be transferred to daily life should be provided for students. It is of great importance not to overlook students' interest, talents and expectations.

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An Investigation of the Digital Gaming Attitudes of the Faculty of Sports Sciences Students

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Abstract

Nowadays, digital games have become a part of the daily lives of individuals, and accordingly, the virtual world phenomenon, especially in the young population, has emerged. This phenomenon causes digital game users to experience other worlds as well as their real lives. The experiences of individuals through games in the virtual environment, on the one hand, provide link and communication, on the other hand, they distance them from concrete concepts of the real world. This study aimed to examine the digital game-playing attitudes of students studying at the faculties of sports sciences. The research group consisted of 911 students (415 females, 45.6%; 496 males, 54.4%) studying at the faculties of sports sciences in Konya Selcuk University, Ankara Gazi University, and Istanbul University-Cerrahpaşa. This study conducted in the period of November-December, 2019, and all students voluntarily participated in the study. The "Digital Gaming Attitude Scale (DGAS)" developed by Tekkurşun Demir and Mutlu Bozkurt (2019) was used to collect data in the study. This scale consists of 18 items and three sub-dimensions (cognitive, affective, and behavioral). Descriptive statistics (frequency, arithmetic mean, standard deviation), independent sample t-test, one-way analysis of variance (ANOVA), and Tukey multiple comparison tests were used in the analysis of the data. The arithmetic mean of the sub-dimensions was 15.41 ± 3.38 for cognitive, 15.72 ± 3.74 for emotional, and 23.58 ± 7.34 for behavioral. Statistical analysis of the data was made through the SPSS 19.0 program and the significant difference level of the values was accepted as p <0.05. The analysis results showed that when the digital gaming attitude scale was evaluated according to gender, the mean score scores of male students in all cognitive, affective, and behavioral sub-dimensions were significantly higher than female students.

Keywords: Students, Faculty of Sport Sciences, Digital Gaming Attitude Scale, Digital Game Playing

1. Introduction

Digital games, which are widely used today, date back to the middle of the 20th century. A very simple tennis game called "Tennis for Two," developed for the Donner Model 30 analog computer on October 18, 1958, can be given to digital games as an example, also known as video games. The digital game is defined as entertainment or leisure activity software that is based on text or visuality, computer-based, electronic platforms such as game consoles or computers that one or more people can use together over the physical or online network (Frasca, 2001). When the digital game or games industry is examined, it is seen that the development process is handled in five different phases (Özhan, 2011). These phases are as follows: Before 1980 "early development phase" (Yalçın & Erdoğan, 2016); Between the mid-80s and mid-90s "growth phase" (Video Game Industry Statistics, 2019); End of the 90s the "phase of development" (Pan European Game Information, 2015); between 2000-2005 the "maturation phase" (Craddock, 2005); and from 2006 to the present the "phase of progress" (O'Hagan & Mangiron, 2013).

Digital games are very comprehensive and contain techniques developed from various disciplines. The fundamental development of the digital game industry consists of three stages. In the first stage, the transition to microprocessors was provided as the basic development dynamics, thus better animations emerged. Advances in sound technology made it possible to integrate music into games in the 1980s. The second major development has been with the introduction of game consoles into homes as well as game halls. The third fundamental development started with the production of computers used at home. Change and development continued by adding game mechanisms to these computers. The rapid development of technology in the world has contributed positively to the growth of the digital game industry. On the one hand, the cheaper technology and on the other hand, the introduction of the internet into people's business and home life has enabled the digital game industry to grow rapidly. Over the past 60 years, the digital game industry has made great strides in other areas, especially in the field of graphics (Squire, 2003). In the digital game development period that has continued until today, even seventh-generation consoles were produced. It is known by everyone that the population that closely follows technological developments and adopts digital technology as life is a younger population. This lifestyle is thought to cause the endangerment of the cultural heritage, which is a social heritage and transferred from generation to generation. The most important losses of societies in this cultural heritage such as their traditions, customs, and lifestyles such as grammar, vocabulary, nutritional characteristics, physical activity, sports activities occur in today's digital world (Lazzaro, 2004).

The fact that the new generation follows technology closely and has grown up using this technology has caused them to prefer technological devices to traditional games played physically. This situation has revealed the curiosity of today's generation, which are described as "digital natives," for digital games. Especially the high interest of the young generation in digital games and their perception of this as socialization in the digital world show that digital games are an important field of occupation for this group (Quaiser-Pohl et al., 2006). The concept of attitude is accepted as one of the psychological separators that determine the social perception and attitudes of the people and also determine the formation of behavior (Alıs, 2013).

The desire of individuals to get away from the negative environment they live in, the desire to bring their real-life to the virtual environment, the disconnection and incompatibility they have experienced with their social environment are among the determining factors of the digital gameplay attitude. The effort to engage in recreational activities and to obtain some rewards such as power and trophies in digital games is also added to these factors (Tekkurşun & Bozkurt 2019). The concept of attitude is a bidirectional variable that shapes individuals' positive and negative emotional states (Erkuş, 2013). Attitudes consist of a total of three dimensions: mental, emotional, and behavioral, which are handled as cognitive, affective, and behavioral, and there is a dynamic link between the dimensions (Hazar & Demir, 2018). Accordingly, determining the factors that direct children and young people to digital games and enable them to participate in these game consoles or digital games at least once a day is among the objectives of this study. There are many researches in the literature on digital game playing and especially on students (Mustafaoğlu & Yasacı, 2018; Demir & Cicioğlu, 2019; Erten, 2019; Güvendi, Demir & Keskin, 2019; Bozkurt, Dursun & Arı, 2019; Topal & Aydın, 2018; Bozkurt & Tamer, 2020). Researches in the literature show that the digital game playing attitude is particularly

common among students, and this issue is seen to be current and important. Therefore, in order to contribute to the literature, this study aimed to determine the digital game playing attitudes of students studying at the faculty of sports sciences. The research questions created in line with the purpose of our study are listed below:

RQ1: Is there a significant difference in the gender variable in the Digital Gaming Attitudes of the students?
RQ2: Is there a significant difference in the age variable in the Digital Gaming Attitudes of the students?
RQ3: Is there a significant difference in the class variable in the Digital Gaming Attitudes of the students?
RQ4: Is there a significant difference in the mother's educational status variable in the Digital Gaming Attitudes of the students?
RQ5: Is there a significant difference in the father's educational status variable in the Digital Gaming Attitudes of the students?
RQ6: Is there a significant difference in the digital game playtime variable in the Digital Gaming Attitudes of the students?
RQ7: Is there a significant difference in time to participate in physical activity variable in the Digital Gaming Attitudes of the students?

2. Method

Research Group

This study was designed as cross-sectional research. A total of 911 students from 1st, 2nd, 3rd and 4th grades at Konya Selçuk University, Gazi University, and Istanbul University-Cerrahpaşa Faculty of Sport Sciences participated in the study between November and December 2019. No sampling method was used in the study, and the students who did not want to participate in the study and were not in the school were excluded from the study. The average age of 415 female and 496 male students participating in this study was 20.43 ± 2.58.

Scale

Digital Gaming Attitudes Scale: This scale was developed by Tekkurşun Demir & Mutlu Bozkurt (2019) in order to measure the digital gaming attitudes of university students. This scale, which consists of 18 items, consists of three sub-dimensions: cognitive (1, 2, 3, 4, 5 items), affective (6, 7, 8, 9, 10 items), and behavioral (11, 12, 13, 14, 15, 16, 17, 18 items). Items 2, 3, 5, 6, 7, 10, 18 of the scale are reversed. The digital gaming attitude scale was evaluated with a 5-point Likert-type scale (1 = "Strongly disagree", 2 = "Disagree", 3 = "Neutral", 4 = "Agree", 5 = "Strongly Agree") (Tekkurşun Demir & Mutlu Bozkurt, 2019). It is cognitive if the knowledge that an individual has about a situation enables him/her to look positively at that situation, affective if the individual has positive emotions, and behavioral if he/she shows this through various expressions and actions (Hazar & Demir, 2018).

Statistical Analysis of the Data

First, the Kolmogorov-Smirnov test was applied to determine whether the data showed normal distribution or not. The p values obtained from the Kolmogorov-Smirnov test showed that the distribution was normal ($p > 0.05$). Second, descriptive statistics (frequency, arithmetic mean, standard deviation), independent sample t-test, one-way analysis of variance (ANOVA), and Tukey multiple comparison tests were used to evaluate the data.

3. Findings

This section includes the findings of the digital game-playing attitudes of students studying at the faculty of sports sciences.

Table 1: Average Scores of the Sub-Dimensions of the Digital Gaming Attitude Scale

Digital Gaming Attitude Scale	N	Min.	Max.	Mean ± SD
Cognitive	911	5.00	25.00	15.41 ± 3.38
Affective	911	5.00	25.00	15.72 ± 3.74
Behavioral	911	8.00	40.00	23.58 ± 7.34

Table 1 shows that the behavioral sub-dimension of the digital gaming attitude scale has the highest score average compared to the others.

Table 2: Independent Sample T-Test Analysis Results of Digital Gaming Attitude Scale by Gender Variable

Digital Gaming Attitude Scale	Gender	N	Mean ± SD	t	p
Cognitive	Female	415	14.65 ± 3.36	-6.363	.000
	Male	496	16.05 ± 3.26		
Affective	Female	415	14.86 ± 3.53	-6.553	.000
	Male	496	16.44 ± 3.76		
Behavioral	Female	415	21.61 ± 7.45	-7.582	.000
	Male	496	25.23 ± 6.83		

Table 2 shows that there is a significant difference at p <0.05 level in all sub-dimensions of the digital gaming attitude scale by gender. According to these values, the average scores of cognitive, affective, and behavioral dimensions of men are higher than female students.

Table 3: Independent Sample T-Test Results of Digital Gaming Attitude Scale by Age Variable

Digital Gaming Attitude Scale	Age	N	Mean ± SD	t	p
Cognitive	17-19	432	15.23 ± 3.42	-1.505	.133
	More than 20	479	15.57 ± 3.34		
Affective	17-19	432	15.86 ± 3.71	1.047	.295
	More than 20	479	15.60 ± 3.76		
Behavioral	17-19	432	23.52 ± 7.45	-.237	.813
	More than 20	479	23.63 ± 7.25		

Table 3 shows that there is no significant difference in all sub-dimensions of the digital gaming attitude scale in terms of age.

Table 4: ANOVA Results of Digital Gaming Attitude Scale by Students' Class

Digital Gaming Attitude Scale	Class	N	Mean ± SD	F	p	Tukey
Cognitive	1	290	15.20 ± 3.33	3.437	.016	3rd Class > 2nd Class
	2	263	15.05 ± 3.36			
	3	160	15.93 ± 3.65			
	4	198	15.78 ± 3.19			
Affective	1	290	15.64 ± 3.70	243	.866	-
	2	263	15.68 ± 3.82			
	3	160	15.69 ± 3.89			
	4	198	15.92 ± 3.57			
Behavioral	1	290	23.35 ± 7.14	1.598	.188	-
	2	263	23.66 ± 7.34			
	3	160	22.80 ± 7.90			
	4	198	24.43 ± 7.13			

Table 4 shows that there is a significant difference in the cognitive sub-dimension of the digital gaming attitude scale ($p < 0.05$), but there is no significant difference in the affective and behavioral sub-dimensions. The result of the Tukey test, which is an advanced test, showed that the difference observed in the cognitive sub-dimension was between 3rd and 2nd grades. Accordingly, the mean score of the cognitive sub-dimension of 3rd-grade students (15.93 ± 3.65) was higher than the mean score of the 2nd-grade students (15.05 ± 3.36).

Table 5: ANOVA Results of Digital Gaming Attitude Scale by Mother's Educational Status

Digital Gaming Attitude Scale	Mother's Educational Status	N	Mean ± SD	F	p
Cognitive	Uneducated	69	16.33 ± 3.49	1.901	.108
	Primary	239	15.32 ± 3.28		
	Secondary	212	15.45 ± 3.40		
	Lycee	199	15.50 ± 3.37		
	University	192	15.05 ± 3.42		
Affective	Uneducated	69	15.31 ± 3.68	.766	.547
	Primary	239	15.56 ± 3.73		
	Secondary	212	16.04 ± 3.83		
	Lycee	199	15.63 ± 3.55		
	University	192	15.81 ± 3.87		
Behavioral	Uneducated	69	22.85 ± 7.01	.431	.786
	Primary	239	23.78 ± 7.18		
	Secondary	212	23.60 ± 7.38		
	Lycee	199	23.91 ± 7.56		
	University	192	23.22 ± 7.43		

Table 5 shows that there is no significant difference in all sub-dimensions of the digital gaming attitude scale according to the mother's educational status variable.

Table 6: ANOVA Results of Digital Gaming Attitude Scale by Father's Educational Status

Digital Gaming Attitude Scale	Father's Educational Status	N	Mean ± SD	F	p
Cognitive	Uneducated	38	14.63 ± 3.18	1.923	.105
	Primary	241	15.65 ± 3.18		
	Secondary	185	15.31 ± 3.48		
	Lycee	240	15.69 ± 3.48		
	University	207	15.03 ± 3.38		
Affective	Uneducated	38	14.71 ± 3.36	1.401	.232
	Primary	241	15.44 ± 3.70		
	Secondary	185	15.99 ± 3.90		
	Lycee	240	15.83 ± 3.81		
	University	207	15.86 ± 3.59		
Behavioral	Uneducated	38	22.81 ± 7.37	.390	.816
	Primary	241	23.30 ± 7.42		
	Secondary	185	23.61 ± 7.28		
	Lycee	240	24.00 ± 7.35		
	University	207	23.53 ± 7.34		

Table 6 shows that there is no significant difference in all sub-dimensions of the digital gaming attitude scale according to the father's educational status variable.

Table 7: ANOVA Results of Digital Gaming Attitude Scale by Digital Game Playtime

Digital Gaming Attitude Scale	Digital Game Playtime	N	Mean ± SD	F	p
Cognitive	30-60 minutes	498	15.46 ± 3.23	.916	.432
	61-90 minutes	206	15.16 ± 3.48		
	91-120 minutes	86	15.84 ± 3.77		
	More than 121 minutes	121	15.32 ± 3.52		
Affective	30-60 minutes	498	15.76 ± 3.57	.079	.971
	61-90 minutes	206	15.63 ± 3.71		
	91-120 minutes	86	15.81 ± 4.04		
	More than 121 minutes	121	15.68 ± 4.25		
Behavioral	30-60 minutes	498	23.41 ± 7.41	.252	.860
	61-90 minutes	206	23.87 ± 7.14		
	91-120 minutes	86	23.90 ± 7.58		
	More than 121 minutes	121	23.53 ± 7.27		

Table 7 shows that there is no significant difference in all sub-dimensions of the digital gaming attitude scale according to the digital game playtime variable.

Table 8: ANOVA Results of Digital Gaming Attitude Scale by Time to Participate in Physical Activity

Digital Gaming Attitude Scale	Time to Participate in Physical Activity	N	Mean ± SD	F	p
Cognitive	30-60 minutes	295	15.29 ± 3.41	.187	.905
	61-90 minutes	227	15.48 ± 3.44		
	91-120 minutes	183	15.46 ± 3.51		
	More than 121 minutes	206	15.46 ± 3.17		
Affective	30-60 minutes	295	15.56 ± 3.65	1.588	.191
	61-90 minutes	227	16.19 ± 3.89		
	91-120 minutes	183	15.53 ± 3.82		
	More than 121 minutes	206	15.61 ± 3.61		
Behavioral	30-60 minutes	295	23.02 ± 7.40	1.183	.315
	61-90 minutes	227	23.90 ± 7.18		
	91-120 minutes	183	24.21 ± 7.12		
	More than 121 minutes	206	23.48 ± 7.62		

Table 8 shows that there is no significant difference in all sub-dimensions of the digital gaming attitude scale according to the time to participate in physical activity variable.

4. Discussion

Due to the rapid development of computer and internet technology in the last two decades, the widespread use of digital games, which are an important part of the culture industry, has also brought some risks. The high increase in the number of users, especially children and young people, attracted all the attention to the effects of digital games. Increasing scientific studies on this subject have focused on the short and long-term effects of digital games on individuals. In this context, in order to contribute to the literature, we examined the digital gaming attitudes of the faculty of sports sciences students in terms of different variables in our study. In this study, in the mean score analysis of the sub-dimensions of the digital gaming attitude scale, it was observed that the behavioral sub-dimension had the highest score (Table 1; 23.58 ± 7.34). This score shows that students make digital gameplay a behavior. In addition, when considered in terms of other sub-dimensions, it is seen that students have ambivalent feelings in terms of their digital game playing attitudes. As a result, it can be expressed that playing digital games is a behavioral situation for students. Lo, Wang, and Fang (2005) and Weinstein et al.

(2015) reported that children and adolescents try to reduce their social anxiety levels by playing computer-based games. The inconsistency between this result and the result of our study is thought to be due to the age groups of both studies. Therefore, it is considered normal that university students who are older differ in their digital gameplay attitudes. Based on this result, there are also various researches on digital game addiction and social anxiety (Karaca et al., 2016; Savcı & Aysan, 2017; Taş & Güneş, 2019).

Digital game playing attitude analysis by gender (Table 2), which is among the research questions of our study, showed that the mean score scores of male students were significantly higher than female students in all cognitive, affective, and behavioral sub-dimensions (p < 0.001). Accordingly, male students had higher attitudes to play digital games than female. Başdaş and Özbeyin (2020), Balıkçı (2018), Gökçe Arslan and Durakoğlu (2014), Taş and Güneş (2019), Bozkurt and Tamer (2020) found that male participants had the higher digital game playing attitudes and addictions compared to female. Although these results showed a high attitude of men to play digital games, it is known that female's interest in playing games in the digital environment has increased recently. When examined in terms of motivation to play digital games, Hazar (2019) found that the average scores of male and female participants were similar to each other. Yıldız and Tüzün (2011), on the other hand, found in their study that there was no gender difference in terms of gaming and computer use experiences. In the organization, which continued its activities as the federation of digital games of the period, 52% of the total number of digital players was reported as male and 48% as female according to 2012 data (Dinç, 2012). In addition, it is thought that the motivations of men to play digital games should be examined comprehensively.

In terms of the age variable handled in our study, no significant difference was found in the sub-dimension findings of students' digital gaming attitudes (Table 3). Although no significant difference was found in this variable, it was observed that the behavioral sub-dimension mean score of all age groups of the students was higher. Demir and Cicioğlu (2019) found similar results to our study, on the other hand, Bozkurt and Tamer (2020) reached a different result and found positive significant differences in the motivation to play digital games as the age got older. It is thought that the difference between the results of our study and other studies was due to the fact that the samples, including our study, were middle school, high school, and university students and that the advancing technology reached all age groups over time. In our study, a significant difference was observed in the cognitive sub-dimension of the digital game playing attitude scale according to the students' grade levels (Table 4; p < 0.05), while no significant difference was found in the affective and behavioral sub-dimensions. It was observed that the difference observed in the cognitive sub-dimension was between the 3rd and 2nd grades, and accordingly, the cognitive sub-dimension mean score of the 3rd-grade students was higher than the average score of the 2nd-grade students. For this situation, it is thought that the higher the grade level, the higher the cognitive sub-dimension, which can be defined as the mental element. In addition, there are researches in the literature (Bozkurt & Tamer, 2020; Demirel et al., 2019) that show a significant difference in digital game playing attitude in terms of class variables. In the study, no significant difference was found as a result of the analysis between other variables and the digital game playing attitude. In addition, although there was no statistical difference among cognitive, affective and behavioral sub-dimensions, some variables had score differences.

As a result, this study revealed that university students adopt digital game playing attitudes as a behavior. In addition, the study showed that males played more digital games than females, and 3rd-grade university students had higher digital gaming attitudes in grade variable.

Acknowledgments

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An Investigation of Prospective Teachers' Use of the Turkish Language in Social Media

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Abstract

Purpose: Not only in daily conversations, official correspondence, and educational settings but also on social media platforms, the correct usage of language by prospective teachers has become a necessity of the age. Twitter, which is used by many people to express their feelings, opinions, etc., is used actively by prospective teachers as well. The present study aimed to investigate the grammatical errors in prospective classroom teachers' tweets. Method: The study employed the case study method, one of the qualitative research methods. The data were analyzed through the document analysis method. A total of three hundred tweets posted by 30 prospective teachers were analyzed. Descriptive analysis was used to analyze the data. The grammatical errors to look for in the tweets were determined based on the learning outcomes related to grammar rules specified in the Turkish Language Curriculum designed for primary schools (2019). Findings: Considering the overall results, the vast majority of tweets contained grammatical errors. It was also determined that the grammatical errors were similar in terms of their types. Punctuation errors, inverted sentences, spelling errors, and capitalization errors were some common grammatical errors. On the other hand, misspelled numbers, incorrect abbreviations, and the use of 'reinforced words' (words with a prefix to add emphasis) were rare grammatical errors. When the results were analyzed according to genders, it was found that males' tweets contained more grammatical errors than those of females. In both genders, punctuation errors, inverted sentences, misspellings, and incorrect capitalization were common grammatical errors. On the other hand, misspelled numbers, incorrect abbreviations, and the use of 'reinforced words' (words with a prefix to add emphasis) were rare grammatical errors. In conclusion, it can be said that a majority of tweets posted by prospective teachers contained grammatical errors and these grammatical errors were similar in terms of their types. Implications for Research and Practice: Also, similar studies can be carried out on the use of written language on other social media platforms such as YouTube, WhatsApp, Instagram, and Facebook, which also have millions of users.

Keywords: Grammatical Errors, Primary School Turkish Language Curriculum, Social media, Twitter, Prospective Teachers

Introduction

The widespread use of mass media has affected our lives in many ways. With the increase in the availability and use of the Internet, mass media have increased interaction among people. People have become able to express themselves, shop, obtain information, and interact via the Internet (Firth et al., 2019; Kaya-Erdem and Gül-Ünlü, 2018). Considering that approximately 4.5 billion people worldwide use the Internet, 5.2 billion people use

phones, and 3.8 billion people actively use social media, the potential of mass media can be clearly seen (Datareportal, 2020). With the widespread use of smartphones, access to the Internet has become easier, which, in turn, increased the use of social networking sites (Tutgun-Ünal and Deniz, 2019). Significant changes have occurred in people's daily lives, especially after the COVID-19 pandemic (Farooq, Laato, Islam, 2020), and people have started to use social media platforms more actively (Göker and Turan, 2020). With the pandemic, a variety of public services related to education, economy, and health, as well as official procedures, have been taken to digital media (Sezgin and Fırat, 2020).

Social media platforms include social networks such as Facebook, LinkedIn, WhatsApp, Twitter, Instagram, video sharing networks such as YouTube, Dailymotion, Google Videos, and information sharing sites such as Wikipedia (Karahisar, 2013). These platforms can be used for various purposes such as watching videos, obtaining information, socializing, having fun, shopping, and communicating (Durak and Seferoğlu, 2016). It can be said that social media platforms have become one of the most basic tools used by people for communication (Lee, Chen, Li, and Lin, 2015). Communication on social media platforms can be done in various ways such as voice-chats and video conferences, but mostly written communication is used. Written communication on social media is, on the other hand, established through chat channels, written images, and text messages (Veytia-Bucheli, Gómez-Galán, and Vergara, 2020). Since access to social media is easy, these platforms can be used by people from all segments of society and from all age groups (Tutgun, Ünal, and Deniz, 2019).

Twitter is one of the social media platforms where the written language is used most effectively. With 340 million users worldwide, Twitter is among the top five most popular social media platforms in Turkey (Datareportal, 2020). Twitter is a "micro-blogging" service where users post texts that are too short to be blog posts, about their feelings, their personal lives, etc. (Soydaş and Yılmaz, 2016). The messages Twitter users post are called "tweets." Users can "tweet" photos, videos, links, and texts. Tweets are posted on users' profiles, can be seen by people who follow the user, and can be searched as a Twitter search. Tweets are limited to a maximum of 280 characters. Users are, therefore, required to express themselves with a limited number of characters. Due to the limited number of words to be included in tweets, messages need to be short and clear (www.twitter.com, 2020). This, in turn, makes it important to use the written language effectively.

Writing skill is used from the beginning of literacy education, at all levels of education, and throughout life. Through writing, people have expressed themselves and conveyed their feelings and thoughts to their contemporaries or future generations throughout history (Tiryaki and Demir, 2016). To this day, written language has preserved its importance and has found a place in digital media. Therefore, the correct use of written language is necessary for effective communication and to convey the message to the recipient correctly (Sakallı and Bahadıroğlu, 2018). The Turkish Language Curriculum (2019) designed by the Turkish Ministry of National Education (MoNE) includes many writing-related learning outcomes. Among the special objectives of the curriculum are the skills to use Turkish in accordance with the rules of writing and to effectively convey feelings and thoughts through writing (Uyğun and Çetin, 2019). Writing-related learning outcomes include the correct use of punctuation marks and conjunctions, correct spelling of words, and capitalization rules. These learning outcomes are repeated continuously in basic education from primary school 1st grade to 4th grade. In addition, the skill of "participating in common networks and establishing communication through the Internet" in the "Digital competencies" section under the heading "Competencies" included in all curricula can be seen as an indicator of the importance given to digital communication in education (MoNE, 2019). Based on this, it can be said that it is aimed to ensure that students acquire digital writing skills as well as classical writing skills.

Given the fact that teachers, one of the most important components of education, are role models for children in every field (Demir and Köse, 2016; Dilmaç, 2002), it can be said that teachers should be careful about the way they use the written language on digital media. This is because, thanks to social media, students can observe their teachers, follow school announcements, and try to get to know their teachers better (Şad and Demir, 2019). Therefore, teachers are normally expected to have digital writing skills, which they expect their students to gain, and be careful about their written messages on social media. In particular, classroom teachers who lay the foundations for literacy in children are expected to use Turkish effectively and write by following grammar rules

(Öztürk and Ertem, 2017). Considering the fact that teachers and students are in constant interaction on digital media today (Şad and Demir, 2019), it can be said that teachers should be careful about how they use the language on digital media as well as in the classroom environment.

In education, determining the writing skills of prospective teachers is as important as determining those of currently working teachers. This is because some prospective teachers will teach students reading and writing after completing their undergraduate education (Yamaç, Çeliktürk, and Kocaarslan, 2016). In undergraduate education, prospective teachers are expected to acquire the professional knowledge and skills that they will use in their later professional life. In classroom teaching departments in universities, it is aimed to train teachers to work at private and public schools affiliated with the MoNE (Benli, 2020). Prospective classroom teachers take various courses on grammar rules and digital literacy during their undergraduate education. In these courses, they receive training on many subjects such as spelling rules, grammar rules, and effective communication (Turkish Council of Higher Education, 2019). Therefore, it can be said that the training on writing skills is important for prospective teachers to use the written language correctly and effectively and to be a good role model in their professional life.

The present study aimed to examine the posts of prospective classroom teachers on Twitter, one of the most popular social media platforms, in terms of grammatical errors. Considering the fact that the distinction between written and spoken language is becoming more and more obscure on digital media, as well as the importance of grammar rules (Kaya-Erdem and Gül-Ünlü, 2018), it is important to determine how prospective classroom teachers use the written language in social media.

Method

Research Design

The study employed the case study method, one of the qualitative research methods. The case study method is a widely-used method in qualitative research (Yıldırım and Şimşek, 2008). In a case study, the investigator studies a bounded system (a case) or multiple bounded systems (cases) over time using detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audiovisual material, and documents and reports) and reports a case description and case-based themes (Creswell, 2013, p. 99-101). The present study examined prospective classroom teachers' use of written Turkish in their tweets and tried to determine the grammatical errors in the tweets.

Study Group

The study group consisted of 30 prospective classroom teachers (15 females and 15 males). A total of 300 tweets, with 10 tweets of each participant, were analyzed.

Data Collection and Analysis

The data consisted of the tweets of university students, who are known to be studying at the department of classroom teaching. These tweets were visible to everyone. The last ten tweets posted in prospective teachers' Twitter accounts were included in the study.

The data were analyzed through the document analysis method. Descriptive analysis was used to analyze the data. The criteria used in the analysis of the data were determined based on the learning outcomes related to grammar rules specified in the Turkish Language Curriculum designed by the Ministry of National Education for primary schools (2019). The tweets were analyzed by three experts, taking into account the determined criteria. A separate table for each prospective teacher was created, and the frequency and percentage of grammatical errors in the tweets were calculated.

Results

The total number of tweets with grammatical errors is given in Chart 1.
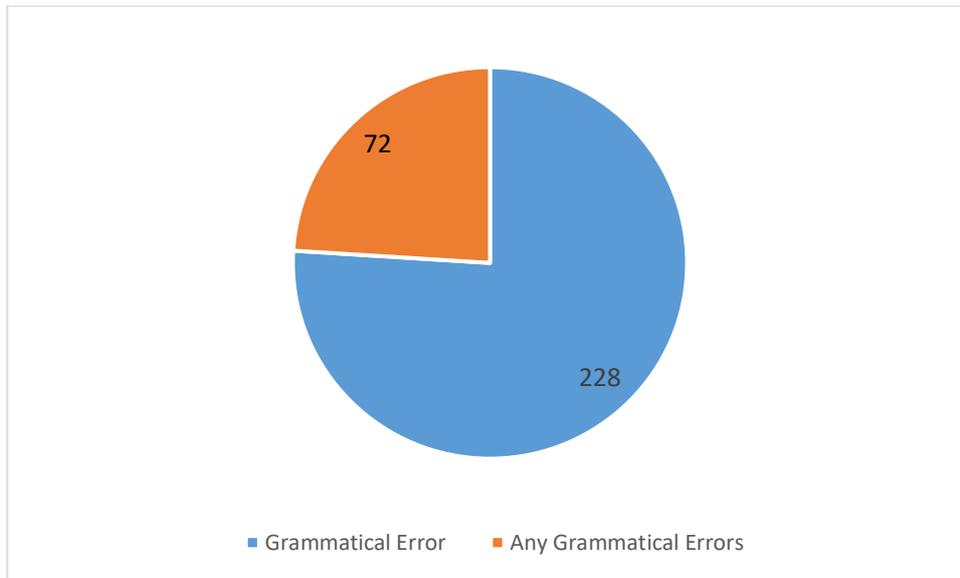

Chart 1: Distribution of Tweets with and without Grammatical Errors

Chart 1 demonstrates the total number of tweets with and without grammatical errors. Accordingly, there are 228 tweets with at least one grammatical error and 72 tweets without any grammatical errors. Therefore, 76% of the tweets contain at least one grammatical error. Some of the grammatically erroneous tweets and the grammatical errors in these tweets are given below:

-*" Neredekaldı disiplinlerarası öğrenme. (What happened to interdisciplinary learning?)"* (**Punctuation errors, no space between words**)

-*"15 temmuzda atacağım twit budur (This is the twit I will post on July 15)"* (**Punctuation errors, use of foreign words, capitalization errors**)

-*"Bugünde tarih için ağlayayım (I will cry for history today)"* 😭 " (**Punctuation errors, incorrect use of conjunctions)**

-*" Giderlerimin her ay gelirimden fazla olması rezaleti (The ridicule of my expenses being more than my income every month)"* (**Punctuation errors, inverted sentence**)

- *"Yine gözümüz yükseklerde, hayat geçiyor perde perdeee (Stars in our eyes again, life is passing by scenesss)"* (**Punctuation errors, spelling errors**)

-*"En güzel rota olmuş* 🇨 (This has become the most beautiful route)" (**Punctuation errors**)

- *"Hakkaten çıkamıyorum videodan (I really can't leave this video)* 😂 " (**Punctuation errors, spelling errors, inverted sentence**)

- *"Az kaldı mahalledeki çocukların toplarını kesicem (In a very short time I'll pop those children's ball)* 🔪🔪 *"*(**Punctuation errors, spelling errors)**

Chart 2 demonstrates the types and numbers of grammatical errors in the tweets of female prospective teachers.

Female Prospective Teachers
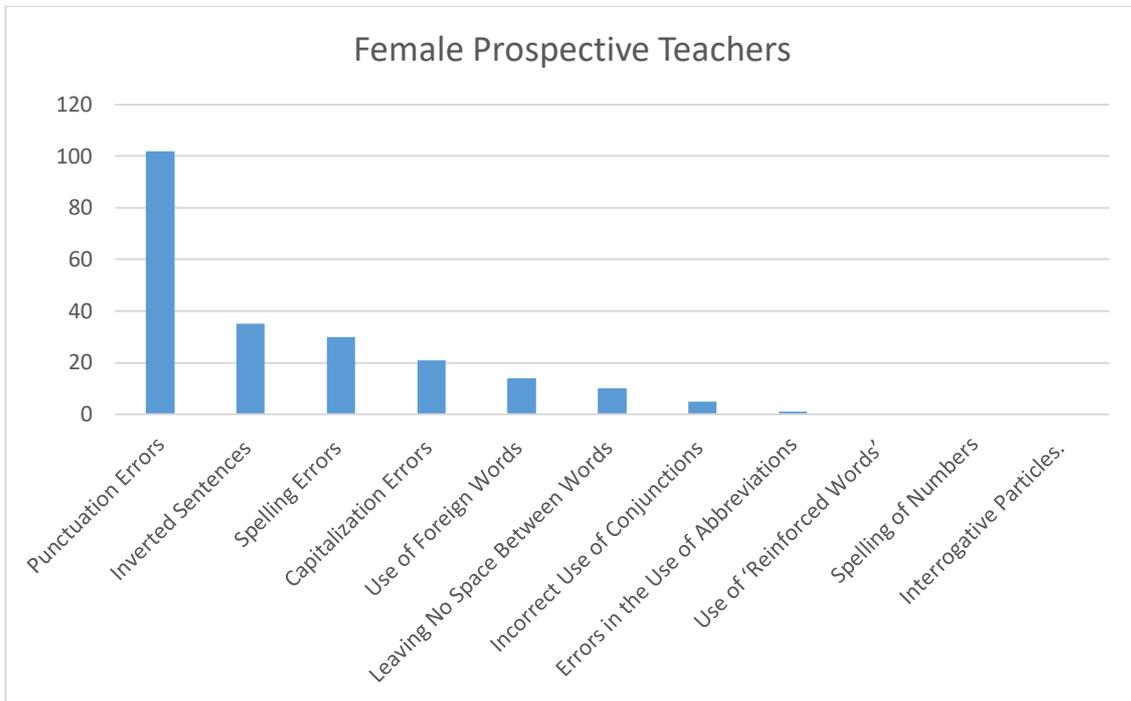
Chart 2: Grammatical Errors in the Tweets of Female Prospective Teachers

According to Chart 2, a total of 150 tweets of female prospective teachers contain 218 grammatical errors in total. The most frequent grammatical error is *punctuation errors* (102). They are followed by *inverted sentences* (35), *spelling errors* (30), *capitalization errors* (21), *use of foreign words* (14), *leaving no space between words* (10), *incorrect use of conjunctions* (5), and *errors in the use of abbreviations* (1). *The tweets do not contain any errors related to the use of 'reinforced words,' spelling of numbers, or the use of interrogative particles.*

Chart 3 demonstrates the types and numbers of grammatical errors in the tweets of male prospective teachers.

Male Prospective Teachers
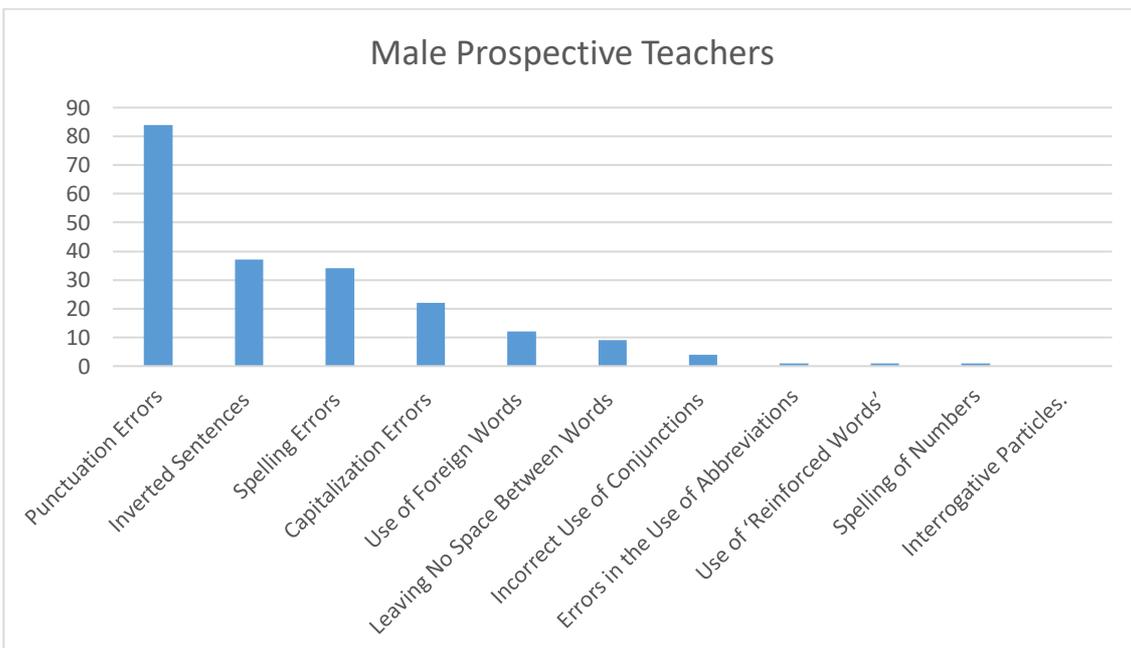
Chart 3: Grammatical Errors in the Tweets of Male Prospective Teachers

According to Chart 3, a total of 150 tweets of male prospective teachers contain 205 grammatical errors in total. The most frequent grammatical error is *punctuation errors*(84). They are followed by *inverted sentences* (37),

spelling errors (34), *capitalization errors* (22), *leaving no space between words* (12), *use of foreign words* (9), *incorrect use of conjunctions* (4), *errors in the use of abbreviations* (1), *use of 'reinforced words'* (1), and *spelling of numbers* (1). The tweets do not contain any errors related to the *use of interrogative particles*. From Charts 2 and 3, it can be inferred that error types and numbers in the tweets of male and female participants are similar. Furthermore, the most frequent error in both groups' tweets is punctuation errors, followed by inverted sentences, spelling errors, capitalization errors, leaving no space between words, incorrect use of conjunctions, and errors in the use of abbreviations.

Discussion, Conclusion, Recommendations

After the rapid development of technology, the use of social media platforms among people has been increasing. On social media, which is used by people of almost all ages, people usually communicate through written language. Written language is a communication tool used by the individual throughout life starting from the first literacy education. For this reason, the correct learning and teaching of the written language are very important in primary schools, where the foundations for education are laid. In this regard, primary school teachers, who lay foundations in children for the correct use of the written language as well as for many other topics, are expected to use the written language correctly not only in their professional life but also on digital media. Therefore, it was deemed important to examine the Turkish language used by prospective classroom teachers on social media platforms. Taking this as a starting point, the present study investigated the tweets of prospective classroom teachers in terms of grammar rules.

The most frequent grammatical error in both female and male prospective teachers' tweets was *punctuation errors*. The finding that almost all tweets contained punctuation errors is noteworthy. As a result of the examinations, it was seen that the prospective classroom teachers mostly used visual expressions such as emojis instead of punctuation marks in their tweets. Visual expressions were used in the middle of a sentence, at the end of a sentence, when emphasizing a word, or at the end of a question. This situation can be interpreted as prospective teachers preferring to use visual expressions instead of punctuation marks in their tweets. Therefore, it can be said that visual expressions are used by prospective classroom teachers as punctuation marks on social media. Yavuz (2020) stated that people frequently used visual expressions in their tweets when sharing their feelings and thoughts. Yıldız and Oduncu (2020) stated that a majority of the posts on Turkish teachers' Facebook group contained punctuation errors. Tanrıkulu (2017) noted that prospective Turkish teachers made more grammatical errors in their correspondence on WhatsApp than in their written texts. Balcı and Darancık (2017) stated that university students did not use punctuation marks such as full stops, commas, exclamation marks, ellipsis, question marks, and apostrophes in their Facebook posts. In this regard, the fact that punctuation marks have not been used at the desired level throughout the history of Turkish writing (Durukoğlu and Ambelçi, 2018) can be said to be reflected on social media today. Teachers have a leading role in the emergence of changes that will add quality to the lives of both the individual and society (Şahin, 2009). Therefore, the increase in the punctuation errors made by prospective teachers in recent years needs thorough consideration. This is because teaching, one of the most rewarding professions, does not represent "what is," but rather "what should be."

When the results of the study were examined, another common grammatical error in both female and male participants' tweets emerged as the use of inverted sentences. The use of inverted sentences can cause both positive and negative results. Küçük, Avcı, and Şengül (2017) stated that in the texts in which thoughts are conveyed as they are, inverted sentences were frequently used. In this context, since people mostly post about their spontaneous thoughts, it is normal that such posts contain inverted sentences. However, using inverted sentences may cause the post to fail to convey the meaning correctly.

Another common grammatical error in the tweets emerged as spelling errors. As a result of the examination, it was determined that the spelling errors were usually caused by missing vowels. An example of this is the abbreviation of the word "*merhaba* (hello)" as "*mrb.*" Similar studies have also stated that such abbreviations are frequently used by users on digital media (Akbıyık, Karadüz, and Seferoğlu, 2013; Akkoyunlu and Soylu, 2011; Kaya-Erdem and Gül-Ünlü, 2018). In addition to missing letters, unnecessary letters were also added to increase

the emphasis of some words in the participants' tweets. This finding is consistent with the results reported by Karahisar (2013) regarding grammatical errors made on social media. Using an F or a Q keyboard, short distances between keys on the board, and trying to type fast can be shown as other causes of spelling errors. According to Özezen (2010), university students do not prefer some letters that are difficult to reach on the keyboard, instead, they use some letters that are not in the Turkish alphabet. This may be attributed to the fact that the alphabet type used in smartphones and computers does not match the Turkish alphabet.

As a result of the examinations, it was seen that the prospective teachers also made capitalization errors in their tweets. This may be due to the fact that the compose box on Twitter, where users can type, does not have software that checks spelling errors. While software using written language such as Microsoft Word auto-capitalizes letters, Twitter does not have such a feature. Keyboards on smartphones can auto-capitalize letters after certain punctuation marks. However, not using punctuation marks in place, as seen in this study, prevents the software from auto-capitalizing the letters. Therefore, it can be said that some capitalization errors were a result of punctuation errors. Consistent with this finding, Yıldız and Oduncu (2020) stated that the most common grammatical error in teachers' Facebook groups was capitalization errors.

Other grammatical errors detected in the tweets were, albeit few in number, leaving no space between words, using foreign words, incorrect use of conjunctions or abbreviations, misspelling of numbers, and using 'reinforced words.' On the other hand, prospective teachers mostly avoided using foreign words in their tweets. This can be expressed as a noteworthy finding obtained in this study. Yıldız and Oduncu (2020) stated that grammatical errors such as the misspelling of numbers, leaving no space between words, and misspelling of abbreviations were quite rare. In this study, numbers, conjunctions, 'reinforced words,' and abbreviations were seen in many tweets, but they were used correctly. One of the positive findings of the study is that no errors related to the use of interrogative particles were found. Mayda (2018) detected many grammatical errors in tweets containing questions from the audience. Akkoyunlu and Soylu (2011) mentioned the incorrect use of conjunctions and interrogative particles on social media. When compared with the results of the related studies, it can be said that the prospective teachers paid attention to these grammar rules.

As teachers are the people who teach students writing skills, they are expected to act responsibly not only in their classes but also on social media, which has become a part of daily life. In particular, classroom teachers who lay foundations for reading/writing skills should not receive any criticism for their grammatical errors. This applies to prospective teachers as well as currently working teachers. The results of this study reveal the necessity of increasing the awareness of prospective teachers about the use of language on social media. Further research can be carried out to raise awareness in prospective teachers about the correct use of written language on social media. Also, similar studies can be carried out on the use of written language on other social media platforms such as YouTube, WhatsApp, Instagram, and Facebook, which also have millions of users.

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Applying Humanism-based Instructional Strategies in Inclusive Education Schools

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Abstract

This article addresses the theoretical perspective to practice of humanism-based instructional strategies in inclusive education schools. Recommendations are offered for both special education and general classroom teachers considering humanism-based instructional strategies in inclusive education schools.

Keywords: Humanism-based, Inclusive Education, Students with SEND

Introduction

Worldwide, inclusive education has become a mandated educational practice in a new era of education, offering the opportunity to apply humanism-based instructional (HBI) strategies. HBI strategies have been effectively practiced with special educational needs and disabilities (SEND) students (Malone, Fodor, & Hollingshead, 2019; Ncube, 2011; Slavin, 2011, 2014; Stenhoff & Lignugaris-Kraft, 2007; Jenkins, Antil, Wayne, & Vadasy, 2003; Sutherland, Wehby, & Gunter, 2000). Application of several HBI strategies has improved the education of students with SEND, especially those evidence-based strategies with an effect size greater than 0.40 (Al-Shammari, 2019a, 2019b, 2019c, 2019d; Hattie, 2009, 2011, 2015, 2017; Hornby, 2014).

This paper offers a theoretical perspective on using HBI strategies. Recommendations are provided to both special education and general classroom teachers interested in applying HBI strategies in inclusive education schools.

HBI Strategies: Theory to Practice

Theoretically, humanism focuses on the belief that learning comes from direct experience, personal choice, and responsibility (DeCarvalho, 1991; McLeod, 2015). According to Maslow and Rogers, essential human motivation is based on personal growth and fulfillment, and striving for self-actualization is the main driving force (DeCarvalho, 1991). Humanism focuses on teaching the whole person; both Maslow and Rogers emphasized human needs and motivation. Learning is more meaningful when the material is relevant to the

subject, problem-solving is part of the process, and learning takes place in a non-threatening environment, with learners relying on their own resources (Rogers, 1959).

Practically, HBI strategies involve applying humanism in inclusive education settings. Instruction utilizing a humanistic approach centers on each student's needs and motivators. The humanistic classroom is student-centered, with each student's self-esteem and self-worth an integral part of the classroom environment (Schunk, 2012). Students take responsibility for setting their own goals in the humanistic classroom—this practice promotes intrinsic motivation and avoids making students dependent on outside praise (Huitt, 2009). In the humanistic classroom setting, the teacher is a facilitator of learning and follows a less rigid structure than is found in a traditional classroom. Huitt (2009) offered teachers ways to implement a humanist structure in education. This included: (1) allowing students to choose tasks or activities when possible, (2) helping students set realistic goals, (3) incorporating cooperative learning, (4) acting as a facilitator in group discussions, and (5) exhibiting beliefs, attitudes, and habits that show students how to grow as individuals. The best humanistic instructional strategies relate to the key components of inclusive education—they focus on students and are designed to influence student learning and achievement.

Conclusion and Recommendations

In this article, HBI strategies, both in theory and practice, are considered effective educational practices in inclusive education schools. Recommendations are offered here for both special education and general classroom teachers who work with students with SEND in inclusive education schools.

First, all teachers interested in using HBI strategies with SEND students in inclusive education settings must gain the necessary knowledge and skills. Teachers must practice these effective HBI strategies more than ten times using micro-teaching practices, working with their colleagues.

Second, all teachers should undertake literature reviews on HBI strategies, focusing on why and how each strategy may be most effectively implemented in the education of students with SEND. This will show teachers how to improve their teaching performance, competencies, and SEND students' learning outcomes.

Third, all teachers should attend intensive professional development programs and training workshops to enhance their knowledge and skills on inclusive education and on HBI strategies, with emphasis on strategies with effect sizes greater than 0.40.

Last, all teachers should self-assess to continuously improve learning outcomes for all students with SEND, focusing on teaching effectiveness and performance and curriculum and instruction.

For further details, teachers interested in assessing student learning outcomes should visit the Analysis Model for Learning Outcomes (AMLO) page (www.MTMM.ac). AMLO provides teachers with strength and weakness indicators for teaching performance and learning outcomes (i.e., see Al-Shammari, 2012).

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Problems Encountered by School Managers in Supplying School Allowances and Expense Areas

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Abstract
The main purpose of this study is to collect information and develop suggestions about the problems faced by school administrators in supplying resources to the school and the spending areas of their allowances. The study group of the study consisted of a total of 20 school administrators, 5 of which are kindergartens, 5 primary schools, 5 secondary schools and 5 high schools, working in the public schools in the central Haliliye, Eyyübiye and Karaköprü districts of Şanlıurfa province, selected by the stratified sampling method. The study was conducted with the qualitative research method, and the data were collected by preparing a "Semi-Structured Interview Form." The data of the research were analysed by content analysis method. In the research conducted; it has been concluded that the amount of allowance allocated to the school by school administrators does not meet the school expenses, that the lack of sufficient financial support reduces the quality of education, the supply of resources to the school is expected from the school administrators in addition to their primary duties, the income obtained from the School Family Associations differs according to the regions, and this is incompatible with the equality of opportunity. Suggestions have been made such as increasing the share allocated to education from the general budget, granting allowances to schools according to the number of students, and removing the aids collected from parents.

Keywords: School Finance, Administrator, Expenditure, Budget, Sources of Finance

1. Introduction

The aims of education in the Eleventh Development Plan are expressed as raising hardworking and happy individuals who have developed thinking skills with a qualified and comprehensive education, being self-confident, entrepreneurial and contemporary, knowing national values, being open to interaction, having artistic endeavours, and using information tools (Presidency of Strategy and Budget Directorate, 2019a). Educational financing is of great importance in achieving the stated goals and increasing the quality of education. The concept of educational financing is defined as the process of providing financial resources for the provision of education, as well as the process of distributing these resources to individuals and groups at different socioeconomic levels

in the region, province and different socioeconomic levels. (Devrim & Tosuner, 1987, pp. 86-87). There is a linear relationship between the education expenditures of the countries and their success rates. In PISA 2018 data, it has been stated that 49% of the difference between the reading skill scores of the countries is related to education expenditures. According to the PISA 2018, Turkey remains below the OECD average in education spending (The Ministry of National Education, 2019). These results show the effect of the budget allocated for education on success and underline the importance of the amount allocated for education. Educational funding problem is not only experienced in Turkey; although their dimensions and characteristics differ, every developed or developing country seeks to find a solution to the problem within its conditions. In Turkey, in order to solve the problem, the amount of budget allocated for education, educational finance, and creating additional sources are on the agenda. In the 2019 Annual Report (2019b), it is stated that a new financing model that creates a planned management and finance relationship in schools will be adopted in order to increase efficiency in education. In the Tenth Development Plan (2013), statements were made that the authorities of school administrators in the budgeting processes of education would be expanded, alternative financing methods would be developed, and private institutions would support their attempts to finance education. In the decisions of the National Education Council (2014), it was stated that legal regulations should be made in order to allocate a share from the general budget to schools, to form institution budgets and to allocate 120 TL per student to schools. All these developments reveal that the issue of education financing is included in the targets, but there are problems in implementation, and it is necessary for education planners to take practical measures. It is important to reveal the education finance problems with the views of the managers and to get information from the practitioners about the solution of these problems, to present ideas to the training planners and to implement them. The study is also important in terms of being a unique study conducted in Şanlıurfa on financing of education. The main purpose of the study is to gather information about the problems faced by school administrators in supplying resources to the school and the spending areas of provisions. For this purpose, answers to the following questions were sought.

1. Do participants' views on the problems faced by school principals in providing resources to the school and the spending areas of allowances differ according to the variables of gender, institution of graduation, graduation status, professional experience, age, mode of appointment to management, whether they have received any management education, and the number of students in the school?

2. Within the scope of the research;

    a.   What is the school income?
    b.   What are the expenses of the school? What is the most needed item of expenditures? Please indicate at least five areas in order of importance (Example: stationery, social activity, cleaning materials, service procurement, infrastructure, renovation costs).
    c.   Do you find the financial support provided by the Ministry of National Education sufficient?
    d.   When your needs cannot be met by the National Education, which people or institutions will you get support from?
    e.   Can Provincial / District National Education Directorates respond to your requests in a timely manner? Do you think there is a transparent practice in meeting these demands?
    f.   As a school administrator, do you find the distribution of allowance amounts according to school types equal?
    g.   Do you think the School Family Association is sufficient in providing resources to the school?
    h.   It is stated in Article 42 of the T.R. Constitution that "Education is equal and free of charge." How would you explain the money collected as donations from parents in School Family Association accounts in line with this principle?
    i.   As a school administrator, do the budget plans you include in the School Strategic Plans reflect the reality?
    j.   Based on equal opportunity in education, do you think schools in cities and rural areas have equal income distribution?
    k.   What are your views and suggestions for improving the school's finances?
    l.   answers to questions were sought.

1.1 School Financing in Turkey and the World

It is assumed that the historical process of education finance in Turkey started with the 1869 Maarifi-i Umumiye Regulations in the Ottoman Empire. Subjects such as making primary education compulsory, dividing schools into degrees, administrative education in settlements with more than a thousand houses, opening high schools in places with more than five hundred houses, opening primary schools in every village and neighbourhood, including issues related to teacher training were asked financial support for education expenses from public. (Altın, 2008). When it came to 1913, Tedrisat-ı İptidaiye Kanun-ı Muvakkati (an Education Law of Education) was accepted. This law included new regulations in primary education, and due to its applicability, it remained in force for 48 years until the Primary Education and Training Law. It is accepted in the law that primary education is compulsory and free of charge, and primary education is completely under the responsibility of the state (Budak & Budak, 2014). As for today, in Article 42 of the Constitution; the statement that basic education is compulsory for all citizens and free of charge in primary and secondary education is considered important for the fact that education will be financed by the state and it will provide equal opportunity to individuals. While basic education level in Turkey is covered by the state as specified in the constitution, mixed method is preferred in financing secondary education (Yamaç, 2010). When we look for the other countries, for example in Spain, the Ministry of Education makes the planning of education financing. Local authorities (municipalities) do not have the right to directly interfere with the school administration. Education finance consists of tax revenues, central allowances and other types of income offered to groups (OECD, 2017). In Sweden, the education finance is provided by municipalities by transferring resources from high-income municipalities to municipalities with poor resources and the development of schools in this region is ensured (OECD, 2016b). When we look for Austria, federal schools get their resources from the federal government. Education is funded through grants transferred to provinces by provincial schools, states and municipalities (OECD, 2016a). Considering the outputs of the localization efforts, it cannot be said that the quality of education and the success rate have increased. With decentralization, teachers are no longer public servants and it has been observed that equal pay and equal working conditions among teachers have disappeared (Keskin, 2003, p. 13-18).

When the studies in the literature on education financing are examined; Kavak, Ekinci, and Gökçe (1997) stated in the constitution that the primary and secondary school levels in our education system are included in the primary education class in their study named "Search for Resources in Primary Education" and that the education financing of this school level will be covered by the state. , food, transportation) with the central budget and some of them (stationery, renovation, cleaning materials, etc.) are also being covered by donations. In the study, it was revealed that schools in city centres have 27 types of income items due to their social and economic structures, but village schools have 20 types of income items. Yıldırım (2020), in his study titled "Donations to Schools," revealed that the insufficiency of in-kind and cash resources in education caused the quality of education to decrease; Low school achievements have shown the lack of educational financing as the reason why success in social and cultural activities is not at the desired level. Yamaç (2010), in his study named "Finance Sources of Primary Schools," stated that the problem of education financing is getting deeper in Turkey and that the share allocated to schools from the resources specified by the state in the law is gradually decreasing. Dayton (1995) stated in his research that social and democratic development of schools would be faster if policy makers had implemented effective policies that compensated the damages of inequality and inadequacy of financing. Reinikka and Svensson (2004) discussed the amount of budget allocated for education in Uganda and their distribution according to schools in their study. According to the study, local education funding has obvious negative consequences; while the student groups living in the poor regions have access to less opportunities, it is stated in the research that rich regional schools have access to more opportunities thanks to politicians and local officials. Eppley (2009) discussed his study in the context of the problems experienced by teachers working in rural areas; he stated that the No Child Becomes Uneducated Act (NCLB) is lacking in rural research, and there is a mismatch between the supposed needs of rural schools and their real needs. When the studies in the literature are evaluated, it is seen that the education financing problem is not clarified not only in Turkey but all over the world. It is stated that the share of the state for education in Turkey is low and this situation leads to privatization; as a result, it does not seem possible to achieve equal standards in education. Studies have shown that when sufficient and equal financial support is provided to education, the social benefit will increase at that rate and it will accelerate the development of the country.

2. Method

2.1 Research Model

Research data were collected by qualitative research model. Qualitative research is a research method that tries to understand situations and events from the perspective of the participants and is based on the possibility of different personal views about the same situation (Büyüköztürk et al., 2019). The study was carried out with a phenomenological design focusing on phenomena that we do not have in-depth knowledge about an existing situation. Phenomenology design (phenomenology) is a research method that uses people's experiences to obtain detailed information about a phenomenon (Kocabıyık, 2016). In this study, the problems faced by school principals in supplying resources to the school and their spending areas were determined by using a semi-structured interview form, and these problems and solution suggestions were tried to be reflected by interpreting the opinions of the administrators.

2.2 Population and Working Group

School administrators in Şanlıurfa constitute the population of the research. Since it was thought that it would not be possible to reach the population due to labour, time and the coranavirus epidemic, it was deemed appropriate to take a sample that would represent the population. The study was planned to cover three central districts of Şanlıurfa, Eyyübiye, Haliliye and Karaköprü. The study is included in the stratified sampling class from the random sampling method. Stratified sampling is a sampling method that aims to identify subgroups in the population and ensure that these groups are represented in the sample with their ratios within the size of the population (Büyüköztürk et al., 2019).

Table 1: Distribution of Schools by Districts and Regions

		Districts							
		Eyyübiye		Karaköprü		Haliliye		Total	
		N	%	N	%	N	%	N	%
Location of the School	Village	4	57.1	2	40	2	25	8	40
	City	3	42.9	3	60	6	75	12	60
Total		7	35	5	25	8	40	20	100

8 (40%) of the managers in the sample were selected from rural areas and 12 (60%) from urban settlements. Considering the districts, it is seen that 7 (35%) of the managers work in Eyyübiye, 5 (25%) in Karaköprü and 8 (40%) in Haliliye.

2.3 Data Collection Tools

The data were collected by applying the semi-structured interview form created by the researchers to the school administrators in the 2020-2021 academic year. While the interview form was being developed, a pool of items related to the interview items was created by conducting legislation research and literature review, the weak items were eliminated, and the items in the form were created by taking comprehensive questions that serve the purpose of the interview. The interview items were checked for language and spelling by a Turkish teacher. An opinion was obtained from a school principal about the items in the form, and the form was made ready for implementation by deciding the appropriateness of the form. With the expert opinions received, the form was revised and attention was paid to the validity and reliability of the interview form. The form is divided into two parts. In the first part, the administrator's age, gender, institution he graduated from, graduation status, seniority, appointment method, whether he received management training, and the number of students in his schools were asked; the second part,

on the other hand, consists of the questions asked about the problems faced by the schools in the provision of allowances to the school and the spending areas of the allowances. Semi-structured interview form is included in Annex-1.

2.4 Data Collection

The data of the research were collected in the second semester of the 2020-2021 academic year. Approval of the ethics committee was obtained for conducting the study, and information about the purpose of the research and the way of data collection through stratified sampling was given to 20 school administrators in 3 districts selected. Data were collected by face-to-face interviews with 7 of the school administrators; with the remaining 13 school administrators, the data were received by mail due to the closure of schools and the acceleration of the spread of the coranavirus epidemic. 13 interview forms were collected by mail. 7 audio recordings and 13 forms collected by mail were transferred to Word files and formed the data group of the research.

2.5 Data Analysis

The answers given by the school administrators to the semi-structured interview form constituted the data group of this study. The analysis of the data was made by content analysis method, frequency and percentage tables were used. Büyüköztürk et al. (2019) defined content analysis as a regular and repeatable method in which the words in a text are divided into smaller parts and summarized by means of coding based on rules. The questions in the semi-structured interview form were carefully read by the researcher, the responses of the managers to each sub-purpose were evaluated separately and similarities and differences were expressed. Considering the participants of the semi-structured form we applied in terms of school type variable; school principals of 5 kindergartens (25%), 5 primary schools (25%), 5 secondary schools (25%) and 5 high schools (25%) were reached. While conducting the analysis, in order to keep the names of the participants confidential, code names were given for kindergarten principals as A1, A2, A3, A4, A5; for primary school principals as I1, I2, I3, I4, I5; for middle school principals as O1, O2, O3, O4, O5, and for high school principals as L1, L2, L3, L4, L5.

3. Findings

In this section, the findings obtained by the analysis of the data obtained based on the sub-objectives of the research are included.

3.1 Findings and Interpretation Regarding the First Sub-Purpose

In this section, the sub-aim of the research is "The problems faced by school administrators in supplying resources to the school and the participant's views on the spending areas of the appropriations; with the findings for this question "Does it differ according to gender, institution of graduation, graduation status, professional experience, age, mode of appointment to management, whether they have received any management education, and the number of students in the school?" have been tried to be explained by showing them in Table 2. Considering the participants of the applied semi-structured form in terms of school type variable; It is seen that it consists of 5 kindergartens (25%), 5 primary school (25%), 5 secondary school (25%) and 5 high schools (25%) principals.

Table 2: Demographic Characteristics of Participants

| | | Types of Schools | | | | | | | |
| | | Kindergarten | | Primary | | Secondary | | High School | |
		N	%	N	%	N	%	N	%
Gender	Boy	5	100	2	40	4	80	5	100
	Girl	0	0	3	60	1	20	0	0
Age	20-30	0	0	0	0	1	20	0	0
	31-40	3	60	3	60	2	40	0	0
	41-50	2	40	2	40	2	40	4	80
	51-60	0	0	0	0	0	0	0	0
	61 and over	0	0	0	0	0	0	1	20
Occupational Experience	1-5 ages	0	0	0	0	1	20	0	0
	6-10 ages	1	20	1	20	1	20	0	0
	11-15 ages	2	40	0	0	1	20	0	0
	16-20 ages	1	20	4	80	1	20	2	40
	21 and over	1	20	0	0	1	20	3	60
Number of Students	1-50	0	0	1	20	0	0	0	0
	51-200	3	60	0	0	1	20	0	0
	201-500	2	40	2	40	2	40	0	0
	500-1000	0	0	2	40	0	0	3	60
	1001 and over	0	0	0	0	2	40	2	40
Graduation	Two-year Degree	0	0	0	0	0	0	0	0
	Undergraduate	4	80	4	80	4	80	4	80
	Postgraduate	1	20	1	20	1	20	1	20
Faculty of Graduation	Faculty of Education	4	80	5	100	4	80	2	40
	Faculty of Arts & Sciences	0	0	0	0	1	20	3	60
	Training Institute	0	0	0	0	0	0	0	0
	Faculty of Theology	0	0	0	0	0	0	0	0
	Other	1	20	0	0	0	0	0	0
Management Training	Got	3	60	3	60	1	20	2	40
	Didn't get	2	40	2	40	4	80	3	60
Type of Assignment	With Exam	4	80	1	20	3	60	4	80
	Without Exam	1	20	4	80	2	40	1	20

According to the results of the gender variable, it is seen that the number of female managers working in National Education constitutes 20% (N = 4) of the total number of participants (N = 20). Considering the age data, it is seen that the managers are mostly in the 41-50 age group and the least rate is in the 20-30 and over 61 age groups. Looking at their professional experiences, it is seen that while the years of experience in kindergartens show a distribution, it is seen that 80% of them have 16-20 years of experience in primary schools, middle school principals are equally distributed among the experience groups, and high schools are generally concentrated in groups of 16-20 and 21 years with a lot of professional experience. Considering the number of students in general, it is observed that the number of students in kindergartens is lower than in other school levels, while the number of students in high schools is higher than other levels. When the graduation status of the administrators

participating in the study is examined, it is seen that 4 (80%) of them are undergraduate and 1 person (20%) is graduate for each level (kindergarten, primary school, middle school, high school). Considering the institutions that the participants graduated from, 4 (80%) of the kindergarten administrators graduated from the Faculty of Education and 1 (20%) from other educational institutions; all of the primary school administrators (100%) are graduates of the Faculty of Education; 4 (80%) of the middle school administrators are graduates of the Faculty of Education, 1 (20%) of the Faculty of Arts and Sciences; and it is among the findings that 2 (40%) of the high school principals graduated from the Faculty of Education and 3 (60%) of them graduated from the Faculty of Arts and Sciences. Considering whether the participants received management training after starting their managerial duty, 3 (60%) of the kindergarten administrators received, 2 (40%) did not; 3 (60%) of primary school administrators received, 2 (40%) did not; 1 (20%) of middle school principals received, 4 (80%) did not; and finally, it is seen that 2 (40%) of the high school principals received, 3 (60%) did not. Considering the way the participants are appointed to managerial positions, 4 (80%) of the administrators in the kindergartens are given an exam and 1 (20%) without an exam; 1 (20%) of the administrators in primary school are given with an exam, 4 (80%) of them without an exam; 3 (60%) of middle school administrators started to work with an exam, 2 (40%) without an exam, and finally, 4 (80%) of high school administrators are given with an exam and 1 (20%) without an exam.

3.2 Findings and Interpretation Regarding the Second Sub-Purpose

Within the scope of the research, answers to the questions in the second part of the semi-structured interview form were sought and the findings were interpreted.

3.2.1 Whaisre your school income?
The answers given by school administrators to the semi-structured interview form regarding this sub-purpose were given in Table 3 and the findings were tried to be interpreted.

Table 3: Table of School Income

	Education Levels									
	Kindergarten		Primary		Secondary		High School		Total	
	N	%	N	%	N	%	N	%	N	%
No Income	0	0	4	100	0	0	0	0	4	100
Canteen Revenues	0	0	1	16.7	2	33.3	3	50	6	100
Student Dues	5	83	0	0	1	16.7	0	0	6	100
School Family Association Incomes	0	0	1	50	1	50	0	0	2	100
Ministry of National Education Allowance	0	0	0	0	1	20	4	80	5	100
Aid from Teachers	0	0	0	0	1	100	0	0	1	100
Gym Revenues	0	0	0	0	0	0	1	100	1	100
Conference Room Revenues	0	0	0	0	0	0	1	100	1	100
Food Distribution Fee	0	0	0	0	1	100	0	0	1	100
Football Field Revenues	0	0	0	0	0	0	1	100	1	100

All of the kindergarten principals (N = 5) stated that their school income consists of their income from student fees. The majority of primary school principals (N = 4) stated that "we do not have school income." Considering the opinions of middle school institution principals, it was observed that they declared their income items such as canteen revenues (N = 2), student dues (N = 1), School Family Association incomes (N = 1), MEB allowances (N = 1), teachers' aids (N = 1), and food distribution (N = 1). High school institution managers, on the other hand,

have stated that there are income items such as canteen revenues (N = 3), MEB allowances (N = 4), sports hall revenues (N = 1), conference hall revenues (N = 1) and football field revenues (N = 1).

3.2.2 What are your school expenses? What is the most needed item in expenditures? Please indicate at least five areas in order of importance (Example: stationery, social activity, cleaning materials, service procurement, infrastructure, renovation costs).

The answers given by school administrators to the semi-structured interview form regarding the problem are given in Table 4 and interpreted.

Table 4: Table of School Expenses

| | | Education Levels | | | | | | | | |
| | | Kindergarten | | Primary | | Secondary | | High School | | Total | |
		N	%	N	%	N	%	N	%	N	%
First Rank	Stationary	1	20	0	0	1	20	3	60	5	100
	Social Activity	0	0	1	100	0	0	0	0	1	100
	Cleaning	1	20	2	40	1	20	1	20	5	100
	Service Procurement	2	66.7	0	0	0	0	1	33.3	3	100
	Infrastructure	0	0	0	0	0	0	0	0	0	0
	Fixing	1	16.7	2	33.3	3	50	0	0	6	100
Second Rank	Stationary	1	16.7	3	50	1	16.7	1	16.7	6	100
	Social Activity	0	0	0	0	0	0	0	0	0	0
	Cleaning	3	37.5	0	0	1	12.5	4	50	8	100
	Service Procurement	0	0	0	0	1	100	0	0	1	100
	Infrastructure	0	0	2	100	0	0	0	0	2	100
	Fixing	1	33.3	0	0	2	66.7	0	0	3	100
Third Rank	Stationary	0	0	1	25	3	75	0	0	4	100
	Social Activity	0	0	1	50	0	0	1	50	2	100
	Cleaning	1	100	0	0	0	0	0	0	1	100
	Service Procurement	3	42.9	1	14.3	2	28.6	1	14.3	7	100
	Infrastructure	0	0	0	0	0	0	1	100	1	100
	Fixing	1	20	2	40	0	0	2	40	5	100
Fourth Rank	Stationary	0	0	0	0	0	0	0	0	0	0
	Social Activity	0	0	1	50	0	0	1	50	2	100
	Cleaning	0	0	3	50	3	50	0	0	6	100
	Service Procurement	0	0	0	0	2	66.7	1	33.3	3	100
	Infrastructure	3	60	0	0	0	0	2	40	5	100
	Fixing	2	50	1	25	0	0	1	25	4	100
Fifth Rank	Stationary	3	60	1	20	0	0	1	20	5	100
	Social Activity	1	33.3	1	33.3	1	33.3	0	0	3	100
	Cleaning	0	0	0	0	0	0	0	0	0	0
	Service Procurement	0	0	1	50	0	0	1	50	2	100
	Infrastructure	1	11.1	2	22.2	4	44.4	2	22.2	9	100
	Fixing	0	0	0	0	0	0	1	100	1	100

When we look at Table 4, it is seen that school principals have fixing expenditures (N = 6) among the expenditure items in the first place, the expenditure items declared in the second place are cleaning expenditures (N = 8) and the expenditure items in the third place are the service procurement (N = 7) expenditures. It is seen that among the expenditure items, cleaning (N = 6) expenditures are in the fourth place, and infrastructure expenditures (N = 9) take the fifth place.

3.2.3 Do you find the financial support provided by the Ministry of National Education sufficient?
Considering the findings of the problem, it stands out that all school administrators consider the resource support provided by the National Education Ministry is not sufficient. I3; "There is no financial support. When it comes to fixing, it is done sometimes and sometimes not. " He stated that the Ministry of National Education only responded to the requests for fixing, but that it was not done regularly.

3.2.4 When your needs cannot be met by the National Education Ministry, from which people or institutions will you get support?
Considering the views of the school principals who participated in the study, some principals stated that they did not provide support from any institution or person, while some principals stated that they provided support from municipalities, parents, non-governmental organizations, friends and School Family Associations by using their personal relations.

3.2.5 Can Provincial / District National Education Directorates respond to your requests in a timely manner? Do you think there is a transparent practice in meeting these demands?
It is noteworthy that school principals have expressed very different opinions on whether Provincial / District National Education Directorates respond to the demands of schools at the right time and whether there is transparency in resource support. Regarding whether the requests are answered on time, it was observed that A1, A2, I5, L1 answered "Timely response is given." while the other 16 school principals stated, "There is no response in time." Although A1, A2, A5, I5, O3, O4, L2 stated that the District Directorates of National Education was transparent in meeting the demands of the school principals; A3, A4, I1, I2, I3, I4, O2, O5, L1, L3, L5 stated that there is no transparency in the application.

3.2.6 As a school administrator, do you find the distribution of allowance amounts equal according to school types?
Considering the opinions of school administrators about the distribution of the amount of allowances by school types, A1 and L5 stated that the resources were equally distributed among the school types, while the other 18 administrators stated that they were not equal. A2 stated his opinion as "I don't find it equal. While more funds are allocated to high schools, the expenses made in kindergartens are more".

3.2.7 Do you think the School Family Association is sufficient to provide resources for the school?
All of the school administrators (N = 20) stated that School Family Associations are not sufficient to provide resources to the school.

3.2.8 It is stated in Article 42 of the T.R. Constitution that "Education is equal and free of charge." How would you explain the money collected as donations from parents in School Family Association accounts in line with this principle?
Of the kindergarten schools, A2 and A3 stated that donations were not collected before school. L2 and L3 stated that they do not collect donations in their schools. I1 stated that money was collected because it was compulsory; I3 supported I1 and said "It is not equal, but it is done because it has to. Nobody wants to raise money". A5 stated that as donations are voluntary, this does not contradict with Article 42 of the constitution; and it has been observed that A1, A4, I2, I5 and L5 also expressed ideas that support this.

3.2.9 As a school administrator, do the budget plans you include in the School Strategic Plans reflect the reality?
When the views of the school administrators were evaluated on whether the budget plans included in the School Strategic Plans, which were prepared every five years by the schools, reflected the reality, it was seen that the majority of the administrators expressed their opinions that they are not reflecting the reality. Unlike the manager views that show that the plans do not come up to the reality, O5 stated; "I have been at this school for 8 years. I

can say that our balance of income and expenditure is fixed and our budget planning reflects the reality. We try to support village schools when circumstances allow". There were also some managers who stated that their budget planning did not change due to the fixed income-expense areas.

3.2.10 Based on equal opportunity in education, do you think schools in cities and rural areas have an equal income distribution?

Considering the findings related to this sub-purpose, it is seen that all of the administrators participating in the study stated that schools in urban and rural areas do not have equal conditions. I1 said "Schools in rural areas are very unlucky. They suffer from a lot of trouble, especially because of the lack of canteen income and parent support. " and he drew attention to the fact that the canteen revenues of the schools in the centre make a significant difference.

3.2.11 What are your views and suggestions for improving the school's finances?

Considering the ideas of administrators to improve the financing of schools, it is observed that the general recommendation is that a budget should be allocated to each school. Of the school administrators; A2 suggested "By opening workshops within the schools, by growing products in school gardens with suitable environment, and by opening clubs; additional income can be created. This is up to the principal's effort and assertiveness. If the school environment is suitable, a pool can be opened, sports fields can be created and this creates additional income for the school. In addition to being a place of education, the school is also in business status and its income can be increased". L5 suggested "Every year a budget should be allocated to schools according to the level of weariness of the school and the income level of the School Family Association. Since there are income injustices, School Family Associations may be closed completely and inspection boards, which are abolished by sending funds to schools, may be put into effect".

4. Discussion and Conclusion

When the results of the findings regarding the question "What are your school income?" were evaluated, it was seen that kindergartens stated only student fees as a source of income. Primary and secondary school principals declared their income as canteen incomes, School Family Association incomes, food distribution fee, aid from teachers, and District National Education Directorates as transfer incomes. Unlike other types of schools, directors of high schools stated that they have different income sources such as football field, conference hall, indoor sports hall, canteens and central budgets. The reflection of the opportunities of high schools on income provision stands out; It is noteworthy that facilities such as a football field, conference hall and indoor sports hall create additional resources for the school. It is also noteworthy that the allowances received from secondary education institutions are defined directly to the school account from the central budget, and primary education budgets are used to compensate the deficiencies of schools through the Provincial or District National Education Directorates. It can be said that the research findings of Toker et al. (2018), Kayıkçı and Akan (2014) on school income match up with the findings of this study.

Considering the results of the findings regarding the question *"What are your school expenses? What is the most needed item in expenditures? Please indicate at least five areas in order of importance (For example: stationery, social activity, cleaning materials, service procurement, infrastructure, fixing costs). ",* it is seen that stationery, cleaning and service procurement in kindergartens, fixing, cleaning and stationery in primary schools, cleaning, fixing and stationery in secondary schools, stationery, cleaning and fixing in high schools are at the top. Toker et al., (2018) also revealed similar expense items in their studies. When we look at the statements of the administrators at all school levels, it is noteworthy that cleaning and stationery expenses are the primary expenditure areas, and the expenditures allocated to social activities are at the bottom.

Considering the results of the question *"Do you find the financial support provided by the Directorate of National Education sufficient?",* school principals stated that the financial support provided to schools by the National Education was generally seen as insufficient at all levels. The research findings are in line with the literature (Kavak et al., 1997; Karaaslan, 2005; Yamaç, 2010 and Toker et al., 2018); it is seen in the studies that the resource allocated for education from the state budget is not sufficient.

When the results of the findings regarding the question *"Which person or institutions will you get support from when your needs cannot be met by the National Education?"* were evaluated, the administrators stated that they first received support from municipalities, then social media, private persons or institutions. Administrators requesting support from different institutions or individuals can be considered as a situation that overshadows the reputation of administrators as well as being outside of the school principal's field of duty. Reinikka and Svensson (2004) also emphasized in their study that financing of schools by local authorities has obvious negative consequences and they found that they do not find it right for education to be financed by local authorities.

Considering the results of the findings regarding the question *"Can Provincial / District National Education Directorates respond to your requests in a timely manner? Do you think there is a transparent practice in meeting these demands? ",* it was observed that the minority of the school principals stated that the requests were answered in a timely manner, while the others stated that they were not answered in a timely manner. Considering the District National Education Directorates to which the principals are affiliated, it is a striking finding that the majority of the school principals (N = 3), who are stated to be transparent, work within the Karaköprü District National Education Directorate; the majority of the principals (N = 6), who stated that they were not transparent, worked within the Haliliye District Directorate of National Education.

When the results of the question *"As a school administrator, do you find the distribution of allowance amounts according to school types equal?"* were evaluated, some school principals stated that the amount of the allowance was equal, but the ways of sending were not equal, the spending of the kindergartens was more while the allowance was allocated more to high schools, the equal amount of allowance was not equal, and that more allowance was allocated to Imam Hatip Secondary Schools and high schools. In his study, Altunay (2017) revealed that schools with resources allocated from the general budget, in accordance with the research findings, are in a relatively advantageous position.

When the results of the results of the question *"Do you think the School Family Association is sufficient to provide resources for the school?"* were evaluated, school principals stated that School Family Associations can contribute to schools in districts with good socioeconomic status, but do not provide benefits in districts with poor socioeconomic status, that the money collected in School Family Associations is only enough to meet small needs, and they do not want to damage their reputation towards parents. Çalık et al. (2019) stated that the income of school family associations in regions with different socioeconomic conditions is also different; and they found that this situation was an obstacle to providing equal and sufficient resources to the school as these findings were similar to the findings of their study.

When the results of the question *" It is stated in Article 42 of the T.C. Constitution that "Education is equal and free of charge." How would you explain the money collected as donations from parents in School Family Association accounts in line with this principle? "* were evaluated, it was seen that some principals stated that they did not collect donations in their schools and that donations eliminated equality. Kavak et al. (1997) argued that education should be financed by the state; Saklan and Erginer (2016) stated that education should be considered as a public service; Toker et al. (2018) revealed findings that are similar to the findings of the study, stating that education is apparently free of charge, but actually trying to be kept alive with private financing resources. Korkmaz (2005), on the other hand, stated an idea that suggests that the problem of financing education can be solved with the support of families.

Considering the results of the question *"As a school administrator, do the budget plans you include in the School Strategic Plans reflect the reality?"* in general, it is seen that due to the lack of fixed income, the income-expense balance cannot be achieved and the budget does not reflect the reality. It is also noteworthy that administrators who express that they reflect the truth work in central schools. It can be said that schools in rural areas with no income and schools connected to basic education generally have difficulties in establishing the real budget.

When the results of the question *"Based on equal opportunity in education, do you think schools in cities and rural areas have an equal income distribution?"* were evaluated, it can be concluded that the lack of incomes such as canteens, kindergartens and School Family Association in rural areas causes inequality in terms of opportunities

between schools in the city and rural schools. When the studies in the literature are examined; Kavak et al. (1997) stated in their study that the schools in the city centre have 27 kinds of income, but the village schools have 20 kinds of income and the conditions of the schools in the village and city centre are not equal. Eppley (2009) found in his study that rural schools have different opportunities with schools in the city centre. It can be said that the research findings are similar to the results of the studies in the literature.

When the results of the question *"What are your views and suggestions for improving the school's finances?"* were evaluated, it was suggested that the allocation planning of the schools should be made by the administrators rather than the Provincial / District National Education Directorates, the budget amounts to be sent directly to the schools for each school and the budget could be transferred to the following years. In addition, practical suggestions such as evaluating schools as enterprises that contribute to production as well as being training centres have been presented. When we look at the suggestions for improving school financing in the literature, Dayton (1995) stated in his study that effective policies that minimize the damages of inequality and insufficiency should be implemented and that education finance reform advocates should seek to convince the public and policy makers; Devrim and Tosuner (1987, p. 103) suggested that the tax regime should be regulated in a way that encourages business owners to support educational financing and that the opportunities for each school to establish revolving funds should be improved.

5. Recommendations

When the results of the study are evaluated, it is thought that the implementation of some policies by the practitioners will contribute to the solution of the education finance problem. While allowances come directly to high schools, basic education levels are provided through Provincial / District National Education Directorates. Arrangements can be made by education planners to direct allowances to each type of school. It was observed that some of the school administrators stated that they were uncomfortable with the functioning of School Family Associations. In order to eliminate this situation, a more objective and School Family Association legislation that will ease the practices of school administrators should be made. Plans that minimize the differences between schools in urban and rural areas and enable equal opportunities to students should be implemented. The budget allocated to the Ministry of National Education should be increased and plans should be implemented to eliminate the unjust treatment of primary schools. By making it compulsory by the government to apply special discounts to schools, such as stationery, cleaning supplies, equipment needs; schools can be supported in the procurement process. The areas that will bring additional income to the school such as the practice garden, sports field, and wedding area should be made functional and schools should be encouraged. Adequate resource support should be provided to schools by the National Education, and more budget should be allocated for social activities that administrators had to postpone due to lack of resources. Since this study is a qualitative study, researchers may be advised to include quantitative or mixed studies in their studies on the subject. The research was limited to three central districts of Şanlıurfa province (Karaköprü, Haliliye, Eyyübiye). The same research can be extended to include other districts of Şanlıurfa.

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APPENDICIES

APPENDIX-1: SEMI-STRUCTURED INTERVIEW FORM ABOUT "PROBLEMS ENCOUNTERED BY SCHOOL ADMINISTRATORS IN PROVISION OF ALLOWANCES TO SCHOOL AND SPENDING AREAS OF ALLOWANCES"

My dear colleague,

The aim of this study is to evaluate the views of school administrators working in Şanlıurfa on the problems they encounter in the provision of allowances to the school and the spending areas of the allowances. Your answers to the questions in the interview form will be kept confidential by us and will be used purely for scientific purposes.

This interview form consists of two parts. The first part consists of questions prepared to obtain personal information; The second part consists of questions prepared in order to determine your views and opinions about the problems faced by school administrators working in Şanlıurfa in the provision of allowances to the school and the spending areas of the allowances.

Thank you in advance for your interest and help.

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FIRST PART

Gender	Woman ( )	Man ( )			
Alma Mater	Faculty of Education ( )	Faculty of Arts and Sciences ( )	Traning Institute ( )	Faculty of Theology ( )	Other…………..
Graduation	Two-year Degree( )	Undergraduate ( )	Postgraduate( )		
Professional Experience (seniority)	1–5 Years ( )	6–10 Years ( )	11–15 Years ( )	16–20 Years( )	Over 21 Years( )
Age	20-30 ( )	31-40 ( )	41-50 ( )	51-60 ( )	61 ve üzeri ( )
How you are appointed to the management	With exam( )	Without exam ( )			
Whether you have received any management training	Yes ( )	No ( )			
Number of Students in your school	1-50 ( ) 51-200 ( ) 201-500 ( ) 500-1000 ( ) 1001 and over ( )				

SECOND PART

SEMI-STRUCTURED INTERVIEW QUESTIONS

1. What are your school income?
2. What are your school expenses? What is the most needed item in expenditures? Please indicate at least five areas in order of importance (Example: stationery, social activity, cleaning materials, service procurement, infrastructure, renovation costs).
3. Do you find the financial support provided by the Ministry of National Education sufficient?
4. When your needs cannot be met by the National Education Ministry, from which people or institutions will you get support?
5. Can Provincial / District National Education Directorates respond to your requests in a timely manner? Do you think there is a transparent practice in meeting these demands?
6. As a school administrator, do you find the distribution of allowance amounts equal according to school types?
7. Do you think the School Family Association is sufficient to provide resources for the school?
8. It is stated in Article 42 of the T.R. Constitution that "Education is equal and free of charge." How would you explain the money collected as donations from parents in School Family Association accounts in line with this principle?
9. As a school administrator, do the budget plans you include in the School Strategic Plans reflect the reality?
10. Based on equal opportunity in education, do you think schools in cities and rural areas have an equal income distribution?
11. What are your views and suggestions for improving the school's finances?