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Tangible Resources and Effective E-Learning Implementation in Selected Ugandan Public Universities

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Abstract

This study assessed the influence of tangible resources on the effective implementation of e-learning during and beyond the COVID-19 pandemic era in public universities in Uganda. The concept of tangible resources was derived from the Resource-Based View Theory. Universities' tangible resources for e-learning were operationalized in terms of ICT teaching facilities, access to ICT facilities, e-library resources, and university ICT implementation policies. Using a cross-sectional survey design, data were collected from a sample of 312 academic staff using a questionnaire survey. The data were analysed using descriptive statistics and structural equation modelling (SEM). The findings revealed that access to ICT facilities and university ICT policy positively and significantly predicted e-learning implementation. However, ICT teaching facilities and library e-resources positively but insignificantly predicted e-learning implementation. The conclusions of the study were to the effect that access to ICT facilities and universities' ICT policies are imperative for the implementation of e-learning. Nevertheless, ICT teaching facilities and libraries' e-resources do not necessarily lead to the effective implementation of e-learning. The study recommended that university managers make efforts to ensure that ICT facilities are accessible to lecturers and students and develop policies guiding the implementation of e-learning. University managers should also make university ICT resources and library e-resources more accessible to lecturers and students.

Keywords: Access, E-Library, Facilities, ICT, Implementation, Policies, RBVT, Resources, Tangibles, Teaching

1. Introduction

Fundamentally, the education landscape globally has changed since the outbreak of the COVID-19 pandemic because of intermittent closures of educational institutions that denied teachers and students on campus face-to-face teaching and learning. Since then, it has become necessary for universities to include the online teaching mode using e-teaching and learning (Bozkurt et al., 2020; Godber & Atkins, 2021). Already, most educational institutions in the Western World and Asia had largely advanced in the adoption of e-learning. Nevertheless, in the developing countries of Africa, very few educational institutions were ready to use online teaching and learning to satisfactory levels (Maré & Mutezo, 2021; Mugizi & Nagasha, 2023). Taking the example of Uganda, a handful of private universities before the COVID-19 pandemic had effective pre-existing e-learning platforms successfully offering online education (Kabahizi, 2020). While almost all the top public universities in the country offering in-service and external programmes already had open distance education learning

programmes for students on those programmes, they hardly conducted remarkable online classes (Busein, 2021). In those universities, the online teaching and learning platforms existed, but few students were using them; they had limited content, were very slow, and even could not accommodate a large number of users at a single time (Shabomwe, 2021).

In Uganda, during the initial closure of educational institutions that started in March 2020 (Mugizi et al., 2021), universities that attempted to conduct online teaching and learning were blocked by the government, claiming that by closing educational institutions, it meant that every educational activity was supposed to shut down, including the running of any online activity (Ahabwe, 2020; Muhwezi, 2020). Challenges cited for blocking online classes included unaffordable internet costs for teachers and students, poor internet connectivity, a lack of ICT tools, and low knowledge of ICT use (Komuhangi et al., 2022). Nonetheless, after three months of lockdown in educational institutions, the Government realised that COVID-19 was not about to go away. Hence, the government asked universities to start online classes. The reality of the "new normal" situation dictated that educational institutions adopt online teaching and learning. Higher institutions of education were required to conduct long-distance modes of instruction using whatever technologies they could harness (Kabahizi, 2020).

While the government realised the need for online classes, implementation became problematic. At Makerere University, a section of students staged a protest against online classes, claiming that the system was ineffective and was being forced on them by the university administration (Busein, 2021). At Kyambogo University, students protested against online learning, complaining that most lecturers were not involved in online classes (Shabomwe, 2021). This was despite the fact that Makerere University already had an online learning platform, the "Makerere University E-learning Environment" (MUELE), on which lecturers could upload learning content and engage students in interactive activities including discussion forums, assignments, and quizzes, among others (Olum et al., 2020). Similarly, Kyambogo University already had in place an Open Distance Education Learning (ODEL) Centre equipped to offer e-learning to in-service and external students. In addition, the universities already had computer laboratories, internet connectivity, and e-library resources that could facilitate e-teaching and learning (Mugizi & Nagasha, 2023). With these tangible resources in place, the unanswered empirical question that emerged was how existing university e-learning resources could contribute to effective e-learning implementation.

The above unanswered empirical question emerged because it was assumed that, based on existing tangible resources, universities could have effectively implemented e-learning. The concept of tangible resources is anchored in resource-based theory. The Resource-Based Theory (RBT), introduced by Penrose (1959) and developed by its proponents such as Barney (1986), explains that among the essential resources of organisations are tangible resources. Tangible resources are specific assets of a tangible nature that an institution owns and uses to perform its activities. Tangible resources are necessary within the context in which institutions perform their activities and are relevant factors in generating routines (Torres-Barreto et al., 2020). Tangible resources are vital for the operations of organisations. A minimum amount of tangible resources is a requirement for successful organisational performance (Wongwilai et al., 2022). Tangible resources provide a sustainable competitive advantage to organisations (Holdford, 2018). Tangible resources are utilised to provide services (Jawed & Siddiqui, 2019) and help organisations overcome and deal with uncertainties, enhancing organisational success (Kim et al., 2019). Studies reveal that tangible resources for e-learning include ICT teaching facilities (Akbulut et al., 2007), access to ICT facilities (Akbulut et al., 2007; Mugizi & Amwine, 2020), and ICT implementation policies (Akbulut et al., 2007; Isaacs et al., 2018; Anyim, 2018). This study assessed the influence of tangible resources on the effective implementation of e-learning during and beyond the COVID-19 pandemic era in public universities in Uganda. Specifically, the study tested the hypotheses to the effect that;

H1: ICT facilities have a significant influence on effective e-learning implementation.
H2: Access to ICT facilities has a significant influence on effective e-learning implementation.
H3: Library e-resources have a significant influence on effective e-learning implementation.
H4: Universities ICT policies have a significant influence on effective e-learning implementation.

2. Tangible Resources and Implementation of E-learning

Tangible resources for e-learning include ICT teaching facilities, access to ICT facilities, and ICT implementation policies. With respect to ICT teaching facilities, these include computers, the internet, an intranet, video conferencing, and broadcasting technologies, among others, that can facilitate instruction and the teaching and learning processes (Basak et al., 2018). ICT is an important tool for realising a new paradigm of learner-centred education due to the range of ICT options for videoconferencing and websites that can be used to meet the challenges teachers face. ICT provides more flexible and effective ways for lifelong learning for today's teachers and students (Hailye, 2020). Scholars (e.g., Akinde & Adetimirin, 2017; Asubiojo & Ajayi, 2017; Eze et al., 2018; Gupta et al., 2022; Hailye, 2020; Matviichuk et al., 2022; Ouma, 2021; Semlambo et al., 2022) have related ICT teaching facilities and e-learning implementations. The studies above revealed that ICT teaching facilities are important in the implementation of e-learning. However, while the studies pointed to the importance of ICT facilities in the implementation of e-learning, the study done at a private university in Uganda by Ouma indicated that there were limited ICT facilities. This attracted the need for this study in the context of public universities to explore whether the situation was different and how what prevailed related to effective e-learning implementation..

With respect to ICT facility access, this is an individual's unhindered right or ability to locate and use ICT technology devices (Umukoro et al., 2021). Access to ICT resources affects e-learning implementation because e-learning thrives on the availability of ICT facilities (Adarkwah, 2021). Students who have a higher level of access to digital devices such as computers, smartphones, tablets, and the Internet are likely to respond positively to e-learning delivery (Arthur-Nyarko & Kariuki, 2019). Studies (Arthur-Nyarko & Kariuki, 2019; Adarkwah, 2021; Innab & Alqahtani, 2022; Lembani et al., 2019; Newen & Cheny, 2022; Siddiquah & Salim, 2017; Subashini et al., 2022; Yuliani & Mercuriani, 2021) have been carried out on access to ICT facilities and e-learning implementation. However, the studies revealed empirical gaps. For instance, while Adarkwah (2021) and Lembani et al. (2019) indicated that lack of access to ICT facilities hindered implementation of e-learning, Arthur-Nyarko and Kariuki (2019) indicated that access to internet access did not influence preference for e-learning delivery mode, and Siddiquah and Salim (2017) reported that students' access to ICT was not related to their use in learning. This meant that the relationship between ICT and e-learning implementation was still shrouded in contradictions, calling for the need for this study.

Regarding the ICT policies, these are statements focused on making ICT a teaching and learning tool for e-learning (Aidoo et al., 2022). Therefore, an ICT policy refers to a statement stipulating practises that guide how ICT should be implemented in an institution. There are a number of scholars (Czerniewicz & Brown, 2009; De Freitas & Oliver, 2005; MacKeogh & Fox, 2009; Priatna et al., 2020; Teo et al., 2020) that have related ICT policy to e-learning implementation. Analyses by these scholars revealed that policies enhanced e-learning implementation. Nonetheless, while the studies above suggested that scholars had expended effort to relate ICT policies to e-learning implementation, a literature search revealed a lack of such studies in the context of Uganda. This thus attracted the attention of this empirical study in the context of Uganda, to establish if universities have developed ICT policies and how they relate to e-learning implementation.

With regard to library e-resources, these are electronic information resources accessed on the web, on campus, or off campus through the library (Ternenge & Kashimana, 2019). Library e-resources include such resources as e-journals, e-books, and online databases accessed directly or remotely (Saklani, 2020). Library e-resources help faculty members and learners collect current teaching and research materials easily (Mwantimwa, 2017). Library e-resources also help learners access reading materials (Rivo & Umer, 2022). Scholars (Ajegbomogun et al., 2017; Anyim, 2021; Oladele & Modebelu, 2021; Mugizi & Amwine, 2020; Odili et al., 2020; Olaniran et al., 2017). Nevertheless, while all the studies suggested that library e-resources are essential for the implementation of e-learning, Olaniran et al. (2017) did not. This suggested that the effect of e-library resources on e-learning implementation still needed to be explored in different contexts. In addition, none of the studies captured university contexts in Uganda where students were resisting e-learning. Therefore, it was imperative to further assess the relationship between library e-resources and the implementation of e-learning.

3. Methodology

This section presents the methodology that was followed in carrying out the investigations for the study. The methods enabled the collection and analysis of data on tangible resources and effective e-learning implementation.

3.1 Research design and Sample

The cross-sectional research design guided data collection. This was because cross-sectional studies collect data on what exists at a particular point. The design enabled simultaneous analysis of a number of variables and the assessment of the study problem, leading to suggestions on how to optimise existing tangible resources for effective e-learning implementation. Since the design also enables the collection of data using a self-administered questionnaire, it was very appropriate. Full-time academic staff at the universities of Kyambogo and Makerere provided the data. A sample of 312 academic staff from a population of 1883 was studied. The respondents were drawn from a target population of 1432 academic staff from Makerere University and 451 from Kyambogo University.

3.2 Measures of the Variables

The data collection tool was a self-administered questionnaire because it enabled collecting data from a large number of respondents. The independent variables of tangible resources were measured in terms of ICT teaching facilities (Akbulut et al., 2007; Schreurs, 2007), access to ICT (Akbulut et al., 2007; Mugizi & Amwine, 2020), university ICT implementation policy (Akbulut et al., 2007; Ngololo et al., 2012; Isaacs et al., 2018), and library e-resources (Anyim, 2018). E-learning effective implementation was measured in terms of student-student, student-teacher, and student-content e-interaction (Downer et al., 2015; Malinovski et al., 2012; Ylmaz & Karataş, 2018). The ordinal scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Not sure, 4 = agree, and 5 = strongly agree, was used. This was because the anchors enabled the collection of data that could be analysed quantitatively.

3.3 Data Analysis Methods

Descriptive and inferential analyses were carried out. Descriptive analysis included the calculation of means to establish how the respondents rated the quality of tangible resources at the universities and the effectiveness of e-learning implementation. Inferential analysis involved structural equation modelling (SEM) using SmartPLS software provided in SPSS. This helped in building models of the appropriateness of the measures and establishing how tangible resources at universities enhance the implementation of e-learning.

4. Results

This section presents findings on tangible resources and effective e-learning implementation in selected Ugandan public universities. The findings include measurement and structural equation models and Path Model estimates.

4.1 Demographic Characteristics

The demographic data characteristics revealed that the modal percentage (70.8%) was male, while the females were 29.2%. The majority percentage (68.3%) of the academic staff was 40 years and older, with those 30 to 40 years being 26.0% and the remaining 5.7% being up to 30 years. The larger percentage (55.8%) of academic staff possessed master's degrees; 40.4% had PhDs; and 1.9% and another 1.9% possessed bachelor's degrees and postgraduate diplomas, respectively. The results further showed that the larger percentage (50.0%) of the respondents were at the rank of assistant lecturer, 38.5% were at the rank of lecturer, 9.6% at the rank of senior lecturer, and 1.9% at the rank of associate professor. This data shows that varied academic staff provided data. Therefore, results representative of the views of different segments of academic staff at the universities were captured.

4.2 Measurement Models

Descriptive results, specifically the means, were calculated to show how the academic staff rated the tangible resources of the universities. Thereafter, measurement models were done to establish whether the data were fit for structural equation modelling. Measurement models included validity tests in terms of Average Variance Extracted (AVE) and heterotrait-monotrait (HTMT) assessments and reliability tests in terms of Cronbach's alpha [α] and Composite Reliability [CR]. The value inflation factor (VIF) was computed to detect the existence or non-existence of linearity or correlation between the independent variables and determine whether they were appropriate for structural equation modelling. The results follow in Tables 1 and 2.

4.2.1 Measurement Model 1

The first measurement model presents descriptive statistics, specifically the means, AVE, and Heterotrait Monotrait (HTMT) Discriminant Validity. The means show how the respondents rated e-learning implementation, while the AVE and Heterotrait Monotrait (HTMT) ratios of correlations for discriminant validity show whether the measures of the variable of universities tangible resources were convergent but differently measured the variable. The results are presented in Table 1.

Table 1: Descriptives, Means and Heterotrait-Monotrait Ratio (HTMT) for Tangible Resources

Measures	Means	AVE	ELI	SCI	SSI	STI	
ELI	3.55	1.000					
SCI	3.42	0.692	0.869				
SSI	3.54	0.550	0.758	0.502			
SSI	3.68	0.526	0.869	0.640	0.517		
Measures	Means	AVE	ACT	ITF	LE	TR	UIP
ACT	2.76	0.669					
ITF	2.38	0.631	0.679				
LE	3.53	0.537	0.394	0.500			
TR	3.03	1.000	0.812	0.872	0.794		
UIP	3.10	0.594	0.678	0.626	0.506	0.883	

ACT = Access to ICT facilities, ELI = E-learning Implementation, ITF = ICT Teaching Facilities, LE = Libraries E-resources, R = Tangible Resources, SCI = Student-Content E-Interaction, SSI = Student-Student E-Interaction, STI = Student-Teacher E-Interaction, UIP = University ICT Policy.

The results in Table 1 show that overall, the lecturers rated e-learning implementation as high (mean = 3.55). This is because the mean was close to code 4, which on the five-point Likert scale used corresponded to "agree"

or high. However, the lecturers rated student-content e-interaction when using e-learning to be moderate (mean = 3.42) because the mean was close to code three for "not sure." Three being the average, the results were thus moderate or fair. With respect to student-student e-interaction (mean = 3.54) and student-teacher e-interaction (mean = 3.68), they were rated high, respectively. Therefore, while student-content e-interaction was moderate, student-student and student-teacher e-interaction was high. With respect to the independent variable of tangible resources, overall, the lecturers rated them moderate (mean = 3.03). This is because the mean was close to code 3, which on the five-point Likert scale used corresponded to "not sure" that it was fair or moderate. The lecturers rated access to ICT facilities (2.76), ICT teaching facilities (2.38), and university ICT policy (mean = 3.10) as moderate. However, library e-resources (Mean = 3.53) were rated highly. Therefore, except for e-library resources, all the other aspects of tangible resources, namely ICT facilities, ICT teaching facilities, and university ICT policy, were rated moderate.

The AVE results in Table 1 assessing convergent validity revealed that the various constructs measuring e-learning and tangible resources were appropriate measures. The AVE values are above the minimum level of 0.5. This implies that the indicators are appropriate measures of the constructs (Shrestha, 2021). Convergent validity is the degree of the relationship between measures of a latent variable. Convergent validity is a measure that proposes that measures of variables should be related to each other; hence they measure the same concept (Sürücü & Maslakç, 2020). Table 1 also shows that Heterotrait-Monotrait (HTMT) ratios of correlation that assess discriminant validity were calculated. These sought to determine whether the constructs studied were independent; hence, they described the variables of e-learning implementation and tangible resources independently. HTMT is a reflective test that determines whether measures of a variable in a model are independent and, therefore, whether their indicators strictly define each construct (Hair Jr. et al., 2020). The Heterotrait-Monotrait ratio (HTMT) correlations for three constructs of e-learning and implementation and four constructs of tangible resources (Table 1) fulfilled the discriminant validity conditions since all the values were below the maximum level of 0.90 (Hair Jr. et al., 2021). Therefore, the measures separately described the variables. This means that the data collected on the variables was appropriate for structural modelling.

4.2.2   Measurement Model 2

The second measurement model provides reliability (Cronbach's alpha [α] and composite reliability [CR]) and collinearity [VIF]) assessments. Reliability and collinearity tests were done to find out whether the data collected for the different constructs could be subjected to structural modelling. The results are indicated in Table 2.

Table 2: Construct Reliability and Validity for E-learning Implementation and Tangible Resources

Measures	α	CR	VIF
E-learning Implementation	1.000	1.000	
Student-Content E-Interaction	0.850	0.899	1.508
Student-Student E-Interaction	0.792	0.858	1.293
Student-Teacher E-Interaction	0.819	0.869	1.522
Access to ICT facilities	0.833	0.890	1.703
ICT Teaching Facilities	0.801	0.872	1.742
Libraries E-resources	0.876	0.902	1.393
University ICT Policy	0.862	0.897	1.784
Tangible Resources	1.000	1.000	

Table 2 suggests that reliability test results in terms of Cronbach's alpha (α) and composite reliability (CR) were above the threshold of 0.70, which implied that the measures of the constructs were reliable. Composite reliability was carried out since Cronbach's alpha is very sensitive because it assumes that the traits of the indicators should be the same across the population, which lowers reliability values. For composite reliability, it is liberal because it accommodates outer traits, which helps to ensure that a higher number of indicators become reliable (Hair et al., 2019). The test results in Table 2 also showed that there was no linearity (high correlation) between the variables because the values for variance inflation factor (VIF), the standard metric for measuring linearity, were less than 5 (Marcoulides & Raykov, 2019). This implied that the tangible resource variables could predict effective e-learning implementation independently.

4.3 Structural equation model for Tangible Resources and E-learning Implementation

To establish the relationship between tangible resources and e-learning implementation, a structural equation model was used. Figure 1 presents the structural equation model findings for tangible resources and e-learning implementation.
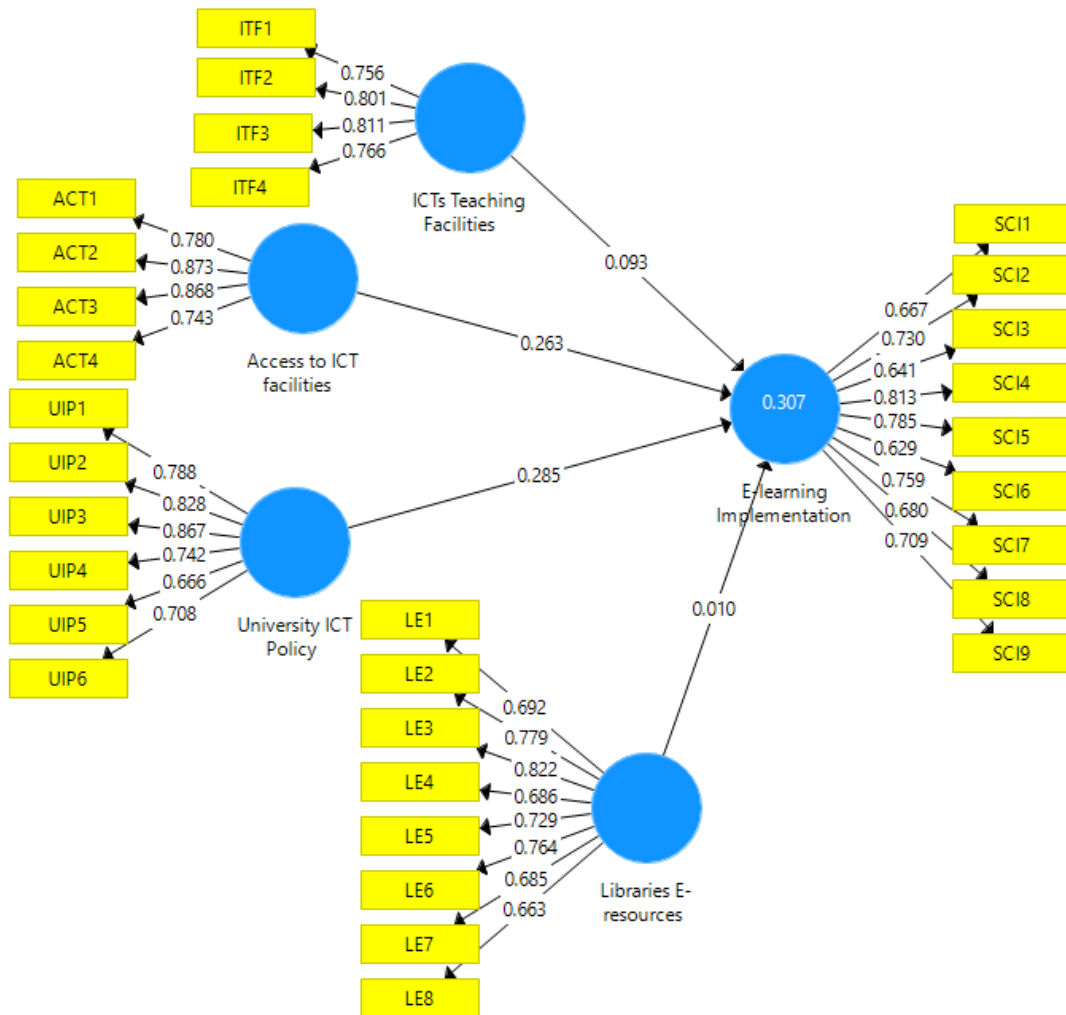
Figure 1: Structural Equation Model findings for Tangible Resources and E-Learning Implementation

Model 1 reveals that e-learning implementation was reduced only to student-content E-Interaction. This means that the remaining constructs, namely student-student and student-teacher, did not load into the model. The model comprises path coefficients between constructs, coefficients of determination (R^2 and adjusted $R2$), and related t statistics and p-values. R^2 examined the model's predictive power. The model involved testing four sub-hypotheses under the main hypothesis (H1) to the effect that tangible resources have a significant relationship with the implementation of e-learning. The sub-hypotheses were to the effect that ICT facilities, access to ICT facilities, library e-resources, and university ICT policy relate to e-learning implementation. Table 3 presents structural equation model estimates.

Table 3: Structural equation model estimates for Tangible Resources and E-learning Implementation

Path Coefficients	B	Mean	STD	T	P
Access to ICT facilities ⟶ E-learning Implementation	0.263	0.257	0.064	4.133	0.000
ICT Teaching Facilities ⟶ E-learning Implementation	0.093	0.103	0.053	1.745	0.082
Libraries E-resources ⟶ E-learning Implementation	0.010	0.020	0.070	0.146	0.884
University ICT Policy ⟶ E-learning Implementation	0.285	0.288	0.075	3.819	0.000

$R^2 = 0.307$
Adjusted $R^2 = 0.298$

The results in Figure 2 and Table 3 revealed that tangible resources, namely access to ICT facilities ($\beta = 0.263$, t = 4.133, p = 0.000 < 0.05) and university ICT policy ($\beta = 0.285$, t = 3.819, p = 0.000 < 0.05), positively and significantly predicted e-learning implementation. However, ICT teaching facilities ($\beta = 0.093$, t = 1.745, p = 0.082 > 0.05) and library e-resources ($\beta = 0.010$, t = 0.146, p = 0.884 > 0.05) positively but insignificantly predicted e-learning implementation. R^2 suggested that tangible resources explained 30.7% ($R^2 = 0.307$) of the variation in e-learning implementation. Adjusted R^2 indicated that the two tangible resources, i.e., access to ICT facilities and university ICT Policy, explained 29.8% of the variance (adjusted $R^2 = 0.289$). The coefficient of determination (R^2) suggested that 69.3% of the variation in e-learning implementation was accounted for by factors other than tangible resources. The results implied that while Hypotheses One and four (H1 and H4) were accepted, Hypotheses Two and Three (H2 and H3) were rejected. The Beta magnitudes suggest that university ICT policy was the most significant predictor of e-learning implementation.

5. Discussion of the Findings

The findings revealed that access to ICT facilities positively and significantly predicted e-learning implementation. This finding is consistent with the findings of previous scholars. For example, Arthur-Nyarko and Kariuki (2019), Adarkwah (2021), Innab and Alqahtani (2022), Lembani et al. (2019), Newen and Cheny (2022), Subashini et al. (2022), Yuliani and Mercuriani (2021) indicated that access to ICT facilities enhanced effective e-learning implementation. However, the finding was contrary to Siddiquah and Salim (2017), who reported that those students who had computers and internet facilities at home and at universities spent more time on computers for recreational and other purposes than for academic purposes. However, with the finding consistent with the findings of previous scholars, it can be surmised that access to ICT enhances effective e-learning implementation.

The finding to the effect that university ICT Policy positively and significantly predicted e-learning implementation is also consistent with the findings of previous scholars. For instance, De Freitas and Oliver (2005) found that the e-learning policy led to effective e-learning implementation. MacKeogh and Fox (2009) revealed that successful implementation of e-learning required ICT policy establishing institutional standards, the development of a university strategy, institutional quality standards, and a central unit to provide support to faculties. Consistently, Priatna et al. (2020) indicated that e-learning policy is a binder for the academic community to run e-learning. Similarly, Teo et al. (2020) revealed that the effectiveness of e-learning was enhanced by policies including continuous standardisation efforts and a sound regulatory system, applying a socially appropriate online pedagogy, raising public awareness, and building e-learning communities. Therefore, the successful implementation of e-learning policies is imperative.

The finding that universities ICT teaching facilities insignificantly predicted e-learning implementation was contrary to the findings of previous scholars. For example, Akinde and Adetimirin (2017), Asubiojo and Ajayi (2017), Eze et al. (2018), Gupta et al. (2022), Hailye (2020), Matviichuk et al. (2022), Ouma (2021), and Semlambo et al. (2022) indicated that ICT teaching facilities related to e-learning implementation. Possibly, the

finding was contrary to the findings of most scholars because the facilities of the universities were not accessible to students when outside the university campus. With respect to the finding that library e-resources insignificantly predicted e-learning implementation, it agreed with Olaniran et al. (2017), who revealed low utilisation of e-learning resources in teaching. This suggested that the existence of e-resources did not automatically suggest effective implementation of e-learning, as teachers did not use them. However, the finding disagreed with most scholars as they indicated that libraries e-resources enhanced implementation of learning, such as Ibieta et al. (2017), Mugizi and Amwine (2020), Nwigbo and Madhu (2016), Olaniran et al. (2017), and Shamim and Raihan (2016). However, the finding was contrary to what was conjectured because library e-resources might not be accessible to teachers and students for online learning activities during lecture time.

6. Conclusions

The discussion above led to the conclusion that access to ICT facilities and university ICT policies were imperative for the implementation of e-learning. Access to ICT facilities was imperative because when the facilities are accessible, teachers and students easily find them for use. For universities ICT policies, these provided support and were binders for the academic community to run e-learning. However, the discussion led to the conclusion that ICT teaching facilities and library e-resources did not necessarily lead to e-learning implementation. This is because the ICT facilities of the universities and libraries e-resources might not be accessible to teachers and students for online learning activities during lecture time. For instance, while not in touch with ICT staff at the universities, lecturers did not have rights to start and share online classes using Zoom. In addition, students had the tendency to be more interested in interacting with social media than learning content.

7. Recommendations

The study recommends that university managers make efforts to make ICT facilities accessible to students and develop policies guiding the implementation of e-learning. The managers can help students purchase ICT facilities at a lower cost and provide automatic rights to lecturers to use facilities such as Zoom without needing support from ICT staff. The policies will imperatively standardise e-learning activities and enforce involvement in e-learning. For universities, ICT resources and library e-resources should be made more accessible to lecturers and students when they are off campus. This was because university ICT facilities and library e-resources were not more accessible to teachers and students outside campus.

8. Limitations

This study makes imperative contributions by showing how tangible resources can enhance e-learning implementation effectiveness. However, limitations emerged. For instance, the study assessed only one aspect of RBT theory, namely tangible resources, while the other resources, namely intangible resources and capabilities, were not considered. Therefore, future research should consider all aspects of RBT. In addition, the current study considered only the quantitative approach, limiting in-depth analysis. Therefore, future studies should consider the use of the qualitative approach for in-depth analysis.

Declaration

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Appendix A: Study Instrument

Section A: Demographics		
Demographics Profiles (BP)	BP1	Sex (1 = Male, 2= Female)
	BP2	Age group (1= Up to 30; 2 = 30 but below 40; 3 = 40 and above).
	BP3	Education level (1= Diploma; 2 = Bachelor Degrees; 4 = Masters, 5 = PhD)
	BP5	Academic rank (1 = Assistant lecturer, 2= Lecturer, 3 = Senior, 4= Lecturer, 4= Associate professor, 5 = professor)
Section B: E-learning Implementation		
Student-Student E-Interaction (SSI)	SSI1	Students are able to learn from reading other students' comments posted on online platforms.
	SSI2	Students read and comment on posted reports of others on the course on online platforms.
	SSI3	Online comments and questions from other students help individual students learn easily.
	SSI4	Students have developed effective electronic communication skills through online interaction.
	SSI5	Interacting online increases students learning motivation.
	SSI6	Students enjoy working on collaborative online activities.
Student-Teacher E-Interaction (STI)	STI1	The work I do at this university gives me a sense of meaning and purpose.
	STI2	I am zealous about my job at this university.
	STI3	Students ask questions during online lessons.
	STI4	I am able to make students share ideas during online classes.
	STI5	I am able to know how students are acting during online classes.
	STI6	I make students stay busy during online classes.
	STI7	I am able to use all kinds of interesting materials in online classes.
	STI8	I get to do a lot in this class, not just listen to my teacher talk.
	STI9	Involve students in the learning process during online lessons.
	STI10	I am able to explain content to students sufficiently when teaching online.
Student-Content E-Interaction (SCT)	SCI1	The use of the learning management system is simple and easy for students.
	SCI2	The materials in the system are easily searchable and available to students.
	SCI3	The online system provides sufficient instructions for successful usage.
	SCI4	Course information can be easily found within the system by students.
	SCI5	The system is adaptable for student interaction and group activities.
	SCI6	The system interface is well organised and can be customised to meet users' needs.
	SCI7	The students are comfortable using web-oriented applications for course preparation.
	SCI8	E-learning provides students with the opportunity to practise what they learn in the lesson.
	SCI9	The examples given during e-learning enable students to concretize the subject.
	SCI10	E-learning materials stimulate students' interest in the course.
	SCI11	The online materials in the course I teach support student learning.
Section: Tangible Resources		
ICT Teaching Facilities (ITF)	ITF1	The online materials in the course I teach support student learning.
	ITF2	Internet speed is sufficient on the campus of this university.
	ITF3	Computers are fast enough to be used for instructional activities at this university.
	ITF4	The university provides sufficient internet on campus.
	ITF5	This university provides me with sufficient opportunities to improve my technology knowledge.

	ITF6	Computer rooms or laboratories lighting, air conditioning, and arrangement are suitable for instruction in this university.
	ITF7	The computers of the university have sufficient licenced software programmes, such as Zoom.
	ITF8	Offices and classes have ICT equipment.
Access to ICT facilities (ACT)	ACT1	At this university, there are sufficient computer laboratories.
	ACT2	In this university, there are sufficient computers for lecturers.
	ACT3	In this university, technology classrooms and laboratories are available whenever I need
	ACT4	Using the ICT facilities of the university, I easily get electronic information useful for teaching and learning.
University ICT Policy (UIP)	UIP1	University administrators ask lecturers their opinions on innovative ICT applications needed.
	UIP2	Lectures inform students about the administration's prospective technological endeavours.
	UIP3	The university has established guidelines for the use of ICT in teaching and learning.
	UIP4	The university has a policy in place focused on ICT implementation in the teaching and learning system.
	UIP5	The university's ICT policy provides possibilities for the use of ICT in teaching and learning.
	UIP6	The university has guidelines for curriculum content uploading or delivery.
Libraries E-resources (LE)	LE1	The university has online databases.
	LE2	The university has an online public access catalogue.
	LE3	Can access diverse electronic journals using the university portal.
	LE4	Can access a variety of electronic books using the university portal.
	LE5	I have been provided an email for library access.
	LE6	The university library provides electronic document delivery services.
	LE7	The university library's e-resources interface makes it easy to access e-journals.
	LE8	The library has facilities for using internet services.

Crisis Management Strategies for School Leaders Affecting Academic Administration in Private Schools Under Nakhonratchasima Province Education Office

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Abstract
The purposes of this research were 1) to study the level of crisis management strategies for school leaders in private schools, 2) to study the level of academic administration in private schools, 3) to create forecasting equations for academic administration from crisis management strategies for private school leaders, and 4) to propose guidelines for developing strategies for crisis management for leaders of private schools. Population in the research study consisted of school administrators (school leaders) and teachers of private schools, 4,086 persons. The sample consisted of 351 persons, selected from simple random sampling, stratified random sampling, and proportional randomization. Statistics used for data analysis were mean, standard deviation and stepwise multiple regression analysis. The study results indicated that 1) crisis management strategies for school leaders in private schools were at a high level as a whole, namely, preparedness to facilitate a crisis that may happen and creating a crisis management plan had the highest mean while setting a structure of crisis communication had the lowest mean, 2) overall academic administration in private schools was at a high level, namely, internal quality assurance system and education standard had the highest mean while measurement, evaluation and the implementation of school record transfer had the lowest mean, 3) crisis management strategies had 3 aspects being able to predict academic administration in private schools, i.e. establishing a specific unit and a declarer, creating an effective stakeholder communication plan, and setting goals and objectives, with the statistical significance at 0.05 level, which could collaboratively predict academic administration in private schools under Nakhon Ratchasima Province Education Office by 51.40%, 4) guidelines for crisis management strategy development for school leaders of private schools are potential and external factor evaluation, i.e. 1) analysis of strength and weakness, 2) analysis of opportunity and feasibility for response, 3) consideration of obstacles and difficulties of external environment that may happy, 4) application of research findings – strategies that are appropriate and consistent with the determined objectives should be selected. As for creating an effective stakeholder communication plan and setting goals and objectives should be aware of internal and external situations that arise to have mutual understanding and to ensure the operations shall meet the goals, schemes, and run in the same direction.

Keywords: Administrative Strategy, Crisis, School Leaders, Academic Administration

1. Introduction

Crisis management is an organization's process and strategy-based approach for identifying and responding to a threat, an unanticipated event, or any negative disruption with the potential to harm people, organization, property, reputation and business profits. Most crises take place without any early warning. As a consequence, awareness of the importance and process of crisis management is important to organizational strategies, which should be developed to be strategic planning. Crisis management is divided into 3 types of crisis according to the degrees of organizational responsibility as victim cluster, accidental cluster, and preventable cluster. A case study of crisis management from Oishi Green Tea Company was foreign materials were found in green tea bottles, making Khun Tan Passakornnatee, Chief Executive of the company had to solve that crisis by making a formal apology and pay a visit to customers who were affected in person, including providing medical expenses to all victims. Besides, he explained to public about the mistake that happened and confirmed the careful production process so as to build confidence among consumers (Preedee Nukulsomprattana, 2020: 12).

Educational institution administrators play an important role as the leaders need to make a paradigm shift and develop strategies to manage transformational change in their organizations for success. Educational institution administrators must possess leadership and encourage subordinates to collaboratively work in an efficient manner, which can reduce and eliminate problems. Leadership plays a vital role in developing people in organizations and has an influence of the working of coworkers in a situation. A crisis of virus spread causing diseases had an impact on organizations. Employee morale and motivation are something that educational institution administrators need to take care of and access to build confidence among them and parents. Effectiveness of educational institutions comes from the way educational institutions are able to run the operations to achieve the set goals or objectives. Consideration is made to the ability in producing students with high learning achievement, students are developed to have positive attitude, students are able to solve problems with life skills and the 21st century skills according to the goals of education in a quality manner, including allocating resources, documents, media, technology equipment in an appropriate manner, having sufficient budgets and human resources, management and control to ensure the operations achieve efficiency and effectiveness and explicit practices (Rattana Leuangam, 2019: 3).

Private schools under Nakhon Ratchasima Province Education Office have major missions in promoting and supporting basic education management. There are 118 schools under Nakhon Ratchasima Province Education Office. They have a vision to develop education and 5 missions to promote education management, basic education services thoroughly. Education is determined in strategy 4 – the development of quality of life and policy 3 – to promote and support opportunity expansion and to establish the foundation of education to meet international standards. Policy is set to enable education to access people. All people must have equal opportunity to quality education. People have knowledge, virtue, and ethics, leading to preparedness to be consistent with the situation of disease spread that schools were unable to manage normal teaching and learning. Administrators needed to adjust the direction of education management to online teaching and learning to be compliant with daily life situation. It was a challenge for managing educational institutions to have efficiency and effectiveness for students in order to gain confidence from parents. Private educational institutions under Nakhon Ratchasima Province Education Office, Network 1-8, provide administration and education management in accordance with administrative areas. There are 118 schools affiliated to Nakhon Ratchasima Province Education Office (Private Education Promotion Group under Nakhon Ratchasima Province Education Office. 2021: 7).

From the process mentioned above, the researcher was interested in studying crisis management strategies for school leaders that affect academic administration in private schools under Nakhon Ratchasima Province Education to be used as a guideline for educational institution administrators to employ the study results to be information for managing educational institutions to achieve efficiency and effectiveness as much as possible, consistent with current situations and beneficial to operation planning , and to set policy for developing administrators and teachers that will affect quality development and education management to achieve the set goals and success in educational institution management accordingly.

2. Research Objectives

1) To study the level of crisis management strategies for school leaders in private schools under Nakhon Ratchasima Province Education Office.
2) To study the level of academic administration in private schools under Nakhon Ratchasima Province Education Office.
3) To create forecasting equations for academic administration from crisis management strategies for private school leaders under Nakhon Ratchasima Province Education Office.
4) To propose guidelines for developing strategies for crisis management for leaders of private schools under Nakhon Ratchasima Province Education Office.

3. Research methodology

This research aimed to study crisis management strategies for educational institution administrators that affect academic administration in private schools under Nakhon Ratchasima Province Education Office. The study was conducted in the form of survey research. Data were collected from a questionnaire.

3.1. The scope of population

1.1 Population in the study consisted of school administrators and teachers in 118 private schools under Nakhon Ratchasima Province Education Office, from the academic year 2022, a total of 4,086 persons.

1.2 The sample – the number and size of the sample were calculated using G* Power (Nipitpon Sanitleua, Watchareeporn Sadphet, and Yada Napa-arak, 2019). The sample of 351 persons consisted of school administrators and teachers, selected by simple random sampling, stratified random sampling, and proportional randomization) according to the size of schools.

3.2. The scope of content

The purpose of the study is to investigate crisis management strategies for school leaders in private schools under Nakhon Ratchasima Province Education Office in 4 aspects consisting of 1) setting goals and objectives, 2) selecting strategies in response to a crisis, 3) creating an effective stakeholder communication plan, and 4) establishing a specific unit and a declarer, and to investigate academic administration in private schools under Nakhon Ratchasima Province Education Office in 7 aspects comprising 1) curriculum development in educational institutions, 2) learning process development, 3) measurement, evaluation, and the implementation of school record transfer, 4) research for education quality development in educational institutions, 5) educational supervision, 6) the development of internal quality assurance system and educational standard, 7) the development and use of technology and teaching innovation for education.

3.3. Instruments in the study

Part 1: A questionnaire about individual status of respondents.
Part 2: A questionnaire about crisis management strategies for school leaders in private schools under Nakhon Ratchasima Province Education Office in 4 aspects consisting of 1) setting goals and objectives, 2) selecting strategies in response to a crisis, 3) creating an effective stakeholder communication plan, 4) establishing a specific unit and a declarer. The questionnaire consists of 5-point Likert scale survey questions, ranging from highest, high, moderate, low, and lowest.
Part 3: A questionnaire about academic administration in private schools under Nakhon Ratchasima Province Education Office in 7 aspects, namely, 1) curriculum development in educational institutions, 2) learning process development, 3) measurement, evaluation, and the implementation of school record transfer, 4) research for education quality development in educational institutions, 5) educational supervision, 6) the development of internal quality assurance system and educational standard, 7) the development and use of technology and teaching

innovation for education. The questionnaire consists of 5-point Likert scale survey questions, ranging from highest, high, moderate, low, and lowest.
Part 4: Opinions and suggestions.

The 2nd research instrument is an interview form about guidelines for developing crisis management strategies for school leaders affecting academic administration in private schools under Nakhon Ratchasima Province Education Office in 4 aspects consisting of 1) setting goals and objectives, 2) selecting strategies in response to a crisis, 3) creating an effective stakeholder communication plan, 4) establishing a specific unit and a declarer. There are 4 items of open-ended questions and questions about academic administration in private schools under Nakhon Ratchasima Province Education Office in 7 aspects consisting of 1) curriculum development in educational institutions, 2) learning process development, 3) measurement, evaluation, and the implementation of school record transfer, 4) research for education quality development in educational institutions, 5) educational supervision, 6) the development of internal quality assurance system and educational standard, 7) the development and use of technology and teaching innovation for education. There are 7 items of open-ended questions and there are 11 items for interviewing school leaders and suggestions from school leaders.

3.4. Making and testing research instruments

1. Study how to make a questionnaire for data collection from documents and textbooks related to crisis management and academic administration in educational institutions.
2. Study relevant concepts, theories and research documents by considering details to ensure they cover the determined research objective.
3. Make a questionnaire that covers the research objective for collecting data from the sample and making an analysis.
4. The questionnaire was presented to the advisor to examine accuracy and appropriateness for making improvement.
5. The created questionnaire was presented to 5 experts in educational institution management to test content validity. The item-objective congruence index (IOC) was set at 0.50 or greater. It was found that IOC of all questions was 1.00.
6. The tested questionnaire was measured discrimination power and reliability using Pearson's correlation coefficient and Cronbach's alpha coefficient respectively. The questionnaire was pretested with 30 people who are not the research sample. Internal consistency was measured. The reliability of the questionnaire was 0.98.

3.5. *Data analysis*

1. Analyze status of respondents using frequency and percentage.
2. Analyze crisis management strategies for school leaders in private schools under Nakhon Ratchasima Province Education Office by calculating mean and standard deviation and interpreting the meaning of score levels based on Best's scoring criteria (Best, 1977:174).
3. Analyze academic administration in private schools under Nakhon Ratchasima Province Education Office by calculating mean and standard deviation and interpreting the meaning of score levels based on Best scoring criteria (Best, 1977:174).
4. The analysis of crisis management strategies for school leaders affecting academic administration in private schools under Nakhon Ratchasima Province Education Office was conducted using multiple regression analysis and stepwise multiple regression analysis.

3.6. Statistics for data analysis

Statistics used for data processing and analysis are
1. basic statistics, i.e. percentage, mean, and standard deviation.
2. statistics used to measure the quality of research instruments, i.e. IOC (Index of item objective congruence), Cronbach's Alpha to measure reliability.

3. statistics for testing, i.e. stepwise multiple regression analysis.

4. Research results

Details of the analysis results of crisis management for school leaders in private schools under Nakhon Ratchasima Province Education Office are shown in Table 1.

Table 1: Mean, standard deviation, and crisis management for school leaders in private schools under Nakhon Ratchasima Province Education Office overall and in each aspect.

Aspect	Crisis management for school leaders in private schools under Nakhon Ratchasima Province Education Office	Levels of crisis management			
		$\overline{X}$	SD	Interpret	Rank
1.	Setting goals and objectives	3.75	.74	High	3
2.	Selecting strategies in response to a crisis	3.73	.85	High	4
3.	Creating an effective stakeholder communication plan	3.82	.76	High	2
4.	Establishing a specific unit and a declarer	3.85	.81	High	1
	Total	**3.79**	**.70**	**High**	

From Table 1, it was found that overall crisis management for school leaders in private schools under Nakhon Ratchasima Province Education Office was at a high level ($\overline{X}$ = 3.79, SD = 0.81). When each aspect was considered, it was found that all aspects were at a high level as arranged from the highest mean to the lowest mean, namely, establishing a specific unit and a declarer = 0.81, creating an effective stakeholder communication plan ($\overline{X}$ = 3.82, SD = 0.76), setting goals and objectives ($\overline{X}$ = 3.75, SD =0 .74), and selecting strategies in response to a crisis ($\overline{X}$ = 3.75, SD = 0.74).

Details of the analysis results of academic administration in private schools under Nakhon Ratchasima Province Education Office are shown in Table 2.

Table 2: Mean, standard deviation, and academic administration in private schools under Nakhon Ratchasima Province Education Office overall and in each aspect (Y_{tot}).

No.	Academic administration in private schools under Nakhon Ratchasima Province Education Office	Levels of academic administration			
		$\overline{X}$	SD	Interpret	Rank
1.	Curriculum development in educational institutions	3.83	.89	High	5
2.	Learning process development	3.82	.78	High	6
3.	Measurement, evaluation, and the implementation of school record transfer	3.62	.96	High	7
4.	Research for education quality development in educational institutions	3.90	.89	High	4
5.	Educational supervision	3.93	.71	High	3
6.	The development of internal quality assurance system and educational standard	4.03	.79	High	1
7.	The development and use of technology and teaching innovation for education	4.02	.75	High	2
	Total	3.88	.58	**High**	

From Table 4.7, it was found that overall academic administration in private schools under Nakhon Ratchasima Province Education Office was at a high level ($\overline{X}$ = 3.77, SD = 0.66). When each aspect was considered, it was found that all aspects were at a high level as arranged from the highest mean to the lowest mean, namely, the development of internal quality assurance system and educational standard ($\overline{X}$ = 4.07, SD = 1.03), the

development and use of technology and teaching innovation for education ($\overline{X}$ = 4.02, SD = 0.75), educational supervision ($\overline{X}$ = 3.93, SD = 0.71), research for education quality development in educational institutions ($\overline{X}$ = 3.90, SD = 0.89), curriculum development in educational institutions ($\overline{X}$ = 3.83, SD = 0.89), learning process development ($\overline{X}$ = 3.82, SD = 0.78), and measurement, evaluation, and the implementation of school record transfer ($\overline{X}$ = 3.62, SD =0.96).

Table 3: Tolerance value and variance inflation factor (VIF) value.

Variables	Tolerance	VIF
1. Setting goals and objectives	0.381	2.625
2. Selecting strategies in response to a crisis	0.308	3.248
3．Creating an effective stakeholder communication plan	0.281	3.561
4. Establishing a specific unit and a declarer	0.401	2.494

From Table 3, multicollinearity check was performed to test whether or not independent variables are correlated as it affects regression analysis by enabling analysis results to have errors. Tolerance value should be greater than 0.1 and variance inflation factor (VIF) value should be lower than 10 which will not cause a problem that variables are correlated (Multicollinearity). The test according to Table 2 found that tolerance value ranged from 0.281 to 0.401, greater than 0.1, and VIF value ranged from 2.494 to 3.561, not greater than 10. Therefore, there was no problems that variables were correlated (Multicollinearity).

Table 4: Crisis management variables affecting academic administration in private schools under Nakhon Ratchasima Province Education Office as a whole (Y_{tot}).

Predictor variables according to the sequence of the equation	Unstandardized Coefficients		standardized Coefficients	t	Sig
	$\hat{\beta}$	Std. Error	Beta		
Constant value	1.646	.124		13.318	.000
Establishing a specific unit and declarer (X_4)	.290	.042	.403	6.843	.000
Creating an effective stakeholder communication plan (X_3)	.209	.050	.273	4.201	.000
Setting goals and objectives (X_1)	.087	.042	.110	2.056	.041

*Statistical significance level of .05.

According to Table 3, it was found that among 4 aspects of crisis management strategies affecting academic administration in private schools under Nakhon Ratchasima Province Education Office, there were 3 aspects that could predict academic administration in private schools under Nakhon Ratchasima Province Education Office, namely, establishing a specific unit and declarer (X_4), creating an effective stakeholder communication plan(X_3) , and setting goals and objectives (X_1) , with the statistical significance level of 0.05.

These 3 aspects could cooperatively predict academic administration in private schools under Nakhon Ratchasima Province Education Office by 51.40%.

The equation of multiple regression analysis can be written in the form of raw score as follow:

$\hat{Y}_{tot}$ = 1.646 + 0.290(X_4) + 0.209(X_3) + 0.087(X_1)

The predictor equation can be written in the form of standard score as follow:

$\hat{Z}$ Y_{tot} = 0.403(X_4) + 0.273(X_3) + 0.110(X_1)

5. Discussion

1. Overall crisis management for school leaders in private schools under Nakhon Ratchasima Province Education Office was at a high level. It is possible that during the past 3 years there was a severe communicable disease. In this regard, schools hold a meeting with communities and parents for crisis management by establishing a specific unit and declarer as the center in coordinating between schools and communities, setting goals and objectives, creating an effective stakeholder communication plan, and selecting strategies in response to a crisis to cope with the crisis and create a mechanism to avoid the crisis. In case being unable to avoid the crisis, they knew how to control the situation to ensure the least damage instead of letting the situation continue without knowing how to handle it or learn how to bring the organization to a normal situation as soon as possible. This is consistent with a research study of AbdElaal, AbdElaal AbdAllah; Al Shobaki, Mazen J.; Abu-Naser, Samy S.; El Talla, Suliman A. (2022) on effects of strategic planning on crisis management in a ceramic company in Egypt. The study aimed to identify effects of strategic planning on crisis management in a ceramic company in Egypt. Descriptive analysis was used through a questionnaire. The study results revealed that chief executives agreed with all dimensions of strategic planning variables. It was found that every procedure of the crisis was apparently applied to the ceramic company studied. The study results also indicated the existence of significant effects and statistical significance of the dimensions of strategic planning variables on strategy variables. The most important suggestions of crisis management and crisis management procedures from the points of view of chief executives were the necessity that every level in the organization must participate in the process of strategic planning, the development of basic procedure for crisis management planning, the necessity of establishing a work unit for crisis management, organizational structure, and the use of competent employees. A study conducted by George Spais & Pallab Paulb (2021) on a crisis management model for marketing education: reflections on marketing education system's transformation in view of Covid-19 crisis. The primary objective of the study is to apply a crisis management model to marketing education in distress due to the Covid-19 pandemic. A strategic approach to managing crisis was used, first introduced by Burnett , to provide a conceptual framework for managing teaching turmoil and triumphs during this pandemic. An in-depth discussion of literature was conducted, a critical realist's perspective was adopted, current examples of universities' best practices and decisions for each of the three phases of crisis management (identification, confrontation, and reconfiguration) were provided for successful recovery during these trying times. As the gap between theory and practice remains a critical concern among scholars, the article and proposed framework shall present a unique opportunity to explore and study how unexpected changes occur in higher education, and their remedies. However, based on the need to reflect on the nature of current marketing education through crisis management, the implications of the framework were identified and valuable suggestions were offered for future research.

2. Overall academic administration in private schools under Nakhon Ratchasima Province Education Office was at a high level. It is possible that schools have academic administration consistent with Ministry of Education and school policies. Development is made to internal quality assurance system and education standard, development and the use of technology and teaching innovation for education, educational supervision, curriculum development in educational institutions, research for education quality development in educational institutions, and learning process development. This is consistent with the concept of the Office of Basic Education Commission (2017:33). Previously, academic administration in educational institutions was separated from management. The Ministry assigned each department to oversee educational institutions under their affiliation to carry out the operations according to the policies determined; for example, Department of General Education oversees and takes responsible for secondary education, Office of National Education Commission oversees primary education, making the academic operations in educational institutions lack of unity as it depends on each department shall assign educational institutions under their affiliation to carry out. Ministry of Education views that it does not cover the provisions in the National Education Act B.E. 2542 (1999) and the Amendment B.E. 2545 (2002) in which emphasis is placed on curriculum reform and learning based on human development according to the education principles that aim to develop Thai people to become a perfect human being as prescribed in the Section 22-30, and the use of technology for education in Section 47. In this regard, a scope of practice guideline for academic administration is prepared to encourage all basic educational institutions to implement. A research study conducted by Supaporn Piladram (2019) on effectiveness of academic administration in schools under Nakhon Ratchasima Provincial Administrative Organization found that 1) the effectiveness of

academic administration in schools under Nakhon Ratchasima Provincial Administrative Organization was overall at a high level according to the opinions of educational institution administrators and teachers in schools under Nakhon Ratchasima Provincial Administrative Organization, consistent with a research study conducted by Siwaporn Lahanpetch (2019) on the effectiveness of academic administration in small size schools according the opinions of teachers under Surat Thani Primary Educational Service Area Office 2. The study results found that 1) the mean effectiveness of academic administration in small size schools according to the opinions of teachers under Surat Thani Primary Educational Service Area Office 2 overall and in each aspect was at a high level.

3. The analysis results of regression coefficient of crisis management strategies affecting academic administration in private schools under Nakhon Ratchasima Province Education Office found there were 4 aspects of crisis management strategies affecting academic administration in private schools under Nakhon Ratchasima Province Education Office and only 3 aspects could cooperatively predict academic administration in private schools under Nakhon Ratchasima Province Education Office by 51.40%, i.e. establishing a specific unit and declarer (X_4), creating an effective stakeholder communication plan(X_3) , and setting goals and objectives (X_1), with the statistical significance level of 0.05. It is possible that crisis management is something new to school administrators and teachers. If school administrators and teachers do not have expertise in being a declarer and using communication technology with stakeholders under such crisis, the operations are unable to reach the set goals and objectives. Preedee Nukulsomprattana (2020) said that establishing a specific unit and an announcer or declarer of the organization is establishing a work team associated with how to cope with a crisis to become the center of operations and coordination with stakeholders. A declarer in a crisis must possess the following qualifications: 1. Work team must have full authority for crisis management since a crisis cannot wait. Full authority given shall support agility in problem solving. 2. A declarer must have expertise and proficiency in communication and sincere image. 3. Work team must have emotional stability to work under huge pressure with various situations. Work team must have fact and understand the situation they are confronting correctly and clearly. A research study conducted by Atiporn Nilkham, Saowanee Sikkabandit and Khwanying Sriprasertpap (2022) on a model of school administration in Coronavirus disease 2019 crisis for schools under the supervision of Bangkok Metropolitan Administration found that 1) overall school administration in Coronavirus disease 2019 crisis was at a high level. Prevention and reduction of effects were the most widely practiced, followed by disaster preparedness, crisis management, and post-crisis management that were practiced at a high level, 2) Confirmatory factor analysis results of school administration in Coronavirus disease 2019 crisis included 4 factors. The factor with the highest factor loading was prevention and reduction of effects, followed by disaster preparedness, crisis management, and post-crisis management, 3) Evaluation results of appropriateness, feasibility, accuracy and application were at the highest level as a whole. There were 4 factors in school administration in Coronavirus disease 2019 crisis. All factor loadings were statistically significant at 0.05. The factor with the highest factor loading was prevention and reduction of effect, factor loading was 0.90, followed by disaster preparedness, crisis management, and post-crisis management which factor loadings were 0.89, 0.87, and 0.82 respectively.

6. Qualitative data analysis

According to qualitative data, guidelines for developing crisis management strategies for school leaders in private schools under Nakhon Ratchasima Province Education Office are as follow:

1. Most school leaders gave opinions and agreed that strategic plans and objectives of crisis management should be determined. Internal and external school problems must be studied. Selecting strategies in response to problems must be carefully analyzed, proactive and reactive analysis, changing or improving in accordance with the framework and resources available. Potential and external factors should be evaluated, i.e. 1) strength and weakness, 2) opportunity and feasibility in response, 3) obstacles and difficulties of external environment that may happen, 4) selecting strategies appropriate to and consistent with the determined objectives. Creating an effective stakeholder communication plan and setting up goals and objectives must enable stakeholders to be aware of internal and external situations that occur to make mutual understanding and to ensure the operations shall meet the set goals, model, and go in the same direction. Schools should give an opportunity to students, local communities, and parents to participate in the management of online teaching and learning. Emphasis is placed on combining knowledge with innovation, appointing a crisis management committee from external experts. A lie

and prediction are not allowed in communication. Stories must be told straightforwardly and honestly. It mistakes are made by schools, an apology should be made. With regard to establishing a specific unit and declarer, a school committee should be appointed by recruiting employees in the organization who have knowledge in a certain crisis and ability to solve unexpected problems. A declarer must have good communication skills and reliable personality as he/she needs to play the role of mediator when declaring messages, have belief, thinking model and demands to do something including listening to information from various channels to support planning and setting the goals for communication and partners in communication for seeking an alliance to support communication and build credibility in coping with and manage a certain crisis.

2. With regard to academic administration, most school leaders viewed that teaching and learning curriculum should be various and teaching models should be adjusted to both offline and online. Demands of parents and local communities should be studied. Core curriculum and other information should be analyzed. The context of arising crisis should be studied to bring the information to develop the curriculum to be consistent with the context of schools and demands of parents, local communities, and current situations. Additional courses should be provided in accordance with aptitude/interest. A curriculum must be evaluated from relevant persons before being used. Learning process should be adjusted to have flexibility and respond to learners with a variety of development adhering to the guidelines of learning management process and the development of learners' quality introduced by Ministry of Education, i.e. 1. Be able to read and write fluently. 2. Be fluent in math. 3. Have basic thinking skills and higher order thinking skills. 4. Have life skills. 5. Have creative communication skills by age and foreign language skills. 6. Seek knowledge on one's own and seek knowledge for problem solving. 7. Use technology for learning. 8. Be high-minded and long for knowledge. 9. Have sufficient living, be committed to education and the development of teachers and all employees to have knowledge and ability in using various technology media. Professional learning community (PLC) is used to enhance learning management. Teachers' learning management is inspected and monitored continuously. Measurement, evaluation, and the implementation of school record transfer, authentic assessment, and research are information promoting and supporting the quality of education to be useful for schools' education management. Problems and demands in learning development of learners must be analyzed. Activity management is planned. Problem solving is carried out. Information is collected and problem solving outcomes are concluded, consistent with crisis management strategies of educational institutions. Supervision is the process of improving and developing the quality of education based on cooperation between supervisors and supervisees according to democratic practice. Emphasis is placed on giving assistance and suggestion while supervisees accept for the benefit of efficiency of education management so as to follow up teaching process to meet the set goals and strategies. The development of quality assurance system should allow every party to participate in the process, both inside and outside educational institutions. Planning-implementation-inspection are conducted. The outcomes obtained shall be used to improve. Emphasis is placed on the quality of learners in accordance with the 2018 ministerial regulation on the quality assurance of education of Office of the Private Education Commission. The development of technology and innovation is the process that supports all systems in terms of management system, learning management, sufficient provision including the development of education management using instruments, equipment, media to manage education to be modern, consistent with the context of a crisis that arises. Teachers and all employees have to be developed to have knowledge and ability to use technology media and teaching innovation.

7. Conclusion/suggestions

7.1. Suggestions from the research results

1.1. Setting goals and objectives – the point with the lowest mean is setting up the structure of crisis communication. Therefore, school leaders should hold a meeting to determine the setting up of the structure of crisis communication by clearly establishing a work unit for crisis management in terms of who will take responsibility to ensure the crisis management is more efficient.

1.2 Selecting strategies in response to a crisis – the point with the lowest mean in the organization has preparedness to cope with and solve problems caused by a crisis. School leaders should select strategies appropriate to arising situations. In case a crisis is caused by schools, school leaders should select the apology strategy. The school

makes an apology and is willing to provide assistance and remedy in all cases. If a crisis is not caused by schools, school leaders should select the denial strategy. The school must be certain that the arising crisis is not associated with the school and the school needs to inform the public clearly and straightforwardly.

1.3 Creating an effective stakeholder communication plan – the point with the lowest mean is organizations communicate with people in the organizations and all stakeholders. Thus, school leaders and teachers should make plan to communicate with communities and students' parents about an arising crisis and work cooperatively to solve the problem to ensure crisis management is efficient.

1.4 Establishing a specific unit and declarer – the point with the lowest mean is establishing an operations center including coordinating with internal and external work units, Schools should establish an operations center including coordinating with internal and external work units to ensure crisis management is efficient.

1.5 Curriculum development in educational institutions – the point with the lowest mean is educational institutions improve the curriculum through the process of analyzing documents, problems, community demands, internal and external environment. Schools should give an opportunity to people outside like communities to participate in curriculum development to analyze documents, solve problems, consistent with community demands and to manage internal and external environment.

1.6 Learning process development – the point with the lowest mean is educational institutions promote teachers to make a student-centered learning management plan. Schools should promote teachers to make a student-centered learning management plan. Teacher should be allowed to attend a training course on student-centered teaching and learning with external agencies so that teachers can bring the knowledge obtained to develop a learning management plan. Measurement, evaluation and the implementation of school record transfer – the point with the lowest mean is educational institutions have the transfer system of school records, knowledge, skills, and experiences from other educational institutions when new students move in. Schools should have the transfer system of school records, knowledge, skills, and experiences from other educational institutions when new students move in for convenience and quickness in teaching and learning management.

1.7 Research for the development of education quality in educational institutions – the point with the lowest mean is educational institutions implement research in a systematic manner. Schools should implement research systematically by promoting teachers to conduct research according to leaning strands for developing academic quality. Research results can be used to improve teachers' teaching and learning management to gain more efficiency.

1.8 Educational supervision – the point with the lowest mean is educational institutions explicitly set the goals and objectives of the supervision. Schools should explicitly set the goals and objectives of the supervision. The outcomes from the educational supervision can be used to improve teaching and learning, support academic supervision and teaching and learning in various models which will be suitable for schools.

1.9 The development of internal quality assurance system and education standard – the point with the lowest mean is educational institutions manage an organizational structure to facilitate the evaluation from original affiliation and the Office for National Education Standards and Quality Assessment (Public Organization). Schools should manage the organizational structure to facilitate evaluation from original affiliation and the Office for National Education Standards and Quality Assessment (Public Organization) by assigning teachers of each learning strand to monitor, inspect, and evaluate internal quality to make continuous improvement and development and to make a plan to develop education quality of schools regularly.

1.10 Development and the use of technology and teaching innovation for education – the point with the lowest mean is educational institutions promote teachers to develop media, innovation and technology for education. Schools should promote teachers to develop media, innovation and technology for education by providing a training course and knowledge about the development and the use of technology and teaching innovation for

education so that they are able to improve and develop instructional media to be modern and keep pace with current technology.

7.2. Suggestions for future studies

2.1 A study should be conducted on a guideline for developing leadership appropriate to a crisis in private schools under Nakhon Ratchasima Province Education Office so that study results can be used for preparedness of how to cope with a crisis that may happen in the future.

2.2 A study should be conducted on factors affecting efficiency of the development of media and technology for education of small size schools under Nakhon Ratchasima Province Education Office. The information obtained can be used as a guideline for developing media and technology for education in small size schools.

2.3 A study should be conducted on models for developing teachers' learning process in private schools under Nakhon Ratchasima Province Education Office. The information obtained can be used as a guideline for developing teachers' learning process.

2.4 A study should be conducted on crisis management strategies for educational institution administrators by using qualitative data and focus group so as to obtain in-depth information.

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A Teaching Note on Remedies for Breach of Contract under the Uniform Commercial Code

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Abstract
This article explains the various remedies and categories of damages that are available to an aggrieved buyer or seller in the case of a breach of contract under the Uniform Commercial Code. Sections of the Code will be cited, as well as relevant cases, and detailed explanations will be provided as well for each Code Section.

Keywords: Administrative Strategy, Crisis, School Leaders, Academic Administration

1. Introduction

Damages for breach of contract are "intended to give the injured party the benefit of his bargain" (see *Martin v. U-Haul Co. of Fresno,* 1988). The goal is to put the injured party in "as good as position as he would have been in had performance been rendered as promised" (see *Brandon & Tibbs v. George Kevorkian Accountancy Corp.,* 1990; Donnelly, 2022).

Achieving this goal will involve finding an appropriate remedy, which may entail awarding monetary damages or imposing a remedy such as specific performance (Szladitz, 1955) or replevin under certain circumstances.

The Uniform Commercial Code (UCC or Code) was created specifically to "address two problems in United States business:

- the increasingly complex legal and contractual requirements of doing business deriving from some states, and
- differences in state laws that made it difficult for business people from different states to do business with one another" (Stimmel, Stimmel & Roeser, 2023).

Remedies may be viewed in light of the general perspective of the authors of the Uniform Commercial Code regarding its purpose and effect, found in Section 1-103:

> "The <u>Uniform Commercial Code</u> must be liberally construed and applied to promote its underlying purposes and policies, which are: (1) to simplify, clarify, and modernize the law governing commercial transactions; (2) to permit the continued expansion of commercial practices through custom, usage, and <u>agreement</u> of the parties; and (3) to make uniform the law among the various jurisdictions."

The purpose of this article is to explain the various remedies and categories of damages that are available to an aggrieved buyer or seller in the case of a breach of contract under the Uniform Commercial Code (Phalan, 1955). Sections of the Code will be cited, as well as relevant cases, and detailed explanations will be provided for each Section of the Code as well (see generally McCormick, 1935).

1.1. *Implications of the Statute of Limitations*

As a preliminary matter, it is important to understand the implications of the Statute of Limitations on contractual remedies, which may limit or even preclude a party's ability to seek damages as an appropriate remedy (see generally Irby, 2021).

Under Section 2-725:

> "(1) An action for breach of any <u>contract for sale</u> must be commenced within four years after the cause of action has accrued. By the original <u>agreement</u> the parties may reduce the period of limitation to not less than one year but may not extend it.

> (2) A cause of action accrues when the breach occurs, regardless of the aggrieved party's lack of knowledge of the breach. A breach of warranty occurs when tender of delivery is made, except that where a warranty explicitly extends to future performance of the <u>goods</u> and discovery of the breach must await the time of such performance the cause of action accrues when the breach is or should have been discovered."

2. What Happens if it Becomes Apparent that a Contract is Breaking Down?

A vexing and persistent problem under the common law would arise if one of the contracting parties, *prior to the date of contractual performance*, indicated that they would be unable or unwilling to perform for whatever reason. Originally, common law courts provided no real comfort under these circumstances, holding that the rights of the parties would only be "fixed" or would "ripen" as of the date specified in the contract for performance.

The writers of the Uniform Commercial Code were especially sensitive to protecting the rights of all parties to a contract under these circumstances.

There were several important concepts incorporated into the UCC which were *not* originally part of the common law that were specifically designed by the writers to deal with these circumstances as well.

2.1. *Anticipatory Repudiation (see Feldhausen, 2023)*

Over time, as the common law began to adopt a more proactive view relating to a promisor's options and rights, the doctrine of anticipatory repudiation would achieve acceptance and recognition (see Poole, 1978). Bailey and Desiderio (2020, p. 29) noted: "An anticipatory breach of contract by a promisor is a repudiation of [a] contractual duty before the time fixed in the contract for … performance has arrived."

The writers of the Code concurred in this view. The first of these was the doctrine of *anticipatory repudiation*, found in Section 2-610 of the UCC.

"When either party repudiates the <u>contract</u> [makes an unequivocal statement that he/she will not perform] with respect to a performance not yet due, the loss of which will substantially impair the value of the contract to the other, the aggrieved party may:

(a) for a commercially reasonable time await performance by the repudiating party; or

(b) resort to any remedy for breach (Section <u>2-703</u> or Section <u>2-711</u>), even though he has notified the repudiating party that he would await the latter's performance and has urged retraction; and

(c) in either case suspend his own performance or proceed in accordance with the provisions of this Article on the <u>seller's</u> right to identify <u>goods</u> to the <u>contract</u> notwithstanding breach or to salvage unfinished goods (Section <u>2-704</u>)."

The case that changed the prior common law and arguably resulted in the inclusion of "anticipatory repudiation" in the UCC is *Hochster De La Tour* (1853).

Hochster v. De La Tour

118 ER 922 (1853)

Brief Fact Summary: Defendant and Plaintiff entered into a contract for Plaintiff to accompany Defendant on a tour starting on June 1. Defendant contacted Plaintiff on May 11, stating that he had changed his mind. He refused to compensate Plaintiff. Plaintiff brought suit against Defendant on May 22. Plaintiff found a new job that would begin on July 1.

Defendant argues that if Plaintiff is not willing to accept Defendant's cancellation of the contract, then Plaintiff should have waited, being ready and willing to perform the contract until the time that the contract was to be performed.

Issue. Was the lower court correct to find for the Plaintiff even though the time that the contract was to be performed had not yet occurred?

Held. Yes

Synopsis of Rule of Law. If two parties enter into a contract to be performed at a designated time in the future, and one party refuses to perform the contract before the designated time the parties agreed to perform, the other party may sue before the contract was to be performed. That party need not wait until the time for performance has passed. Defendant had made it clear that he will not perform the contract.

Discussion. The court laid down a rule about suing for damages on a breach of contract where the performance was to be at a future date. Instead of making the injured continue to prepare to perform when that party knows it is useless to do so, the court's ruling allows injured parties to mitigate their damages by seeking alternate employment and still sue for the damages they sustained because of the breach.

Section 2-723 of the Code provides:

"(1) If an action based on anticipatory repudiation comes to trial before the time for performance with respect to some or all of the <u>goods</u>, any damages based on market price (Section <u>2-708</u> or Section <u>2-713</u>) shall be determined according to the price of such goods prevailing at the time when the aggrieved party learned of the repudiation.

(2) If evidence of a price prevailing at the times or places described in this Article is not readily available the price prevailing within any reasonable time before or after the time described or at any other place which in commercial judgment or under usage of trade would serve as a

reasonable substitute for the one described may be used, making any proper allowance for the cost of transporting the goods to or from such other place.

(3) Evidence of a relevant price prevailing at a time or place other than the one described in this Article offered by one party is not admissible unless and until he has given the other party such notice as the court finds sufficient to prevent unfair surprise."

Desiderio (2019) writes:

"An anticipatory breach of a contract—also known as an anticipatory repudiation—'can be either a statement by the obligor to the obligee indicating that the obligor will commit a breach that would of itself give the obligee a claim for damages for total breach or a voluntary affirmative act which renders the obligor unable or apparently unable to perform without such a breach'" (see *Princes Point LLC v. Muss Dev. LLC*, 2017).

Desiderio (2019) continues: "For an anticipatory repudiation to be deemed to have occurred, "the expression of intent not to perform by the repudiator must be 'positive and unequivocal.'" With even more emphasis, the First Department has stated that "[i]t is clear that there must be a definite and final communication of the intention to forego performance before the anticipated breach may be the subject of legal action" (citing *Rachmani Corp. v. 9 East 96th St. Apartment Corp.,* 1995).

2.2. "Reasonable Grounds for Insecurity"

The second is the discussion of the concept of "*reasonable grounds for insecurity*" found in Section 2-609 (see *By-Lo Oil Co. v. ParTech, Inc.*, 2001), which begins with a statement of the expectations of each party relating to performance of a contract and the circumstances under which a party is able to demonstrate reasonable grounds to believe that their counterpart might be unable or unwilling to perform their part of the bargain, triggering a demand for "adequate assurances of due performance" (Kryla-Cudna, 2021).

"(1) A contract for sale imposes an obligation on each party that the other's expectation of receiving due performance will not be impaired. When reasonable grounds for insecurity arise with respect to the performance of either party, the other may in writing demand adequate assurance of due performance and until he receives such assurance may if commercially reasonable suspend any performance for which he has not already received the agreed return.

(2) Between merchants, the reasonableness of grounds for insecurity and the adequacy of any assurance offered shall be determined according to commercial standards (trade usage).

(3) Acceptance of any improper delivery or payment does not prejudice the aggrieved party's right to demand adequate assurance of future performance.

(4) After receipt of a justified demand, failure to provide within a reasonable time not exceeding thirty days such assurance of due performance as is adequate under the circumstances of the particular case is a repudiation of the contract."

Relating to the required communication from a buyer, Paley (2023) writes:

"The seller should never over-demand what it needs as assurance from the buyer. Unreasonable requests could be considered a repudiation of the agreement by the seller. What the seller asks for should be sufficient to satisfy its insecurity regarding contract performance and nothing further. For example, requesting some form of proof that the buyer has the money to fulfill its obligations generally is viewed as an acceptable request."

> "Unjustified or overly burdensome demands that serve to harass a buyer would not be considered good faith demands. In most cases, a demand for adequate assurance should not include additional material terms that are not in the original agreement, such as earlier payment deadlines, or deposit obligations, or letter of credit or bonding obligations. In addition, a seller should not demand more than is required under the original contract coupled with a threat that the contract will be automatically terminated if those demands are not met. Courts have found that type of demand to be an anticipatory repudiation of the contract by the seller. Whatever is requested should be reasonable and in accordance with generally accepted commercial standards and practice."

This same reasoning can be applied to a demand for adequate assurances of performance made by a buyer to a seller.

3. Sellers Remedies in General: Section 2-703: Protecting the Seller's Position

Once a breach of contract has occurred, however, the UCC provides several options and remedies to the non-breaching party in order to protect their positions and keep any further consequences of the breach from occurring. Section 2-703 contains the main discussion of seller's remedies upon breach by the buyer (see Hawkins, 2019).

> "Where the buyer *wrongfully rejects*, or *revokes acceptance* of goods, or *fails to make a payment due* on or before delivery, or *repudiates* with respect to a part or the whole, …
>
> then with respect to any goods directly affected and, if the breach is of the whole contract (Section 2-612), then also with respect to the whole undelivered balance, the aggrieved seller may with respect to a part or the whole, then with respect to any goods directly affected and, if the breach is of the whole contract (Section 2-612), then also with respect to the whole undelivered balance, the aggrieved seller may:
>
> (a) withhold delivery of such goods;
> (b) stop delivery by any bailee as hereafter provided (Section 2-705);
> (c) proceed under the next section respecting goods still unidentified to the contract;
> (d) resell and recover damages as hereafter provided (Section 2-706);
> (e) recover damages for non-acceptance (Section 2-708), or in a proper case the price (Section 2-709);
> (f) cancel.

4. What Happens if a Seller Learns that the Buyer is Insolvent? Section 2-702

Closely in tandem with Section 2-609 relating to addressing "reasonable grounds for insecurity" is Section 2-702 which deals with the possible insolvency of a buyer, potentially affecting the buyer's ability to pay for the goods or complete the contract. Tuovila (2023) writes: "Insolvency is a type of financial distress, meaning the financial state in which a person or entity is no longer able to pay the bills or other obligations. The IRS states that a person is insolvent when the total liabilities exceed total assets."

> "(1) Where the seller discovers the buyer to be insolvent, he may refuse delivery except for cash including payment for all goods theretofore delivered under the contract, and stop delivery under this Article (Section 2-705).
>
> (2) Where the seller discovers that the buyer has received goods on credit while insolvent, he may reclaim the goods [writ of replevin] upon demand made within ten days after the receipt, but if misrepresentation of solvency has been made to the particular seller in writing within three months before delivery the ten day limitation does not apply.

(3) The <u>seller's</u> right to reclaim under subsection (2) is subject to the rights of a <u>buyer</u> in ordinary course or other <u>good faith</u> purchaser under this Article (Section <u>2-403</u>). Successful reclamation of <u>goods</u> excludes all other remedies with respect to them."

What should the seller do with regard to any unfinished goods at this point? Section 2-704 provides two related options to the seller under these circumstances.

The first option is found in Section 2-704, "<u>Seller's Right to Identify Goods to the Contract Notwithstanding Breach or to Salvage Unfinished Goods</u>," which states:

"(1) An aggrieved <u>seller</u> under the preceding section may

(a) identify to the <u>contract</u> <u>conforming</u> <u>goods</u> not already identified if at the time he learned of the breach they are in his possession or control; [This involves an action of the seller to *segregate* and *label* the goods, clearly indicating that these were the goods under the contract.]
(b) treat as the subject of resale, <u>goods</u> which have demonstrably been intended for the particular <u>contract</u> even though those goods are unfinished.

(2) Where the <u>goods</u> are unfinished, an aggrieved <u>seller</u> may in the exercise of reasonable commercial judgment for the purposes of avoiding loss and of effective realization, either complete the manufacture and wholly identify the goods to the <u>contract</u>, or cease manufacture and resell for scrap or salvage value, or proceed in any other reasonable manner."

An important question arises: When should a seller *never* complete the manufacture of unfinished goods? The key to understanding Section 2-704 lies in the concept of "specially manufactured goods" found in Section 2-201 of the Code. Under most circumstances involving the manufacture of "specially manufactured goods," a seller would not be able to resell the goods in the regular or "ordinary course" of the seller's business. Law Insider (2023) described specially manufactured goods as follows: "… those goods which are specially manufactured based upon information furnished to Seller by Buyer or prepared by Seller alone or in conjunction with Buyer and/or specifically for the manufacture of such goods."

Another option available to a seller is to take positive steps to assure that the goods do not "fall into the hands" of a buyer who has committed a breach or who has indicated that they will not perform. Section 2-705, "<u>Seller's Stoppage of Delivery in Transit or Otherwise</u>," deals with this option available to the seller:

"(1) The <u>seller</u> may stop delivery of <u>goods</u> in the possession of a carrier or other bailee [such as a warehouseman] when he discovers the <u>buyer</u> to be insolvent (Section <u>2-702</u>) and may stop delivery of carload, truckload, planeload or larger shipments of express or freight when the buyer repudiates or fails to make a payment due before delivery or if for any other reason the seller has a right to withhold or reclaim the goods….

(a) To stop delivery the <u>seller</u> must so notify as to enable the bailee by reasonable diligence to prevent delivery of the <u>goods</u>.
(b) After such notification the bailee must hold and deliver the <u>goods</u> according to the directions of the <u>seller</u> but the seller is liable to the bailee for any ensuing charges or damages."

In practical terms, the seller may be required to pay a bailee or third party (for example, a shipper or warehouseman) for their services, but will be able to recover any amounts paid or obligated as incidental damages from the buyer.

5. Seller's Resale Including Contract for Resale: Section 2-706

An important or preferred option available to a seller is to attempt to resell the goods that were the subject matter of the contract. In this way, the seller is protecting their own position and may also be protecting the buyer from substantial damages. This section of the Code provides the basic formula for determining damages for a seller.

> " (1) Under the conditions stated in Section 2-703 on seller's remedies, the seller may resell the goods concerned or the undelivered balance thereof.
>
> Where the resale is made in good faith and in a commercially reasonable manner the seller may recover the difference between the resale price and the contract price…
>
> together with any incidental damages allowed under the provisions of this Article (Section 2-710), but less expenses saved in consequence of the buyer's breach."

The Code provides specific guidance as to the details of the resale:

> "Except as otherwise provided in subsection (3) or unless otherwise agreed resale may be at public or private sale including sale by way of one or more contracts to sell or of identification to an existing contract of the seller. Sale may be as a unit or in parcels and at any time and place and on any terms but every aspect of the sale including the method, manner, time, place and terms must be commercially reasonable. The resale must be reasonably identified as referring to the broken contract, but it is not necessary that the goods be in existence or that any or all of them have been identified to the contract before the breach.
>
> (3) Where the resale is at *private sale* the seller must give the buyer reasonable notification of his intention to resell.
>
> (4) Where the resale is at *public sale*:
>
> (a) only identified goods can be sold except where there is a recognized market for a public sale of futures in goods of the kind; and
> (b) it must be made at a usual place or market for public sale if one is reasonably available and except in the case of goods which are perishable or threaten to decline in value speedily the seller must give the buyer reasonable notice of the time and place of the resale; and
> (c) if the goods are not to be within the view of those attending the sale, the notification of sale [in a newspaper ad, for example] must state the place where the goods are located and provide for their reasonable inspection by prospective bidders; and
> (d) the seller may buy."

Interestingly, the Code addresses the issue of accountability for any potential profits made by a seller in the course of any resale, and states in Section 2-706: "The seller is not accountable to the buyer for any profit made on any resale."

In addition, a third party, a "person in the position of a seller," may acquire rights under a contract and may withhold or stop delivery under Section 2-705 and resell under Section 2-706, and also recover any incidental damages under Section 2-710. Under Section 2-707, a person in the *position of a seller* may be "an agent who has paid or become responsible for the price of goods on behalf of his principal or anyone who otherwise holds a security interest or other right in goods similar to that of a seller." A "person in position of a seller" may also be the seller's assignee (Benfield, 1974). An example of incidental damages for such a party might be a brokerage or agency fee or any fees incurred by a secured party in recovering the goods that were the object of a security interest under Article 9 of the Code (Hunter & Shannon, 2020).

Finally, the Code provides an important statement relating to a party termed a "*good faith purchaser for value*" who might purchase the goods that were the object of the resale: "A purchaser who buys in good faith at a resale takes the goods free of any rights of the original buyer even though the seller fails to comply with one or more of the requirements of this section" (see Martin, 2019). "Good faith" is defined under Section 2-315 as "honesty in fact" and in the case of a merchant, the "observance of reasonable commercial standards" (see generally Sepinuck, 2018).

5.1. Seller's Choice to Seek Damages Under Section 2-708

In some cases, a seller may choose not to resell the goods, but will instead seek to recover monetary damages for a breach. This choice is reflected in Section 2-708, "Seller's Damages for Non-Acceptance or Repudiation."

> "(1) Subject to subsection (2) and to the provisions of this Article with respect to proof of market price (Section 2-723), the measure of damages for non-acceptance or repudiation by the buyer is the difference between the market price at the time and place for tender and the unpaid contract price,

> together with any incidental damages provided in this Article (Section 2-710), but less expenses saved in consequence of the buyer's breach.

> (2) If the measure of damages provided in subsection (1) is inadequate to put the seller in as good a position as performance would have done, then the measure of damages is the *profit* (including reasonable overhead) which the seller would have made from full performance by the buyer, together with any incidental damages provided in this Article (Section 2-710), due allowance for costs reasonably incurred and due credit for payments or proceeds of resale."

5.2. Seller's Decision to Sue for the Price: Section 2-709

There may be circumstances where a seller foregoes damages based on resale and seeks the contract "price" instead. The Code lays out these circumstances:

> "1) When the buyer *fails to pay the price as it becomes due*, the seller may recover, together with any incidental damages under the next section, the price

> (a) of *goods accepted*, or of *conforming goods lost or damaged within a commercially reasonable time after risk of their loss has passed to the buyer*; and
> (b) of *goods identified to the contract* if the seller is unable after reasonable effort to resell them at a reasonable price or the circumstances reasonably indicate that such effort will be unavailing.

In a case where the seller is seeking the price, the seller has additional responsibilities.

> (2) Where the seller sues for the price, he must hold for the buyer any goods which have been identified to the contract and are still in his control except that if resale becomes possible he may resell them at any time prior to the collection of the judgment. *The net proceeds of any such resale must be credited to the buyer and payment of the judgment entitles him to any goods not resold.*"

In addition to seeking damages incurred in reselling the goods or in seeking the price under the previous Code Sections, a seller may seek *incidental damages* under Section 2-710. Incidental damages to an aggrieved seller include "any commercially reasonable charges, expenses or commissions incurred in stopping delivery, in the transportation, care and custody of goods after the buyer's breach, in connection with return or resale of the goods or otherwise resulting from the breach" (see Hawkins, 2019).

In many jurisdictions, if the seller is successful in reselling the goods for *more* than the contract price, the seller will still be entitled to recovery of any incidental or consequential damages.

The *Chicago Roller Skate* (1970) case brings together many of the main points relating to seller's remedies.

Chicago Roller Skate Mfg. Co. v. Sokol Mfg. Co.

177 N.W.2d 25 (1970): Supreme Court of Nebraska.

NEWTON, Justice.

This is an action for damages for breach of contract. A jury was waived and trial had to the court. Defendant purchased of plaintiff truck and wheel assemblies with plates and hangers for use in the manufacture of skate boards. The skate board fad terminated and several weeks later, defendant returned, without plaintiff's consent, a quantity of the merchandise purchased. There was due plaintiff the sum of $12,860. The merchandise was not suitable for other uses and could not be resold. It was held by plaintiff for 7 months. Plaintiff offered a credit of 70 cents per unit which defendant neither accepted nor rejected. Plaintiff then disassembled, cleaned, and rebuilt the units to make them suitable for use on roller skates. The undisputed evidence shows the rebuilt units had a reasonable value of 67 cents and 69 cents. In the salvage operation plaintiff incurred an expense of $3,540.76. Profits lost amounted to an additional $2,572. Plaintiff, disregarding its expense, credited defendant with 70 cents per unit and brought suit for the balance due of $4,285 for which sum it recovered judgment in the trial court. We affirm the judgment.

Section 1-103, U.C.C., provides: "Unless displaced by the particular provisions of this act, the principles of law and equity, including the law merchant and the law relative to capacity to contract, * * * or other validating or invalidating cause shall supplement its provisions."

Section 1-106, U.C.C., provides in part: "(1) The remedies provided by this act shall be liberally administered to the end that the aggrieved party may be put in as good a position as if the other party had fully performed but neither consequential or special nor penal damages may be had except as specifically provided in this act or by other rule of law."

Section 1-203, U.C.C., states: "Every contract or duty within this act imposes an obligation of good faith in its performance or enforcement."

Section 2-718(4), U.C.C., provides: "Where a seller has received payment in goods their reasonable value or the proceeds of their resale shall be treated as payments * * *."

In accordance with section 2-709, U.C.C., plaintiff was entitled to hold the merchandise for defendant and recover the full contract price of $12,860. Plaintiff did not elect to enforce this right, but recognizing that there was no market for the goods or resale value and that they were consequently worthless for the purpose for which they were designed, it attempted to mitigate defendant's damages by converting the goods to other uses and credited defendant with the reasonable value of the goods as converted or rebuilt for use in roller skates. In so doing, plaintiff was evidencing good faith and conforming to the general rule requiring one damaged by another's breach of contract to reduce or mitigate damages. See *Selig v. Wunderlich Contracting Co.*, 160 Neb. 215, <u>69 N.W.2d 861</u>.

The Uniform Commercial Code contemplates that it shall be supplemented by existing principles of law and equity. It further contemplates that the remedies provided shall be liberally administered to the end that an aggrieved party shall be put in as good a position as it would have been in if the contract had been performed. Here the buyer was demanding of the seller credit for the full contract price for goods that had become worthless. The seller was the aggrieved party and a return of worthless goods did not place it in as good a position as it would have been in had the contract been performed by the buyer paying the contract price. On the other hand, the crediting to defendant of the reasonable value of the rebuilt materials and recovery of the balance of the contract price did reasonably reimburse plaintiff. This procedure appears to be contemplated by section 2-718(4), U.C.C., which requires that a seller paid in goods credit the buyer with the reasonable value of the goods.

It is the defendant's theory that since the goods were not resold or held for the buyer, the seller cannot maintain an action for the price. We agree with this proposition. We also agree with defendant in its contention that the controlling measure of damages is that set out in section 2-708(2), U.C.C. This section provides that the measure of damages is the profit which the seller would have made from full performance by the buyer, together with any

incidental damages resulting from the breach and costs reasonably incurred. Defendant overlooks the provision for allowance of incidental damages and costs incurred. The loss of profits, together with the additional costs of damage sustained by plaintiff amount to $6,112.76, a sum considerably in excess of that sought and recovered by plaintiff. Although the case was tried by plaintiff and determined on an erroneous theory of damages, the error is without prejudice to defendant. There being no cross-appeal, the judgment of the district court is affirmed. Affirmed.

6. Buyer's Remedies in General

We now turn to remedies available to a buyer in the case of a breach by the seller (see Phalan, 1955). An overview of buyer's remedies is found in Section 2-711:

> "(1) Where the seller *fails to make delivery, or repudiates, or the* buyer *rightfully rejects (non-conforming), or justifiably revokes acceptance,* then with respect to any goods involved, and with respect to the whole if the breach goes to the whole contract (Section 2-612), the buyer may *cancel* and whether or not he has done so may *in addition to recovering so much of the price as has been paid*:
>
> (a) "*cover*" and have damages under the next section as to all the goods affected whether or not they have been identified to the contract; or
> (b) recover damages for non-delivery as provided in this Article (Section 2-713).
>
> (2) Where the seller fails to deliver or repudiates, the buyer may also
>
> (a) if the goods have been identified, recover them as provided in this Article (Section 2-502), which states: " Subject to subsection (2) and even though the goods have not been shipped a buyer who has paid a part or all of the price of goods in which he has a special property under the provisions of the immediately preceding section may on making and keeping good a tender of any unpaid portion of their price recover them from the seller if the seller becomes insolvent within ten days after receipt of the first installment on their price" or
> (b) in a proper case obtain *specific performance* or *replevy* the goods as provided in this Article (Section 2-716)."
>
> (3) On rightful rejection or justifiable revocation of acceptance, a buyer has a *security interest* in goods in his possession or control for any payments made on their price and any expenses reasonably incurred in their inspection, receipt, transportation, care and custody and may *hold such goods and resell* them in like manner as an aggrieved seller (Section 2-706)."

6.1. "Cover"; Buyer's Procurement of Substitute Goods: Section 2-712.

Perhaps the most important and practical remedy available to a buyer in case of a breach by the seller is the remedy of cover, which in a sense is the mirror of the seller's remedy of resale. Section 2-712 states:

> "(1) After a breach within the preceding section, the buyer may "cover" by making in good faith and without unreasonable delay any reasonable purchase of or contract to purchase goods in substitution for those due from the seller.
> (2) The buyer may recover from the seller as damages the difference between the cost of cover and the contract price], together with any incidental or consequential damages as hereinafter defined (Section 2-715), but less expenses saved in consequence of the seller's breach."

6.2. Buyer's Damages for Non-delivery or Repudiation: Section 2-713

The buyer against whom a breach has been committed may seek this remedy under circumstances where the buyer does not have an immediate need for the goods. In essence, the buyer will be "banking" any damages to be used in some point in the future at the discretion of the buyer.

> "(1) Subject to the provisions of this Article with respect to proof of market price (Section 2-723), the measure of damages for non-delivery or repudiation by the seller is the difference between the market price at the time when the buyer learned of the breach and the contract price, together with any incidental and consequential damages provided in this Article (Section 2-715), but less expenses saved in consequence of the seller's breach.
>
> (2) Market price is to be determined as of the place for tender or, in cases of rejection after arrival or revocation of acceptance, as of the place of arrival."

Section 2-724 provides information relating to market quotations.

> "Whenever the prevailing price or value of any goods regularly bought and sold in any established commodity market is in issue, reports in official publications or trade journals or in newspapers or periodicals of general circulation shall be admissible in evidence. The circumstances of the preparation of such a report may be shown to affect its weight but not its admissibility."

In practice, the buyer should bring to court at least three price or market quotations indicating market price, a process which has been greatly facilitated today through the use of the Internet. Remember that it is incumbent on the buyer to do so "in good faith," observing "reasonable commercial standards" under UCC Section 2-314 (see Markovitz, 2012).

6.3. Buyer's Damages for Breach in Regard to Accepted Goods: Section 2-714

Section 2-714 applies where the buyer has accepted goods and has notified the seller that the goods do not conform to the contract. The buyer is now seeking damages for the non-conformity.

A buyer may revoke his or her acceptance of a non-conforming good if the non-conformity "substantially impairs its value to the buyer," and

1. the product was accepted on the reasonable assumption that its non-conformity would be cured, and it has not been cured in a timely manner, or
2. if the product was accepted without discovery of such non-conformity, where the buyer's acceptance was reasonably induced either by the difficulty of discovery before acceptance or by the seller's assurances.

Section 2-715 states:

> "(1) Where the buyer has accepted goods and given notification (subsection (3) of Section 2-607) he may recover as damages for any non-conformity of tender the loss resulting in the ordinary course of events from the seller's breach as determined in any manner which is reasonable.
>
> (2) The measure of damages for breach of warranty is the difference at the time and place of acceptance between the value of the goods accepted and the value they would have had if they had been as warranted, unless special circumstances show proximate damages of a different amount" (see generally Hunter, Shannon, & Amoroso, 2023).

6.4. Buyer's Incidental and Consequential Damages: Section 2-715

In addition to the remedies found in the proceeding Sections relating to cover and other contract damages, an aggrieved buyer may seek both incidental and consequential damages.

Incidental damages resulting from the seller's breach include *expenses* reasonably incurred in inspection, receipt, transportation and care and custody of goods rightfully rejected, any commercially reasonable charges, expenses or commissions in connection with effecting cover and any other reasonable expense incident to the delay or other breach.

Under Section 2-715, consequential (special) damages resulting from the seller's breach include:

> "(a) any loss resulting from general or particular requirements and needs of which the seller at the time of contracting had reason to know, and which could not reasonably be prevented by cover or otherwise; and
> (b) injury to *person or property proximately resulting from any breach of warranty."*

As in the case where a seller is able to resell the goods for *more* than the contract price, if a buyer is able to "cover" and can find a "reasonable substitute good" for *less* than the contract price, the buyer may still be entitled to recover incidental and or consequential damages as appropriate.

6.4.1. Consequential Damages

Consequential damages are caused by special circumstances occurring beyond the terms or conditions of the contract itself. Such damage, loss, or injury does not flow directly and immediately from the act of the breaching party, but from some of the *consequences or results* of such an act. In order for a court to award consequential damages, the breaching party must be aware that "special circumstances" will cause the non-breaching party to suffer an additional loss and the non-breaching party cannot be acting in "bad faith" (see Meyers, 2020). In practical terms, the non-breaching party may have to give the breaching party "express notice" of the special circumstances. A type of special or consequential damages may occur in a case where a defective product causes personal injury (see Hunter, Amoroso, & Shannon, 2012; Hunter & Amoroso, 2012).

Let's look at the classic common law case of *Hadley v. Baxendale* (1854).

HADLEY v. BAXENDALE
156 Eng. Rep. 145 (1854)
BACKGROUND AND FACTS
The plaintiffs ran a flour and gristmill in Gloucester, England. The crankshaft attached to the steam engine broke, causing the mill to shut down. The shaft had to be sent to a foundry located in Greenwich so that the new shaft could be made to fit the other parts of the engine. The defendants were common carriers, who transported the shaft from Gloucester to Greenwich. The plaintiffs claimed that they had informed the defendants that the mill was stopped and that the shaft must be sent immediately. The freight charges were collected in advance, and the defendants promised to deliver the shaft the following day. They did not do so, however. Consequently, the mill was closed for several days. The plaintiffs sued to recover their lost profits during that time. The defendants contended that the loss of profits was "too remote." The court held for the plaintiffs, and the jury was allowed to take into consideration the lost profits. The high court reversed.

OPINION
We think that there ought to be a new trial in this case; but, in so doing, we deem it to be expedient and necessary to state explicitly the rule which the Judge, at the next trial, ought, in our opinion, to direct the jury to be governed by when they estimate the damages.

* * * Now we think the proper rule in such a case as the present is this: -- Where two parties have made a contract which one of them has broken, the damages which the other party ought to receive in respect of such breach of contract should be such as may fairly and reasonably be considered either arising naturally, i.e., according to the usual course of things, from such breach of contract itself, or such as may reasonably be supposed to have been in the contemplation of both parties, at the time they made the contract, as the probable result of the breach of it. Now, if the special circumstances under which the contract was actually made were communicated by the plaintiffs to the defendants, and thus known to both parties, the damages resulting from the breach of such a contract, which they would reasonably contemplate, would be the amount of injury which would ordinarily follow from a breach of contract under these special circumstances so known and communicated. But, on the other hand, if these special circumstances were wholly unknown to the party breaking the contract, he, at the most, could only be supposed to have had in his contemplation the amount of injury which would arise generally, and in the great multitude of cases not affected by any special circumstances, from such a breach of contract. For, had the special circumstances been known, the parties might have specially provided for the breach of contract by special terms as to the damages in that case; and of this advantage it would be very unjust to deprive them. Now the above principles are those by which we think the jury ought to be guided in estimating the damages arising out of any breach of contract.

* * * Now, in the present case, if we are to apply the principles above laid down, we find that the only circumstances here communicated by the plaintiffs to the defendants at the time the contract was made, were, that the article to be carried was the broken shaft of a mill, and that the plaintiffs were the millers of that mill. But how do these circumstances show reasonably that the profits of the mill must be stopped by an unreasonable delay in the delivery of the broken shaft by the carrier to the third person? Suppose the plaintiffs had another shaft in their possession put up or putting up at the time, and that they only wished to send back the broken shaft to the engineer who made it; it is clear that this would be quite consistent with the above circumstances, and yet the unreasonable delay in the delivery would have no effect upon the intermediate profits of the mill. On the other hand, again, suppose that, at the time of the delivery to the carrier, the machinery of the mill had been in other respects defective, then, also, the same results would follow. Here it is true that the shaft was actually sent back to serve as a model for a new one, and that the want of a new one was the only cause of the stoppage of the mill, and that the loss of profits really arose from not sending down the new shaft in proper time, and that this arose from the delay in delivering the broken one to serve as a model. But it is obvious that, in the great multitude of cases of millers sending off broken shafts to third persons by a carrier under ordinary circumstances, such consequences would not, in all probability, have occurred; and these special circumstances were here never communicated by the plaintiffs to the defendants. It follows, therefore, that the loss of profits here cannot reasonably be considered such a consequence of the breach of contract as could have been fairly and reasonably contemplated by both the parties when they made this contract.

****

The English court ordered a new trial, holding that the "special circumstances" that caused the alleged loss of profits to the plaintiff had not been sufficiently communicated by the plaintiffs to the defendants. The plaintiff would be required to give "express notice" of these circumstances in order to collect special damages. As a matter of good practice, any "special circumstances" should be enumerated *in the contract* entered into by the parties.

6.5. Buyer's Right to Specific Performance or Replevin: Section 2-716

The Code specifies the circumstances where a buyer may seek the remedy of specific performance—in essence, requiring the seller to provide or "turn over" the goods specified in the contract (see Schwartz, 1979). Probasco (2023) outlines the circumstances under which the non-breaching party can seek specific performance as follows:

- The underlying contract is valid and enforceable.
- The plaintiff has performed (or the court believes it will perform) its contractual obligations.
- The defendant could perform its obligations but has failed to do so.
- A monetary remedy is not sufficient.

Code Section 2-716 provides:

> "(1) Specific performance may be decreed where the <u>goods</u> are unique or in other proper circumstances.
>
> (2) The decree for specific performance may include such terms and conditions as to payment of the price, damages, or other relief as the court may deem just.
>
> (3) The <u>buyer</u> has a right of replevin for <u>goods</u> identified to the <u>contract</u> if after reasonable effort he is unable to affect cover for such goods."

The remedy of specific performance is an extraordinary remedy developed in a Court of Equity (also called a Chancery Court) to provide relief when the legal remedy of monetary damages was inadequate in order to put the non-breaching party in as good a position had the contract had been fully performed (Szladits, 1955; Dagan & Heller, 2023). The remedy of specific performance is most appropriate when the non-breaching party, in not seeking monetary damages, asks the court to issue a decree ordering the breaching party affirmatively to carry out contractual duties by turning over the goods which were the subject matter of the contract (see Schwartz, 1979).

In the case of a contract for the sale of goods, monetary damages will normally be deemed adequate, since a "reasonable substitute good" may be readily available in the marketplace through the remedy of cover. However, under the common law, if the goods were considered *unique*, a Court of Equity may issue a decree of specific performance. Such "unique" items under the common law included antiques, objects of art, racehorses, stock in a closely held or family corporation, and all land.

Courts are reluctant to grant specific performance in personal service contracts because public policy consider-ations discourage what would amount to involuntary servitude. In addition, courts do not generally desire to monitor a continuing personal service contract to assure that it is carried out.

Tower City Grain v. Richman (1975) provides a discussion of specific performance under the UCC. Although the UCC liberalizes the availability of the remedy of specific performance, such relief remains the extraordinary rather than the ordinary remedy.

TOWER CITY GRAIN CO. V. RICHMAN

232 N.W.2D, 61 N.D. (1975)

> Plaintiff sued the defendant for specific performance of an oral contract for the sale of wheat. The lower court ordered specific performance and the defendant appealed. The defendant contended that specific performance was not a proper remedy in this case.
>
> PEDERSON, J.
>
> * * * The Uniform Commercial Code is controlling in the instant case and states in part:
>
> 1. Specific performance may be decreed where the goods are unique or in other proper circumstances.

2. The decree for specific performance may include such terms and conditions as to payment of the price, damages, or other relief as the court may deem just. (Emphasis added.)

While the Richmans' contention that fungible goods were not a proper subject for the remedy of specific relief under prior law is correct, the adoption of the Uniform Commercial Code in 1966 liberalized the discretion of the trial court to grant specific performance in a greater number of situations. The Official Comment to § 2-716, UCC, provides in pertinent part:

1. The present section continues in general prior policy as to specific performance and injunction against breach. However, without intending to impair in any way the exercise of the court's sound discretion in the matter, this Article seeks to further a more liberal attitude than some courts have shown in connection with the specific performance of contracts of sale.

2. In view of this Article's emphasis on the commercial feasibility of replacement, a new concept of what are "unique" goods is introduced under this section. Specific performance is no longer limited to goods which are already specific or ascertained at the time of contracting. The test of uniqueness under this section must be made in terms of the total situation which characterizes the contract.

In addition, (the Code) states that "the remedies provided by this title shall be liberally administered to the end that the aggrieved party may be put in as good a position as if the other party had fully performed." We cannot presume that an award of damages fails to put an aggrieved party in as good a position as if the other party had fully performed. There was no finding or conclusion to that effect by the trial court in this case.

A complaint which prays for the equitable remedy of specific performance must clearly show that the legal remedy of damages is inadequate. A defendant should not be deprived of a jury trial, to which he would be entitled in an action at law, unless the plaintiff is clearly entitled to the equitable remedy he seeks.

Historically, specific performance, which is an equitable remedy, was applied primarily to contracts relating to goods which were "unique." All real estate was deemed to be unique, and so were goods which had sentimental as distinguished from market value. Another basis for invoking specific performance was the inadequacy of the remedy at law.

A factual basis for a conclusion that the remedy of specific performance is available should be found by the trier of facts in order, that this court, on appeal may know the basis upon which it arrived at such a conclusion.

There is no finding by the trial court in this case that indicates what it believes to be the proper circumstances. Our examination of the record indicates no evidence upon which such finding could be based. The fact that the complaint prayed for specific performance and that the Richmans have in their possession the type and quantity of wheat called for in the contract are not adequate to support such a finding.

The buyer may obtain specific performance of the contract for the sale when the goods are unique or other proper circumstances are shown. Because the purpose of this section is to liberalize the right to specific performance, it would appear that it is not to be of great significance whether a given circumstance is regarded as involving "unique goods" or "proper circumstances"; ordinarily, circumstances which are proper will impart uniqueness to the goods. "Uniqueness in a reasonable commercial setting is the significant point."

> Without holding that specific performance can never be invoked to enforce a contract for grain or other fungible goods, we conclude that it was a manifest abuse of discretion and an error as a matter of law for the trial court to grant such a remedy under the circumstances of this case.
>
> Judgment reversed and remanded with leave to amend.

As can be seen, the writers of the UCC attempted to broaden the scope of circumstances under which a court could order specific performance by adding a section [Section 2-716 (1)] which states that specific performance may be decreed where the goods are "*unique*" or "*in other proper circumstances*." Yet, many courts initially were reluctant to go beyond the conventional categories of unique goods found in the common law. Under the Code, the precondition to filing a suit for specific performance (that is, demonstrating a "proper circumstance") requires a buyer to prove that they were unable to effect cover by procuring a reasonable substitute good.

Replevin is an action originating in common law and now largely codified by which a plaintiff, having a right in personal property which is claimed to be wrongfully taken or detained by the defendant, seeks to recover possession of the property and sometimes to obtain damages for the wrongful detention. The Legal Dictionary (2017) states:

> "The term "replevin" is used to describe the act of recovering someone's personal property that was either taken wrongfully or held improperly. Replevin is also referred to as "claim and delivery." In most cases, when a person is wronged insofar as suffering the loss of property, he will seek money damages as compensation. In the case of replevin, however, the lawsuit is filed for the less common relief of the return of the actual property itself."

6.6. Deduction of Damages from the Price: Section 2-717 (see generally Martin, 2019)

A buyer may act proactively and may choose to deduct any damages from any part of the price which is due under the same contract.

> "The <u>buyer</u> on notifying the <u>seller</u> of his intention to do so may deduct all or any part of the damages resulting from any breach of the <u>contract</u> from any part of the price still due under the same contract."

7. Liquidation or Limitation of Damages under Section 2-718

There may be circumstances under which the parties may *predetermine* the amount of damages that may be awarded in a case of breach of contract. Damages under such an agreement are termed liquidated damages.

Salzman (2020 , p. 241) writes:
> "In most contract disputes, the amount of damages that flow from a breach is a question for a jury (or, sometimes, a judge) to determine based on the presentation of evidence showing the harm caused by the failure to complete the deal. But liquidated damages remove that analysis from the equation: they fix, in advance, as part of the contract themselves, the amount that will be paid in the event of a breach. They can be used in real estate contracts, to fix the amount of damages to be paid in the event of a breach of a long-term lease, or they can be used in commercial contracts between sophisticated entities to quantify the damages that would flow from the breach of a complex transaction."

Section 2-718 states:

"(1) Damages for breach by either party may be liquidated in the <u>agreement</u> but only at an amount which is reasonable in the light of the anticipated or actual harm caused by the breach, the difficulties of proof of loss, and the inconvenience or nonfeasibility of otherwise obtaining an adequate remedy. A term fixing unreasonably large liquidated damages is void as a penalty.

(2) Where the <u>seller</u> justifiably withholds delivery of <u>goods</u> because of the <u>buyer's</u> breach, the buyer is entitled to restitution of any amount by which the sum of his payments exceeds:

(a) the amount to which the <u>seller</u> is entitled by virtue of terms liquidating the seller's damages in accordance with subsection (1), or
(b) in the absence of such terms, twenty per cent of the value of the total performance for which the <u>buyer</u> is obligated under the contract or $500, whichever is smaller."

While liquidated dames in contracts for the sale of goods are *unusual*, they are quite common in other contexts, for example, in employment agreements (see, e.g., *Vanderbilt University v. Gerry Dinardo*, 1999; Salzman, 2020). Wegener and Caplan (2021) noted: "Liquidated damages provisions are included in many modern private and public construction contracts as a convenient way for owners and contractors to allocate and define their risk in the event of a breach. Construction industry participants would be well served to have a firm grasp on the fundamentals of such provisions to assist them in negotiating, performing or litigating their next contract."

Interestingly, where a <u>seller</u> has received payment in <u>goods</u> (sometimes called a *barter or counter-trade transaction*) their reasonable value or the proceeds of their resale are be treated as payments for the purposes of determining damages.

8. Contractual Modification or Limitation of Remedy: Section 2-219

The Code contains several important provisions relating to the modification or limitations of remedies (see Murtagh, 1988-1989).

"(1) Subject to the provisions of subsections (2) and (3) of this section and of the preceding section on liquidation and limitation of damages,

(a) the <u>agreement</u> may provide for remedies in addition to or in substitution for those provided in this Article and may limit or alter the measure of damages recoverable under this Article, as by limiting the <u>buyer's</u> remedies to *return of the <u>goods</u> and repayment of the price or to repair and replacement of non-conforming goods or parts*; and
(b) resort to a remedy as provided is optional unless the remedy is expressly agreed to be exclusive, in which case it is the sole remedy.

(2) Where circumstances cause an exclusive or limited remedy to fail of its essential purpose, remedy may be had as provided in this Act.

(3) Consequential damages may be limited or excluded unless the limitation or exclusion is unconscionable. Limitation of consequential damages for injury to the *person in the case of consumer <u>goods</u>* is *prima facie unconscionable* but limitation of damages where the loss is commercial is not."

Under Section 9-102(23), "Consumer goods means goods that are used or bought for use primarily for personal, family, or household purposes." The theory behind this provision is that if consequential damages for injury to the person arise concerning non-consumer goods (termed "producer goods"), the individual, often an employee, can avail him or herself of a remedy under the provisions of business insurance or workman's compensation insurance (King, 1988).

9. Punitive Damages

Punitive damages are also called *exemplary* damages. Punitive damages are designed to punish a "guilty" party for *intentional, malicious, willful, or wanton wrongdoing* and to make an example of the breaching party. Dodge (1999) strongly argues that punitive damages are indeed proper in contracts cases. Swan (2004) takes the opposite view. The purpose of awarding punitive damages is to deter the wrongdoer from similar conduct in the future, as well as to deter others from engaging in similar conduct. Generally, punitive damages will not be awarded in cases of simple breach of contract, except for a category of cases involving contract fraud due to the presence of "*scienter*" or the intent to deceive, or where a party intentionally caused injury to a plaintiff.

Jiminez (2018, p. 644-645), notes: "Indeed, apart from a few well-recognized exceptions, the general unwillingness of courts to award punitive damages in contracts disputes may be cited as proof of the law's ostensible disdain for punishing promisors who breach their contracts" (citing McCormick (1935, pp. 289-291). However, in cases where an award of punitive damages *is* deemed appropriate, a court may add an additional amount (in some cases, three times the actual damages, called *treble damages*) in order to punish the breaching party for this wrongful conduct.

The United States Supreme Court surprisingly entered the discussion concerning the limitation of punitive damages and held in *BMW of North America, Inc. v. Gore* (1996) (McKee, 1996; Turner, 1998) that under the Due Process Clause of the Fourteenth Amendment the amount of punitive damages awarded by a jury cannot be "grossly excessive" and must bear some "reasonable relationship" to the actual damages sustained. There have also been attempts by several state legislatures to limit or even abolish punitive damages in a wide variety of tort and contract cases. In addition, punitive damage awards are often the subject of a motion for a *remittitur* (Shatz, 2011)*,* asking a trial judge or an appellate court to limit or even exclude punitive damages.

BMW of North America v. Gore
517 U.S. 559 (1996)
Facts After respondent Gore purchased a new BMW automobile from an authorized Alabama dealer, he discovered that the car had been repainted. He brought this suit for compensatory and punitive damages against petitioner, the American distributor of BMW's, alleging, *inter alia,* that the failure to disclose the repainting constituted fraud under Alabama law. At trial, BMW acknowledged that it followed a nationwide policy of not advising its dealers, and hence their customers, of pre delivery damage to new cars when the cost of repair did not exceed 3 percent of the car's suggested retail price. Gore's vehicle fell into that category. The jury returned a verdict finding BMW liable for compensatory damages of $4,000, and assessing $4 million in punitive damages. The trial judge denied BMW's post-trial motion to set aside the punitive damages award, holding, among other things, that the award was not "grossly excessive" and thus did not violate the Due Process Clause of the Fourteenth Amendment. See, *e. g., TXO Production Corp.* v. *Alliance Resources Corp.,* 509 U. S. 443, 454. The Alabama Supreme Court agreed, but reduced the award to $2 million on the ground that, in computing the amount, the jury had improperly multiplied Gore's compensatory damages by the number of similar sales in all States, not just those in Alabama. *Held:* The $2 million punitive damages award is grossly excessive and therefore exceeds the constitutional limit. (a) Because such an award violates due process only when it can fairly be categorized as "grossly excessive" in relation to the State's legitimate interests in punishing unlawful conduct and deterring its repetition, cf. *TXO,* 509 U. S., at 456, the federal excessiveness inquiry appropriately begins with an identification of the state interests that such an award is designed to serve. Principles of state sovereignty and comity forbid a State to enact policies for the entire Nation, or to impose its own policy choice on neighboring States. See, *e. g., Healy* v. *Beer Institute,* 491 U. S. 324, 335-336. Accordingly, the economic penalties that a State inflicts on those who transgress its laws, whether the penalties are legislatively authorized fines or judicially imposed punitive damages, must be supported by the State's interest in protecting its own consumers and economy, rather than those of other States or the entire Nation. Gore's award must therefore be analyzed in the light of conduct that occurred solely within Alabama, with consideration being given only to the interests of Alabama consumers.

(b) Elementary notions of fairness enshrined in this Court's constitutional jurisprudence dictate that a person receive fair notice not only of the conduct that will subject him to punishment but also of the severity of the penalty that a State may impose. Three guideposts, each of which indicates that BMW did not receive adequate notice of the magnitude of the sanction that Alabama might impose, lead to the conclusion that the $2 million award is grossly excessive.

(c) None of the aggravating factors associated with the first (and perhaps most important) indicium of a punitive damages award's excessiveness-the degree of reprehensibility of the defendant's conduct, see, *e. g., Day* v. *Woodworth,* 13 How. 363, 371, is present here. The harm BMW inflicted on Gore was purely economic; the presale repainting had no effect on the car's performance, safety features, or appearance; and BMW's conduct evinced no indifference to or reckless disregard for the health and safety of others. Gore's contention that BMW's nondisclosure was particularly reprehensible because it formed part of a nationwide pattern of tortious conduct is rejected, because a corporate executive could reasonably have interpreted the relevant state statutes as establishing safe harbors for nondisclosure of presumptively minor repairs, and because there is no evidence either that BMW acted in bad faith when it sought to establish the appropriate line between minor damage and damage requiring disclosure to purchasers, or that it persisted in its course of conduct after it had been adjudged unlawful. Finally, there is no evidence that BMW engaged in deliberate false statements, acts of affirmative misconduct, or concealment of evidence of improper motive.

(d) The second (and perhaps most commonly cited) indicium of excessiveness-the ratio between the plaintiff's compensatory damages and the amount of the punitive damages, see, *e. g., TXO,* 509 U. S., at 459 also weighs against Gore, because his $2 million award is 500 times the amount of his actual harm as determined by the jury, and there is no suggestion that he or any other BMW purchaser was threatened with any additional potential harm by BMW's nondisclosure policy. Although it is not possible to draw a mathematical bright line between the constitutionally acceptable and the constitutionally unacceptable that would fit every case, see, *e. g.,* id., at 458, the ratio here is clearly outside the acceptable range.

(e) Gore's punitive damages award is not saved by the third relevant indicium of excessiveness-the difference between it and the civil or criminal sanctions that could be imposed for comparable misconduct, see, *e. g., Pacific Mut. Life Ins. Co.* v. *Has lip,* 499 U. S. 1.

10. The Requirement of Mitigation

In a situation where a breach of contract has occurred, the non-breaching party may be required to lessen or mitigate damages (see Bridge, 1989)**.** A party who has suffered a wrong by a breach of contract may not unreasonably sit by and allow damages to accumulate or even worsen. The law will not permit the aggrieved party to recover from the breaching party those damages that he "should have foreseen and could have avoided by reasonable effort without undue risk, expense, or humiliation" (Restatement, Contracts § 336(1)).

However, while the doctrine of mitigation requires reasonable efforts by the non-breaching party to mitigate or lessen damages, the innocent party is not required to mitigate their damages if the cost of mitigation would involve unreasonable expense. The case of *Parker v. Twentieth Century Fox* (1970) demonstrates the operation of the mitigation principle in a case of an employment contract.

PARKER V. TWENTIETH CENTURY FOX FILM CORP.

474 P.2D 689 (1970)

BURKE, Judge.

Shirley McLain Parker signed a contract to play the female lead in Twentieth Century Fox's projected motion picture Bloomer Girl. Before production began, the corporation decided not to produce the picture and notified the actress of its decision. With the professed purpose of avoiding damage to the

actress, the corporation offered her the leading role in another film entitled Big Country, Big Man. She rejected the alternate role and sued for damages. The corporation claimed the actress had unreasonably refused to mitigate harm to her career by refusing to accept the substitute role. Parker won the case.

The trial court pointed out that although the contract for the substituted role offered identical compensation and terms as the prior contract, Bloomer Girl was to have been a musical, and Big Country was to be a dramatic western movie. Furthermore, the musical was to be filmed in California, the western in Australia. The original contract also specified that the actress could approve the director for the musical, and if that person failed to direct the picture, she was to have the right to approve any substitute director. The actress also had the right to approve of the musical's dance director and the screenplay.

The western offer eliminated or impaired each of those rights. Twentieth Century Fox's sole defense is that the actress unreasonably refused to mitigate damages by rejecting the substitute offer of employment.

In this case, the offer to star in the western was for employment both different from and inferior to that of making the musical, and no factual dispute exists on that issue. The female lead as a dramatic actress in a western style motion picture can by no stretch of the imagination be the equivalent of or substantially similar to the lead in a song-and-dance production. In addition, the western offer proposed to eliminate or impair the approvals the actress had under the original musical contract, and thereby constituted an offer of inferior employment.

There is a split of authority in real estate leasing cases, although a modern view would indicate that the lessor must at least attempt to mitigate damages in case of a breach by a lessee. What kinds of actions by a landlord might qualify? What types of action might a tenant undertake to mitigate damages under circumstances where the tenant is contemplating a possible breach of the lease by ending a tenancy before its contractual termination date?

11. Sellers Opportunity to Cure: Section 2-508

Soble (2016) notes: "In contract law, the seller generally has a limited right to cure, or fix the problem, when the goods or delivery under a contract fails to meet the specified contract terms. If the "goods or the tender of delivery fail in any respect to conform to the contract," the buyer may reject the goods. This is called the "perfect tender rule." Rejection of goods must take place "within a reasonable time after their delivery or tender." The right of the buyer to reject a non-conforming good is subject to the seller's right to cure the non-conforming tender or delivery.

In sum, a seller has the right under the Code to cure a buyer's rejection of non-conforming goods if: (1) "the time for performance has not expired" or (2) there were "reasonable grounds to believe" the imperfect tender "would be acceptable" as a suitable substitution. The seller must also "seasonably notify the buyer of his intention to cure."

"Curing" by the seller entails repairing and/or replacing any non-conforming goods so as to make them conform to the contract, free of defect(s). This ensures that a buyer receives what he bargained for in the contract and allows a seller to "avoid injustice...by reason of a surprise rejection by the buyer" (see Craswell, 1990). As a practical matter, allowing a party to cure may also keep the parties from going to Court!

A special rule may apply in the case of a sale of an automobile which is deemed to be a "lemon" under the provisions of state law where a dealer may be afforded numerous opportunities (again, depending on state law) to "cure" or remedy any defect in an automobile before the buyer can attempt to rescind the contract for sale (see Hunter, Amoroso, & Shannon, 2019).

11. Damages of "Pain and Suffering" as Consequential Damages

The Professional Corporation Lloyd-Winer (2017) noted: "Entering into a contract with someone is an act of trust. The two of you come together and make promises. Promises that the other person relies upon. When someone breaches the contract, there is pain, frustration, and anger. It often feels like a personal attack. Because of this, clients often ask us to make a claim for pain and suffering as part of their breach of contract cause of action."

As noted, because an award of damages for breach of contract is "intended to give the injured party the benefit of his bargain," the goal is to put the injured party in "as good as position as he would have been in had performance been rendered as promised," to add additional compensation for pain and suffering as consequential damages would, according to the case law, fall beyond that goal (see also Niemeyer, 2004). In other areas, for example, in cases of personal injury premised on negligence or strict liability in tort, damages for pain and suffering or emotional distress may be appropriate (Hunter & Amoroso, 2012).

12. Attorney's Fees as Consequential Damages

In the United States (as opposed to Great Britain, which has adopted a modified "*loser pays*" view), an award of damages will not ordinarily include reimbursement for the successful party's attorney's fees. An application for attorney's fees in contracts' cases should be viewed in light of the prior discussion of consequential damages. However, it has become common practice for commercial and residential leases, notes, and contracts for sale of real estate to contain a clause providing for the collection or awarding of "reasonable attorney's fees." A majority of courts uphold such agreements, permitting recovery of a stipulated amount in excess of the damages that would accrue in these cases, provided that the amount demanded is reasonable.

There are other circumstances where an award of attorney's fees are provided for by statute. For example, in cases involving a violation of constitutional rights under 42 U.S.C. Section 1983 (1979) (Gans, 2022; Wright, Carr, & Gasek, 2022; Dryer, 2023), successful litigants may be awarded attorney's fees pursuant to 42 U.S.C. Section 1988, which authorizes a court in its discretion to award the prevailing party reasonable attorney's fee as a part of the costs (see, e.g. *NCAA v. Jerry Tarkanian*, 1988; *City of Rancho Palos Verdes v. Abrams*, 2005Miller, 2022, p. 485, Note 213). Section 1983 reads:

> "Every person who, under color of any statute, ordinance, regulation, custom, or usage, of any State or Territory or the District of Columbia, subjects, or causes to be subjected, any citizen of the United States or other person within the jurisdiction thereof to the deprivation of any rights, privileges, or immunities secured by the Constitution and laws, shall be liable to the party injured in an action at law, suit in equity, or other proper proceeding for redress…."

Section 1988 reads:

> "In any action or proceeding to enforce a provision of sections… of this title, … the court, in its discretion, may allow the prevailing party, other than the United States, a reasonable attorney's fee as part of the costs, except that in any action brought against a judicial officer for an act or omission taken in such officer's judicial capacity such officer shall not be held liable for any costs, including attorney's fees, unless such action was clearly in excess of such officer's jurisdiction."

13. Commentary

Assessing the conditions, implications, and circumstances of a possible breach of contract entails a thorough understanding of the common law and the Uniform Commercial Code so that the parties can seek the proper remedy in terms of any monetary damages and other appropriate remedies. Parties must carefully follow the precise requirements of the various statutory materials. Only through a thorough understanding of Article II of the Code can the parties protect their interests to the largest extent possible.

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Experience Future Career: The Paradigm of Applied Learning Curriculum in Hong Kong Secondary School

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Abstract

Applied learning implies an educational philosophy and learning method in which students master skills, practice theories, and operate models through usage. In the context of the new academic structure in Hong Kong, applied learning courses are elective courses for secondary schools committed to reshaping vocational-oriented education. After 20 years of development, applied learning curriculums in Hong Kong senior secondary schools have a complete operational framework, which reflects the essence of the diversified integration and multi-pathway. This paper aims to draw a broad picture of vocational education in secondary schools through applied learning. Applied learning paradigm in Hong Kong achieves parallel connectivity between vocational education and general academic education and can be regarded as an effective model for promoting the coordinated development of vocational education and general education in secondary school. Provide a reference for the trial promotion of vocational-oriented education in mainland China's general high schools. The coexistence of mixed vocational education in comprehensive high schools is a significant feature of the applied learning curriculum, which is conducive to improving the current situation of separation between general high schools and secondary vocational schools in mainland China. Applied learning curriculums could enrich the connotation of recent high school career education and promote the integration of vocational education and general education in the secondary education stage.

Keywords: Applied Learning, Curriculum Paradigm, High School, Vocational Education, Hong Kong, Mainland China

1. Introduction

1.1 Concept and Definition

Applied learning is a kind of educational concept and learning model students learn by applying skills and theories. Students apply the knowledge and skills acquired from traditional classroom learning and put them into practice. Based on real-world environments, conduct field research, observe the workplace, expand professional views, and gain direct experience. Varied from pre-service training, applied learning can either occur outside the traditional classroom or be integrated into the curriculum (SUNY, 2023).

1.2 Applied Learning Theories

Theoretical-based applied learning refers to the concept that students rely on in their applied learning practice, with students centered supports of switching places for classroom, laboratory, and off-campus learning, and learning through practice (Figure 1).
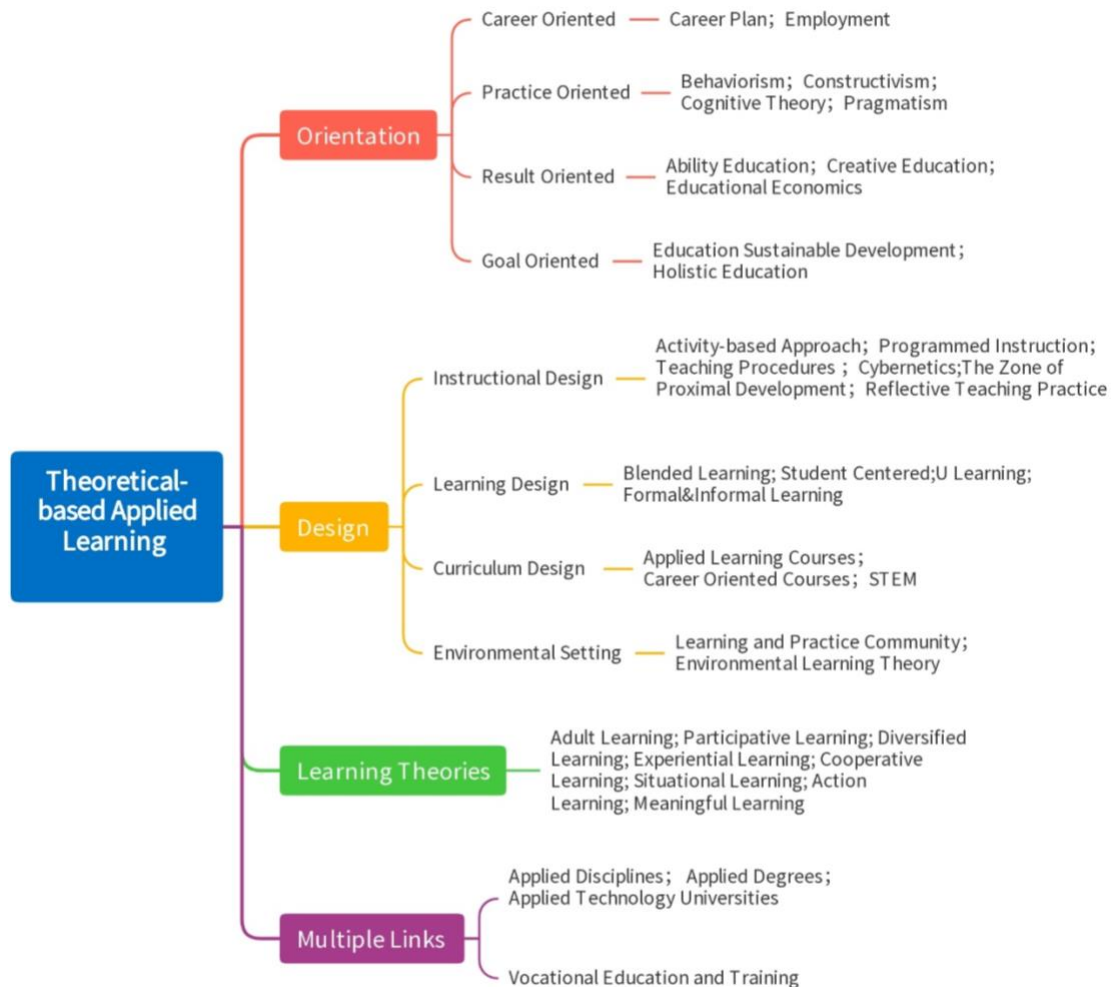

Figure 1: Theoretical-based Applied Learning

1.3 General Models of Applied Learning

The Data Dictionary provided by the State University of New York Institutional Research Information System (SIRIS) summarizes the empirical definitions and manifestations of applied learning in the higher educational stage (SIRIS, 2023) (Figure 2).
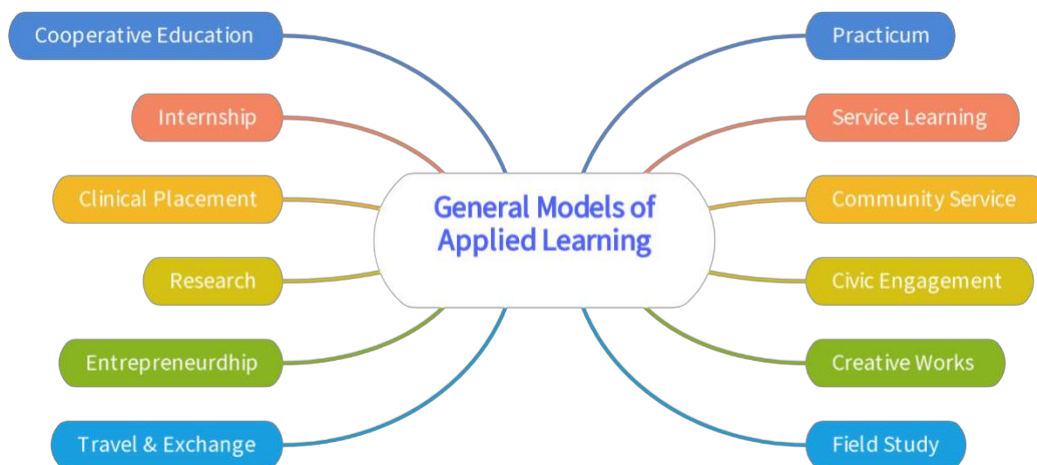
Figure 2: General Models of Applied Learning

The general mode of applied learning is also applicable to secondary schools. Thus, applied learning can also extensively dabble in the cross fields of academic and career goals, mainly reflected in the alternation of applied learning courses and academic courses in daily school contexts (SIRIS, 2023).

In Hong Kong, during the junior high school stage, comprehensive learning activities can broaden the horizons of junior high school students and help them gradually acquire career-related experiences. Students have opportunities to participate in vocational courses, lectures, workshops, training, and camps organized by commercial institutions and NGOs, visit workplaces, and conduct on-site inspections. Junior high school students can imagine future job assignments, understand the labor market early and consider employment opportunities.

In high school, diverse learning opportunities such as applied learning courses and other learning activities provide students with work-related visits and vocational perception. Applied learning courses focus on practical elements and complement the core course. Related to a wide range of majors and professional fields, applied learning courses could provide students with ample learning opportunities and attract many students to choose from. Nowadays, applied learning courses have played as elective subjects of the Hong Kong Diploma of Secondary Education (HKDSE) ever since 2018.

2. Applied Learning in Hong Kong Since 1970s

2.1 Reshape Vacation-Oriented Education

Vocational education aims to cultivate students' specialized knowledge and skills and prepare them for professions and specific industries. Therefore, vocational education plays an indispensable part in the knowledge economy society. Between the 1960s and 1970s, vocational education was one of the common choices for young adolescents to pursue higher education in Hong Kong. With the implementation of compulsory education by the Hong Kong government in 1978, the traditional conception and the Chinese Proverb of "all things were inferior, but only educating is superior" (wan ban Jie Xia pin, wei you du shu gao) has generated a prejudice that vocational education was inferior to liberal arts and general higher education. Vocational training was considered to negatively impact a person's development and less likely to create a new middle class. These led to mainstream academic education inappropriately becoming the only social status' rising channel. However, vocational education and training were indispensable roles in the education system, promoting the integration of school education with work and providing flexible and diverse solutions for middle school students and professionals (Task Force on Promotion of Vocational Education, 2020).

Since 2000, the Hong Kong government has been increasing opportunities for post-secondary education year by year, providing free education for all students up to the sixth grade of secondary school (Education Commission, 2000). The local education system needed to cultivate students' application skills that integrated different

knowledge, techniques, values, and attitudes. It was imperative to change the public's contempt for vocational education (Curriculum Development Council,2000). The report "Learning to Learn" (Curriculum Development Council, 2001) announced a large-scale K-12 curriculum reform. Because of these, in 2003, the vocational-oriented education curriculum plan was first carried out and enriched vocational education. The New Academic Structure for Senior Secondary Education and Higher Education - Action Plan for Investing in the Future of Hong Kong (2005) charted the future direction of the high school curriculum. 2006 the Preparatory Committee for Vocational Oriented Education was established, and the report "Driving the Future - New High School System for Vocational Oriented Education and Special Schools" was released. In 2009, Hong Kong carried on a new school system, and the former career-oriented education curriculum was renamed an applied learning curriculum, becoming an elective course for senior high schools, according to Applied Learning Curriculum and Assessment Guide (Senior Secondary Level) (Curriculum Development Council, 2009). Applied Learning Group designed a handbook of High School Applied Learning Curriculum (Curriculum Development Council, 2010) and introduced details. Applied Learning Chinese Course was launched in 2014 for non-Chinese language students (Curriculum Development Council, 2014).

Ever since the school year of 2018, applied courses have been listed as elective subjects in the Hong Kong Diploma of Secondary Education (DSE). The final Report of the Task Force on School Curriculum Review (September 2020) covered High School Applied Learning situations and called for attention to common questions. 2020 Policy Address highlighted the Promotion of Applied Learning Courses (Government of HKSAR, 2020).

The 2021 Policy Address viewed applied learning as a multi-path for further study or work. As the 2022 Policy Address advocated, the Applied Education Diploma (DAE) would be launched in 2023 (Government of HKSAR, 2022). Now, the Education in Hong Kong Bureau has released the FAQ of Applied Learning on its official website, and this September, high school students will apply for the DAE program. The Education Grants Committee of the University of Hong Kong states the recognition level of applied learning in undergraduate degree programs funded by universities.

2.2 High Frequency Words and Phrases of the Hong Kong Government's Policy Addresses

With the vigorous development of vocational guidance to education, "vocational education," "professional education," "vocational education," "youth development," "multiple paths," and "applied learning" have gradually become high frequency words in previous Hong Kong government policy reports. The Hong Kong government attaches great importance to promoting the prosperity of vocational education.

In the 2004 Policy Address, the Hong Kong government announced the progress of establishing the Qualifications Framework, officially implemented in 2008 (HKG, 2004). Implement vocational education and employment support programs in the form of pilots, provide regular funding to the Vocational Training Council, and support long-term development of vocational education, as the 2014 Policy Address mentioned (Government of HKSAR, 2014). To establish a work team for the promotion of vocational education, responsible for promoting vocational education, providing advice and suggestions, expanding the awareness of vocational education, and affirming the value of vocational education (Government of HKSAR, 2014).

In 2015, the Chief Executive stated in the Policy Address: "Sufficient and high-quality human resources are the primary condition for the sustainable development of Hong Kong's society and economy." To cultivate local talents and cope with the new challenges brought about by the transformation of the demographic structure. Expect to create more diversified and promising employment opportunities for young generations and provide diverse learning, training, and development opportunities." Vocational education plays an essential role in nurturing local talents (Government of HKSAR, 2015).

The 2017 and 2018 Policy Addresses have set unique columns for "vocational professional education" and " secondary education" (Government of HKSAR, 2017; Government of HKSAR, 2018). Analyzed by the 2020 Policy Addresses, promoting applied learning courses, various subsidizing, enriching students' experience, and promoting diversified and comprehensive development, were all suggested (Government of HKSAR, 2020). The

2021 Policy Addresses elaborates on the future vocational and professional education construction plan, promotes applied learning as a valuable high school elective subject, and develops more diversified courses that keep pace with the times (Government of HKSAR, 2021). Emphasize practice and theory, consider students' interests, and expand multiple advanced paths for further education and employment.

The 2022 "For the Happiness of the Citizens and the Development of Hong Kong" Policy Address fully affirmed the empowerment significance of "vocational education" not inferior to "general secondary education," and vowed to promote vocational education with the strategy of "communication between vocational education and diversified development" (Government of HKSAR, 2022). Similar to traditional academic education, specialized education provides youth with diverse learning and employment opportunities (Table 1).

Table 1: Education/Vocational Education Hotspots in Previous Policy Addresses of the Government of HKSAR

Year	Chapter/ Column/Title	Keynotes
2004	※Invest in education and keep pace with the times ※Promote employment and training	※Pay attention to the youth's continuous learning ※Employment issues ※Continue to develop post-secondary education ※Construction of pathways for higher education ※Formulation of qualifications framework(QF) ※Drawing the learning map
2005	※Education Development	※Implement the New Academic Structure (NAS) ever since 2009
2006	※Gifted Education	※Multiple pathways ※Continuous learning
2007	※Education Reform	※Since 2008, fully subsidized students to enrol in full-time sponsored courses provided by the Vocational Training Council to replace high school education.
2008	※National Education	※National Education
2009	※Education Industry ※Youth Development	※E-Learning ※Internationalization
2010	※Investment in Education	※Multiple learning pathways for higher education
2011	※Expand Education	※Multiple learning pathways for higher education ※A youth college will be added to provide exceptional support for non-Chinese speaking students and students with special educational needs.
2013	※Youth Development	※Promote a diverse culture of excellence ※Provide opportunities for further study and employment
2014	※Connect vocational education with employment support	※Emphasis on the importance of vocational education ※Established a task force to promote vocational education ※Career Pilot Program
2015	※Cultivate local workforce	※Provide diverse learning, training, and development opportunities ※Career plan ※Business-School cooperation plan
2016	※Vocational and post-secondary education	※Fully aided secondary schools provide Applied Learning courses ※Extension of "Vocational Education and Employment Support Pilot Program ※Reserve urban land for the construction of school buildings by the Vocational Training Council
2017	※Post-secondary Education ※Vocational and Professional Education ※Youth Development	※Allocate the land and build the school building by the Vocational Training Council
2018	※Post-secondary Education ※Vocational and Professional Education ※Youth Development	※Increase opportunities and funding
2019	※Care for children	※Allowance for study ※Comprehensively increase the amount of working family allowance ※Bailout
2020	※Promote Applied Learning Courses	※Promote Applied Learning as an elective subject in the senior high school ※Support for diversified courses ※Expand the field of study and experience
2021	※Multiple advanced paths	※Continue to promote applied learning ※Expand further education and employment
2022	※Vocational Education	※Strengthen the junior high school students' applied learning and workplace experience. ※ Optimize the senior high school applied learning curriculum

※ Vocational school connectivity and diversified development ※ Expand the "Designated Professional/Sectoral Course Funding Scheme" ※ First batch of pilot programs for launching applied degree courses ※ Accelerate the development of the career qualification ladder ※ Launch of Applied Education Diploma Courses ※ Strengthen applied learning and workplace experience for the junior high school students ※Furtherly promote vocational education

Compared with the previous policy addresses, the 2022 administrative report has an unprecedented length and plans in detail to promoting vocational education during the secondary stage which is treated as an essential part (Government of HKSAR,2022).

The rapid development of applied learning courses throughout secondary schools should positively fulfill market demands, attract industry participation, increase funding, and expand relevant courses in urgently needed professional/industry fields. Strengthen the junior high school students' applied learning and workplace experience. Applied learning courses complement other high school core courses and elective courses. Accept and approve applied learning courses, accelerate the development of the professional qualification framework, and launch the Diploma in Applied Education.

2.3 Curriculum Frame of Secondary Schools in Hong Kong

The New Academic Structure (NAS) has been implemented since 2009. Six years of free secondary school education are conducted to broaden and balance the 12-year compulsory education curriculum and provide diversified and specialized options to meet students' academic, professional, and career development needs. Based on the experience guiding students to plan for their future under the three-year junior and three-year senior high school curriculum, the education system must prepare students' life holistically in major domains such as work and learning during secondary years (Education Bureau, 2023). Cultivate students' independent ability for lifelong learning and promote all-around development. Secondary education in Hong Kong advocates seven learning objectives. Attach importance to connecting five essential learning experiences, intending to cultivate seven primary values and nine generic skills. Generic skills refer to the crucial ability of students to acquire applied knowledge and master skills in different situations. Through the learning of cross-subjects, the typical power cultivated can be transferred to other learning situations (Education Bureau, 2017).

Learning to Learn - 3+3 Academic Structure of Hong Kong Secondary School Curriculum

Vision：

7 learning goals--National and global citizenship, broad knowledge base, language skills, generic skills, information literacy, career planning, healthy lifestyle

Targets:

5 essential learning experiences--moral and civic education, intellectual development, community service, physical and artistic development, work-related experience

7 Overarching Values--Grit, Respect, Responsibility, National Identity, Commitment; Integrity, Caring

9 common Skills (basic skills 3 + thinking skills 3 + personal and social skills 3)

Senior Secondary Schools — S6, S5, S4

Core subjects (4)

*Chinese language

*English language

*Mathematics

*Citizenship and Social Development

Electives (2)

* Electives Subjects under key Learning Areas

*Applied Learning (S5-S6)

Applied Learning Guidance Course (S4)

*Other Languages

Other Learning Experiences

*Values Education
*Aesthetic Education

*Physical Development

*Community Service

*Career Related Experience

Junior Secondary Schools — S3, S2, S1

Major Renewed Emphases of Secondary School Curricula

Chinese Language Education; English Language Education; Mathematics Education; Science Education; Technology Education; Personal, Social and Humanities Education; Arts Education; Physical Education
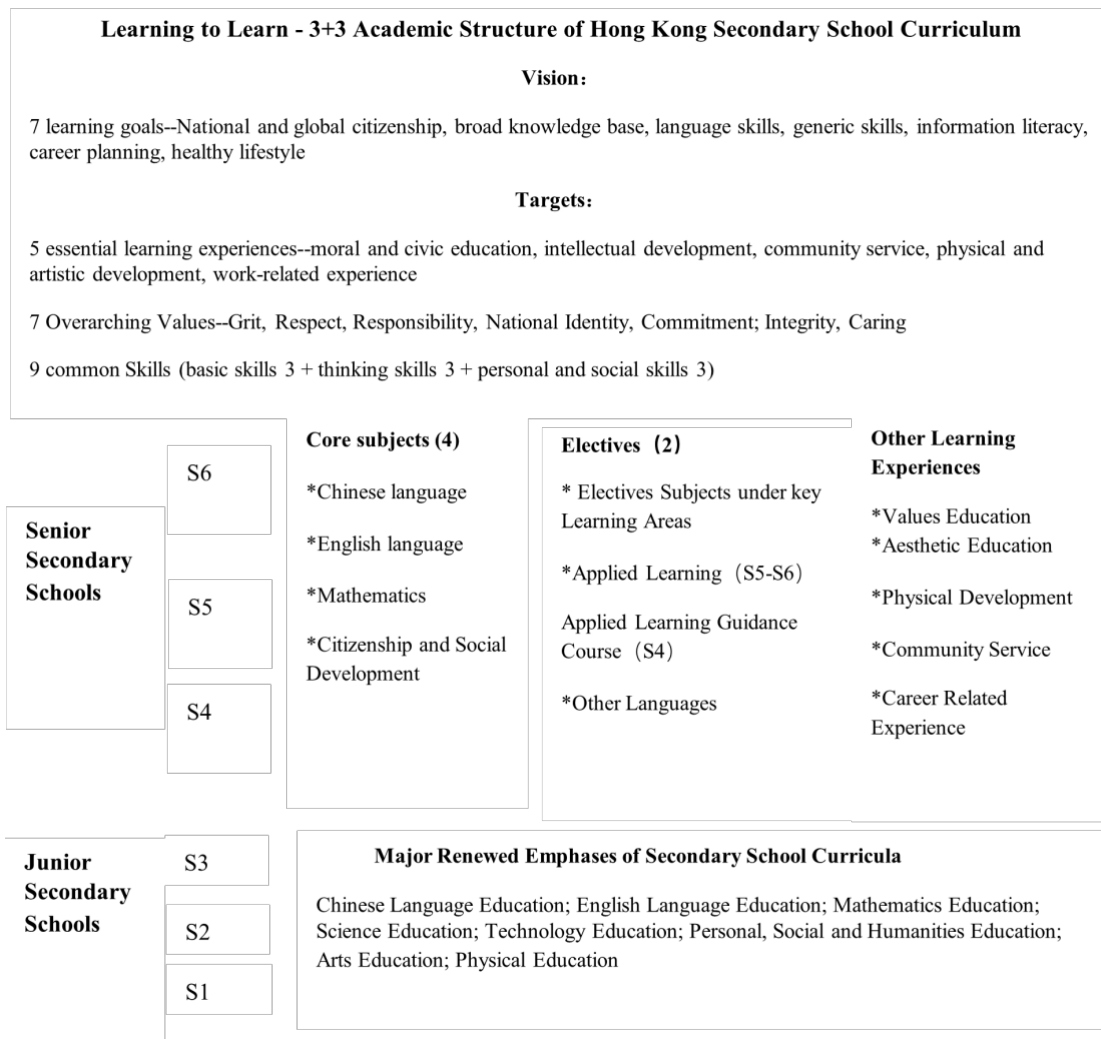
Figure 3: Learning to Learn - 3+3 Academic Structure of Hong Kong Secondary School Curriculum (Education Bureau, 2017)

Hong Kong high school students can choose 2 to 4 elective subjects, forming a flexible combination of course elections, including traditional elective subjects or up to two applied learning subjects. Students can also only study applied learning for up to two subjects. Applied learning courses are offered in the fifth and sixth year of the secondary school to give students ample time to participate in the pilot program during the fourth year and carefully consider which areas to pursue (Legislative Council Education Affairs Committee, 2015).

Applied learning course is one of the newly established elective subjects in the new senior high school curriculum and is hailed as one of the disciplines that best reflect the spirit of the new high school. Unlike other disciplines, applied learning courses aim not solely to advance to higher education but simultaneously to connect with the labor market. The establishment of applied learning is a positive response to the 2005 educational reform document "The New Academic Structure for Senior Secondary Education and Higher Education - Action Plan for Investing in the Future of Hong Kong," aiming to enable students to learn relevant knowledge from application and practice through real situations, thereby cultivating generic skills (Education and Manpower bureau, 2005). The 2009 Applied Learning Curriculum and Assessment Guide (Senior Secondary Level) was systematically discussed. Further standardized this, expanding the curriculum objectives of applied learning to help students explore and understand the orientation of employment and Lifelong learning, applied learning practices, the student-centered teaching model, experiential learning, and developing generic skills advocated in the 2005 educational reform documents, providing students with opportunities beyond mainstream education (The Curriculum Development Council and the Hongkong Examinations and Assessment Authority, 2017).

The predecessor of applied learning was vocational-oriented education, where the learning content was related to a wide range of majors and professional fields to expand and deepen students' understanding of various industries. Students can choose according to their situation and master knowledge and skills through practical exercises. Through the course, students are able to understand the knowledge, skills, and workplace requirements within their professional fields, think about the direction of employment, and achieve the established goal of promoting vocational education through applied learning (Leung, 2013). That is to develop the learning path of vocational education, starting from applied learning and providing a Higher Diploma, which connects degree courses for further study.

Applied learning has six learning categories, targeting the labor market and covering various topics. Taking the 2023-2025 academic year as an example, students can choose up to two out of 58 applied learning courses, including two pilot Applied Learning courses, three Applied Learning (Vocational English) (ApL(VocE)) and three Applied Learning Chinese (for non-Chinese speaking students) (ApL(C)) courses. Most need 180 class hours per course (Table 2). Since 2014/2015, applied learning Chinese studies have been launched for non-Chinese language students (Applied Learning Section Curriculum Development Institute of Education Bureau, 2022).

Table 2: Prospectus for Applied Learning (2023-25)

Prospectus for Applied Learning (2023-25)				
Area of Studies	**Course Cluster**	**Subject Amount**	**Course Example**	**Course Description**
Creative Studies	Design Studies	3	1. Fashion Image Design	※180 class hours for each course ※The 5th year and 6th year of secondary school ※Select up to 2 courses ※Recommend electing 1-2 courses
	Media Arts	2	4. Computer Game and Animation Design	
	Performing Arts	2	7. Taking a Chance on Dance	
Media and Communication	Films, TV and Broadcasting Studies	2	9. Digital Media and Radio Production	
	Media Production and Public Relations	3	11. Digital Brand Communication	
	Language and Culture	9	14. Applied Learning (Vocational English) –English Communication	
Business, Management and Law	Accounting and Finance	1	23. Accounting for e-Business	
	Business Studies	4	24. AI in Business	
	Legal Studies	1	28. Law Enforcement in Hong Kong	
Services	Food Services and Management	3	29. Modern Southeast Asian Cuisine	
	Hospitality Services	3	32. Airport Passenger Terminal Operations	
	Personal and Community Services	3	35. Child Care and Development	
Applied Science	Food Science	1	38. Food Innovation and Science	
	Medical Science and Health Care	5	39. Animal Care	
	Psychology	2	44. Applied Psychology	
	Sports	2	46. Exercise and Fitness Coaching	
Engineering And Production	Civil, Electrical and Mechanical Engineering	2	48. Digital Construction	
	Information Engineering	2	50. AI and Robotics	
	Information Engineering	2	52. eSports Technology	
	Services Engineering	2	54. Aviation Studies	

Applied Learning Chinese (For non-Chinese speaking students)	3	56. Chinese in Business Service	※Each course has 270 class hours ※Elect 1 course

2.4 20 Years' Development of Applied Learning Curriculums in Secondary Schools （2003-2023）

In the 2003/2005 academic year, the Education in Hong Kong Bureau launched 12 vocational education-oriented pilot courses (application learning can be the predecessor of the course) for the first time, two partner program courses, and two course providers accepted more than 600 secondary school students from 60 schools. In the 2004/2006 academic year, these two institutions provided 32 courses to 130 schools with 2000 students. From 2007 to 2009, 13 institutions offered 31 applied learning courses attended by over 3000 students from 200 secondary schools. From 2014 to 2015, 10 institutions provided 36 applied learning courses, with over 10000 students from over 300 schools participating in course selection (Applied Learning Group, Curriculum Development Division, Education in Hong Kong Bureau, 2015). Twenty years after the launch of career-oriented courses, from 2023 to 2025, 10 institutions will provide a total of 58 applied learning courses for high school students in Hong Kong (Figure 4) (Applied Learning Section Curriculum Development Institute of Education Bureau,2022).
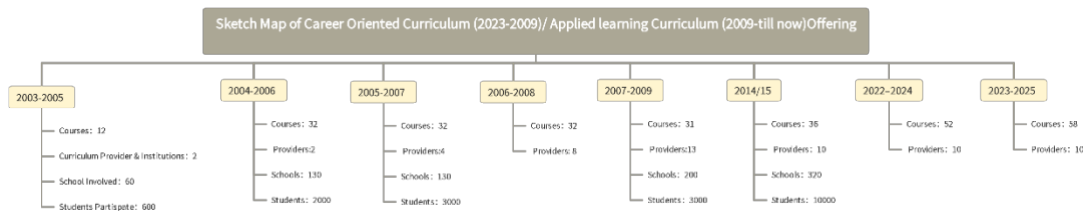
Figure 4: Sketch Map of Career Oriented Curriculum (2023-2009)/ Applied learning Curriculum (2009-till now) Offering

3. Panorama of Hong Kong Applied Learning Framework

The predecessor of applied learning was vocational-oriented education, piloted in 2003. In 2008, it was all named "applied learning curriculum." After 20 years of high-speed development, it formed a complete operating system that includes goal positioning, learning scope, quality assurance, recognition and evaluation, further education and employment, and diversified subsidies. It draws a broad picture of promoting vocational education in secondary schools through applied learning (Figure 5).
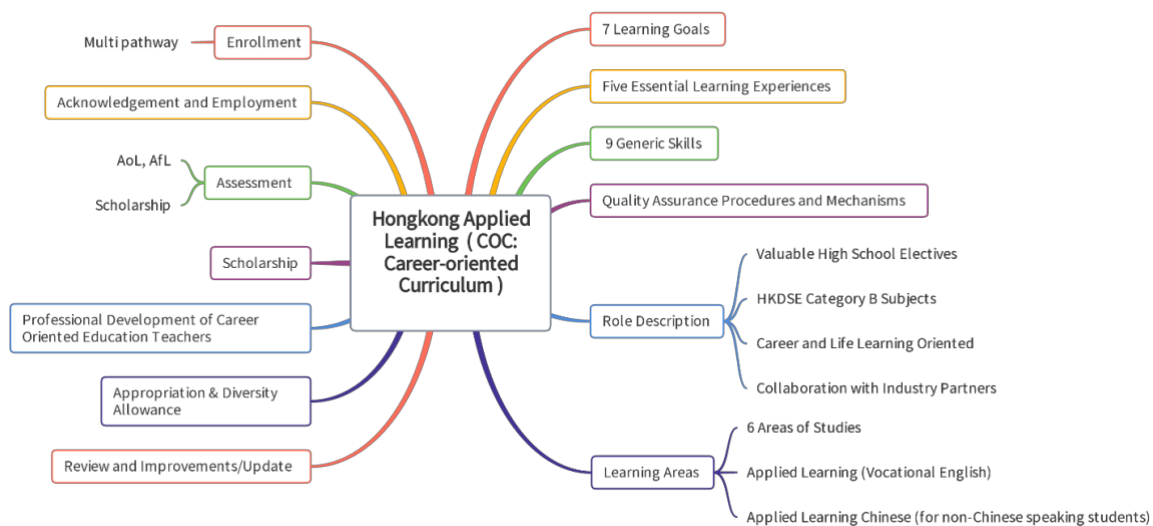
Figure 5: A Panorama of Applied Learning Research Framework in Hong Kong

4.Curriculum Design for Applied Learning

4.1 Curriculum Design Principles

Applied learning courses complement other high school courses, providing students with sufficient information to choose suitable high school elective subjects, gain opportunities to understand specific industries, pursue further education or employment, and engage in deep learning of real-life situations to achieve holistic development. The design principles of applied learning courses refer to (The Curriculum Development Council and the Hongkong Examinations and Assessment Authority, 2017):

- As an emerging subject providing diverse learning pathways, applied learning courses are closely related to the social, cultural, and economic development of Hong Kong.
- Extend learning environment, providing teaching venues through universities and actual workplaces.
- Obtain initial experience in the workplace. Promote students learning through context and prepare them for their future after graduating from high school.
- Provide application and practical scenarios for learning, teaching, and evaluation purposes, supplemented by relevant knowledge.
- Recognize rich learning outcomes as part of the Hong Kong Secondary School Diploma.

The applied learning course is based on eight learning areas in Hong Kong primary and secondary schools, following four core principles (The Curriculum Development Council and the Hongkong Examinations and Assessment Authority, 2017):

- Balance the needs of the workplace, school education, and personal needs.
- Coordinate the correlation between courses.
- Connect education and employment opportunities.
- Hold a global perspective while considering local characteristics and enriching students' vocational school learning experience.

4.2 Curriculum Design Framework

Applied learning adheres to the principle of learning in practice and adopts the FTPVC organizational framework to design courses because it is practical and applicable (The Curriculum Development Council and the Hongkong Examinations and Assessment Authority,2017) (Figure 6).

Applied Learning Curriculum Framework

(Formerly: Vocational Education Oriented Curriculum)

⁕**Objective:** Prepare for future education and work; Diversify high school curriculum

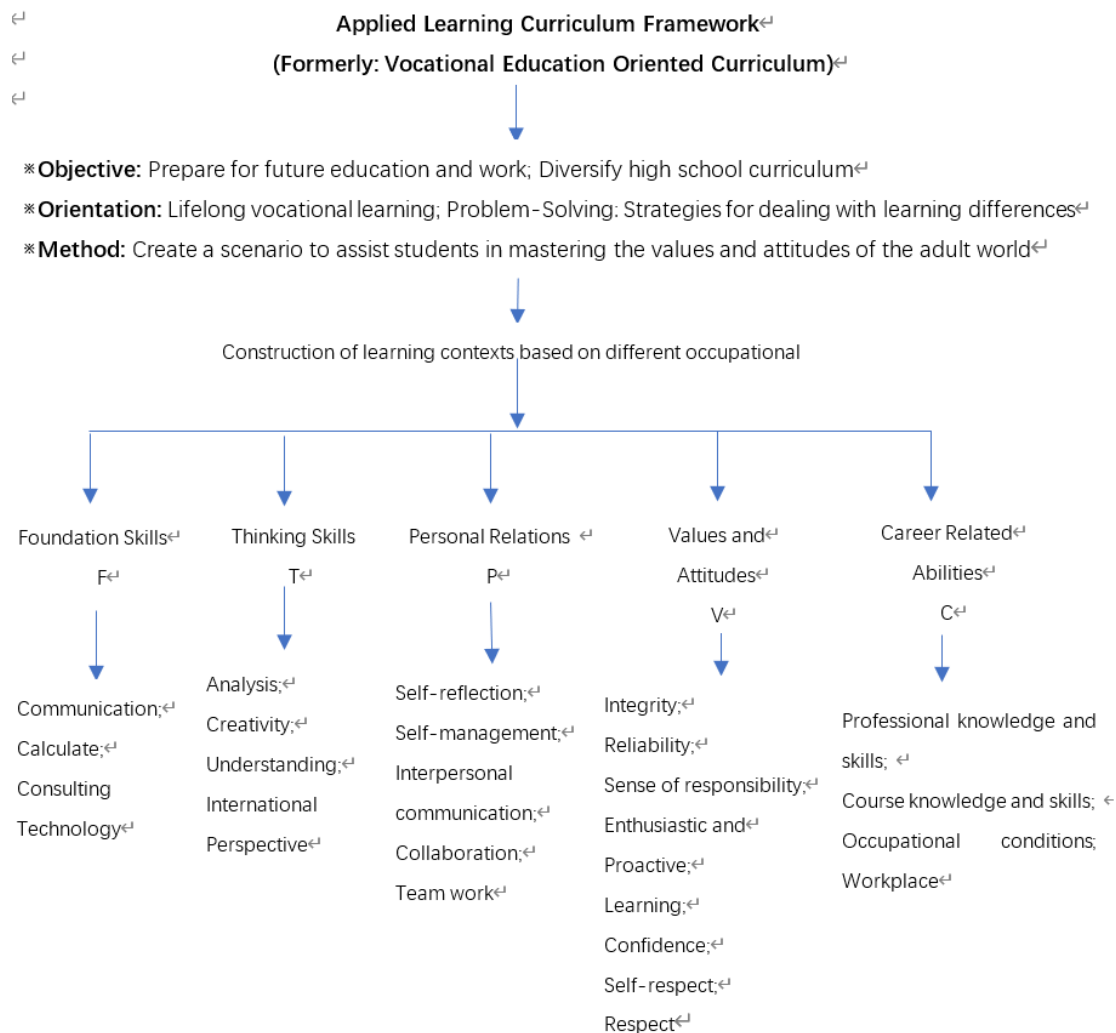⁕**Orientation:** Lifelong vocational learning; Problem-Solving: Strategies for dealing with learning differences

⁕**Method:** Create a scenario to assist students in mastering the values and attitudes of the adult world

Construction of learning contexts based on different occupational

Foundation Skills F	Thinking Skills T	Personal Relations P	Values and Attitudes V	Career Related Abilities C
Communication; Calculate; Consulting Technology	Analysis; Creativity; Understanding; International Perspective	Self-reflection; Self-management; Interpersonal communication; Collaboration; Team work	Integrity; Reliability; Sense of responsibility; Enthusiastic and Proactive; Learning; Confidence; Self-respect; Respect	Professional knowledge and skills; Course knowledge and skills; Occupational conditions; Workplace

Figure 6: Applied Learning Course Architecture Diagram: Construction of Learning Situations Based on Different Occupational Areas

4.3 Applied Learning Course Evaluation

4.3.1. Evaluation classification

As far as applied learning is conducted, there are no paper-pencil examinations, and the evaluation focuses on collecting students' performance and evidence of knowledge, skills, values, and attitudes (The Curriculum Development Council and the Hongkong Examinations and Assessment Authority, 2017). Then compare with preset standards and give a review. Assessment can be divided into two main parts: (1) assessment of learning - to facilitate student learning and monitor student progress, and (2) assessment for learning - to demonstrate the level achieved by students—the ability to transfer acquired skills to new situations.

Assessment of learning aims to collect learning and teaching feedback and use this feedback to guide teachers to adjust teaching strategies to promote more practical understanding. Focus on development and regularly adjust learning and teaching needs. It can also be called "progressive assessment." However, the so-called formative assessment usually focuses on more minor learning points (Applied Learning Group, Curriculum Development Division, Education in Hong Kong Bureau, 2015).

Assessment for learning focuses on reviewing students' learning progress and analyzing how much knowledge or skills students have mastered. This kind of summative assessment carries out at the end of a course or unit, and the object of assessment is often a larger learning area.

4.3.2 Guiding Principles of Evaluation

When designing an Applied Learning coursework assessment, the following guiding principles should be met (The Curriculum Development Council and the Hongkong Examinations and Assessment Authority, 2017):

- Match learning objectives;
- Take into account students' learning differences and learning progress;
- Track the learning process;
- Give timely encouragement;
- Consider school context and daily life situations;
- Provide peer assessment and self-assessment;
- Incorporate assessment data feedback.

4.3.3 Evaluation procedure

Applied Learning course assessment is subject-based and carried out by course instructors. Instructors make professional judgments based on the joint assessment criteria listed in the assessment syllabus and relevant course documents to be fair, objective, reliable, and credible.

In actual operation, the instructor designs assessment activities, balances between progressive assessment (continuous) and summative assessment (end of course), and evaluates students' learning activities (including written tests, project study, presentation, group discussion, class assignment, etc.), assessing different knowledge, skills, and career-related values and attitudes. Assessment activities must be carried out in different modes and at various stages of the curriculum, considering factors such as the authenticity of assessment activities, the balance between theory and application, and the balanced development of practical skills and intelligence (The Curriculum Development Council and the Hongkong Examinations and Assessment Authority, 2017).

The assessment framework for each Applied Learning subject is centered around jointly assessing assignments to compare assessment results from different classes taught within the subject. Co-assessed tasks can be formative or summative, designed by the course provider, and primarily carried out by the course tutor. Evidence collected through joint assessment assignments should be relatively objective for retrospection and reference. With a sound quality assurance mechanism, ensure that the assessment of Applied Learning closely follows the purpose and design principles of the courses. The assessment results submitted by course providers for each Applied Learning curriculums could be reviewed by the Hong Kong Examinations and Assessment Authority (Curriculum Development Division, 2010).

4.3.4 Grade and Application of Evaluation

Under the HKDSE system, students' assessment results in Applied Learning subjects will be recorded on the HKDSE certificate issued by the HKEAA. This certificate provides students who have completed secondary school with general qualifications applicable to further education, employment, further education, and training (Table 3).

Table 3: Applied Learning Performance Assessment Scale

Applied Learning Performance Assessment Scale		
Applied Learning Subjects (3 levels)		Applied Learning Chinese (For non-Chinese speaking students) (2 levels)
① Reach the standard		① Reach the standard
② Achieved and performed well I	Equivalent to Level 4 or above in Category A subjects of the Hong Kong Diploma of Secondary Education Examination	②Achieved and performed well

③ Achieved and performed well II	Equivalent to Level 3 results in Category A subjects of the Hong Kong Diploma of Secondary Education Examination

In the Hong Kong Diploma of Secondary Education (HKDSE) examination under the new senior high school system, students can take six subjects and choose the best five subject score to apply for universities. The exam results can be retained for one year and used in an application in the second year (Figure 8) (Education Bureau, 2023).

Table 4: Hong Kong Diploma of Secondary Education (HKDSE)

Hong Kong Diploma of Secondary Education (HKDSE) (2023-2025) (Applied Learning Section Curriculum Development Institute of Education Bureau,2022)		
Category A (24 basic subjects)	Category B	Category C
Core subjects (4)	Applied Science Subjects	Other language subjects
Chinese Language, English, Mathematics, General Education	6 areas of study	French German Hindi
Elective subjects (20, choose 2)	58 courses	Japanese Spanish Urdu

5. Applied Learning Quality Recognition

At present, more and more secondary school students in Hong Kong are taking Applied Learning courses. Applied learning subjects are equivalent to other subjects in the HKDSE examination, and the results can be used for admission to Higher Diploma and Associate Degree. With the vigorous promotion of Vocational and Professional Education by the Education Bureau, Applied Learning courses, Diploma Yi Jin, the Higher Diploma, and the Applied Degree courses being piloted will gradually form a learning path from the 4th year of secondary schools to Bachelor's degree. In the future, higher diplomas/advanced certificates, professional diplomas/professional certificates (levels 4-6 of the qualifications framework) are expected to link up with the master's degree (level 6 of the qualifications framework) and then apply for a doctoral degree (level 7 of the qualifications framework), realizing the dual-track system (Table 4).

Table 4: Applied Learning Quality Recognition

Applied Learning Quality Recognition		
Application	Qualification Level	Acceptance
Progression to Bachelor Degree Programs	Qualifications Framework Level 5	※Approved Applied Learning courses. ※Some institutions, colleges or programs accept Applied Learning subjects as elective subjects, extra points, or additional supplementary materials.
Progression to Associate Degree Program	Qualifications Framework Level 4	In the Hong Kong Diploma of Secondary Education Examination, students who have achieved Level 2 or above in five subjects (including Chinese Language and English Language) can apply for admission. Grades for Applied Learning subjects may be submitted.
DSE	Qualifications Framework Level 3	• Accept up to 2 HKDSE Applied Learning subjects
Employment Apply for civil servants	Qualifications Framework Level 3	• Accept up to 2 HKDSE Applied Learning subjects • The results of "Attained" and "Attained with Distinction" in Applied Learning Chinese (for non-Chinese speaking students) are accepted as meeting the Chinese language proficiency requirements for the relevant civil service ranks

6. Reflection: Improvement Suggestions for HK Applied Learning

In 2020, the Task Force on Promoting VPET and the School Curriculum Review Task Force collected and sorted out the industry's and academia's improvement opinions on applied learning, focusing on aspects: (1) curriculum construction; (2) publicity and promotion; (3) improvement of the study mode; (4) quality recognition and multiple connections (Task Force on Promotion of Vocational Education,2020) (Table 5).

Table 5: Applied Learning Improvement

Suggestions of Improving Applied Learning	
Curriculum Construction	Promote Applied Learning as a valuable high school elective subject; provide more diversified Applied Learning courses.
Publicity and Promotion	Deepen teachers' and principals' understanding of career-oriented education; strengthen teacher training; strengthen cooperation with industry partners; broaden students' and parents' understanding of vocational and professional education.

Improvement of Study Mode	Start implementing Applied Learning earlier in the 4th year of secondary school; allow Applied Learning to be taken as a fourth elective subject; offer Applied Learning Orientation courses in junior secondary schools to enable students to learn about different industries, professions, and Applied Learning courses early; introduce learning models to encourage schools to offer applied learning courses, which is different from the previous model 1 and model 2.
Quality Recognition and Multiple Connections	Develop vocational education learning pathways that start with applied learning and offer opportunities for higher diploma and top-up degree programs.

7. Conclusions: General High Schools in Mainland China Try to Promote Vocational Oriented Education

As an essential part of China's education system, senior high school education is not only the continuation and expansion of nine-year compulsory education and the preparation and transition to higher education. In Mainland China, high school education system includes secondary vocational schools and general high school schools. The relationship between the two has always been the focus of attention (Xu,2022). The "Vocational Education Law of the People's Republic of China" implemented on May 1, 2022, proposes: "The state optimizes the educational structure at the high school stage, scientifically allocates educational resources, adapts measures to local conditions at different stages after compulsory education, and promotes the coordinated development of vocational education and general education."

Promoting applied learning as a valuable high school elective subject in Hong Kong embodies the essence of the multi-integration model. Through the quality framework, vocational education and general education are realized in parallel. Promoting the coordinated development of vocational education and general education both in senior high school is an effective model. Hongkong's experience provides a reference for promoting career-oriented education in general high schools in mainland China. The coexistence of mixed vocational education in general secondary schools is the most significant feature of the multi-integration model, which is conducive to improving the current separation between general high schools and secondary vocational schools in mainland China. Enrich the connotation of current career education and coordinate general education development during the secondary stage.

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Principals' Leadership Styles and Public Senior Secondary Schools Administrative Effectiveness in Oyo State, Nigeria

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Abstract
The study investigated the relationship between principals' leadership styles and administrative effectiveness in public senior secondary schools in Oyo State, Nigeria. The role of school principals is crucial in creating an environment that fosters effective teaching and learning, and their leadership styles have a significant impact on the overall functioning and success of the school. A mixed method approach is utilized, combining quantitative surveys and qualitative interviews. Data from 629 principals and 4,204 teachers were analyzed using descriptive statistics and Pearson Product Moment Correlation (PPMC). The study revealed a high level of administrative effectiveness (overall weighted mean = 3.47) among principals in planning (weighted mean = 3.48), coordinating (weighted mean = 3.39), and supervising (weighted mean = 3.47) activities in their schools. However, areas for improvement were identified, such as ensuring the provision of necessary resources, planning for maintenance of school infrastructural facilities, and deciding how the school budget will be spent. The prevalence of autocratic leadership (44.5%) among public secondary school principals in Oyo State was also found, but a significant proportion reported using democratic and digital leadership styles. The findings from the study indicate that there is a significantly high positive relationship (r = 0.958) between leadership styles and administrative effectiveness. The study suggested among others that there is a need for principals to explore alternative leadership styles that promote teamwork, collaboration, and shared decision-making.

Keywords: Principals' Leadership Styles and Public Senior Secondary Schools, Administrative Effectiveness

1. Introduction

The success of an organization heavily relies on its administrative effectiveness, which refers to the proactive measures taken by its leaders to achieve the organization's goals. Administrative effectiveness is usually evaluated based on the output it produces, and it involves the optimal utilization of both human and material resources to meet organizational objectives. It is achieved by implementing efficient practices, innovative techniques, and appropriate technology to streamline operations, increase productivity, and make the most of available resources to attain desired goals (Jideofor 2020). Administrative effectiveness requires effective planning, coordinating, supervising, organizing, and directing to achieve the required results. However, this study focused on planning, coordinating and supervision.

Planning is an important role in businesses because it helps with goal-setting, resource allocation, and the breakdown of steps needed to achieve those goals. According to Orefice and Guraziu (2018), planning is recognized as one of the essential operations that play an important role in improving the policies, plans, and means that are organized to select the best solutions to attain certain goals given the varied organizational resources. Planning is essential for achieving administrative effectiveness in an organization because it allows for the clarification of goals, the allocation of resources, the anticipation of potential challenges, increased efficiency, improved decision-making, accountability, and the promotion of innovations.

Coordinating refers to the act of bringing together and managing the efforts of different individuals or groups to achieve a common goal. This management tool is essential for fostering collaboration and communication within an organization, particularly in schools where administrative work needs to be effective to meet organizational goals. To achieve a specific objective, the coordinating process involves synchronizing and integrating various activities, functions, or processes in an organization. This is done by systematically linking the objectives, activities, and strategies of different departments or functional units. By working together, individuals with complementary skills and resources can produce high-quality products within a specified timeframe, thus helping organizations achieve their objectives (Ayeni&Akinfolarin, 2014).

To ensure that tasks are executed according to established standards, norms, or expectations, supervision is necessary. In order to guarantee that workers are working effectively and efficiently, overseeing frequently consists of a manager or administrator supervising subordinates and providing direction, guidance, and help. Giving clear instructions and feedback, establishing goals and expectations, keeping track of progress, presenting opportunities for training and advancement, and resolving performance issues as they occur are all part of it.

For the effective administration of a school, the principal is responsible for the execution of the school curriculum and the smooth operation of the school to obtain high productivity from the staff in terms of effective teaching and learning. Jideofor (2020) stated that the principal as an administrator is to provide teachers with sound instructional leadership, supportive staff personnel/services, thorough instructional supervision, good motivation, effective communication system where teachers are actively involved in decision-making and actively participating in planning and evaluating the instructional programme. Thus this study explores the influence principal's leadership style on the determinant of administrative effectiveness in secondary schools in Oyo State, Nigeria.

A leader is someone who motivates others to achieve planned or specified goals. A leader is also someone who is in charge of persuading followers and influencing their attitudes, conduct, and sentiment in order to successfully accomplish stated goals and objectives. According to Belias, Rossidis, Papademetriou and Mantas (2022), a leader uses a mix of characteristics, qualities, and behaviours that make up their leadership style to guide others, inspire employees, and carry out plans. Several leadership philosophies, including authoritarian, democratic, strategic, pace-setting, digital, servant, laissez-faire, transactional, transformational, coaching, situational, bureaucratic, and visionary leadership exists, however, autocratic, democratic, laissez-faire, and digital leadership styles will be taken into account in this study, especially as they relate to the administrative effectiveness of principals.

The autocratic leader controls with an iron hand, and subordinates of an autocratic leader don't participate in decision-making (Siddique & Siddique 2019; Akparep, Jengre&Mogre 2019; Lundmark, Richter &Tafvelin 2022). Autocratic leadership styles typically fail to provide an explanation for their behaviour and are uncompromising in their position (Du, Li. & Luo 2020; Dai & Spires 2018). It is one in which the leader holds a disproportionate amount of decision-making authority. In this style of leadership, the leader's power is consolidated, and virtually all decisions about objectives, tasks, projects, and work procedures are made by the leader. They force all work practises and procedures on their staff members and refuse to give them authority over significant decisions. The majority of jobs are rigidly structured and highly organised. Talking about creativity and unorthodox thought is essentially impossible. Declahanov, Bozorou and Sung 2019 argued that as a result of authoritarian leadership, innovative ideas might be suppressed in organisations.

The democratic leadership style comprises the leader delegating decision-making authority to group members while simultaneously advancing social equality and the group's goals. A democratic leader makes choices after considering the opinions of all team members. Each employee has a voice in the direction the project takes, even though he or she makes the final decision (Peretomode 2012). This leadership approach seems to be one of the most successful since it fosters lower-level employees' involvement in the decision-making process. If a principal thinks that staff members need to be heard, then that principal is said to have chosen a democratic leadership style in the educational system. Even if their proposals are not followed through on, the staff still feels valued if their thoughts are taken into consideration; it is acknowledged that this is a step in the decision-making process.

Laissez-faire leadership, commonly referred to as hands-off leadership, includes the leader delegating decision-making authority to subordinates but offering little supervision or oversight. Its origins can be found in the French proverb "Laissez-faire" which translates to "let them do." In this leadership style, the boss gives workers the freedom to assume responsibility for their tasks, including making decisions and finding solutions on their own. A laissez-faire leadership style completely gives the followers rights and decision-making authority (Schultz & Schultz, 2010). Laissez-faire managers grant their employees complete freedom in how they carry out their duties. It enables followers to exercise self-governance while still offering direction and assistance when necessary. Lee and Ding 2020 stated that although the laissez-faire leader who practises guided freedom provides all the resources needed for the followers to accomplish their goals, he or she does not take part in decision-making until the followers ask for it.

In the digital era, digital leadership is a desired leadership style (Gartner, 2018). Digital leadership uses technology, such as digital devices, services, and resources, to improve communication, plan work and personal lives, and develop innovative approaches to accomplishing things well that have been done before (Bakare&Oredein, 2020). They view technology as the equivalent of money (Promsri, 2019). A digital leader inspires their team members to share their curiosity and is continually looking for the best and most inventive ways to perform tasks (Bakare &Oredein 2020). They typically work hard to find time for studying and frequently have an open mind. They ensure that their work is interesting, pertinent, fundable, available, and reasonably priced to produce and deliver (Promsri, 2019). A good digital leader is aware of the company's objectives and knows how their duties fit into those goals. Birgit and Alptekin (2018) agreed that with a significant emphasis on changes in the competitive market, it is a team-oriented job with a cooperative approach.

2. Statement of the Problem

In recent years, there has been a widespread feeling of discontent with the administrative effectiveness of most public secondary school principals in Nigeria, especially in Oyo State. This is evidenced by low levels of teacher job performance, a lack of discipline among students and staff, poor record-keeping and inadequate coordination of admission and examination procedures. Additionally, there are low levels of academic attainment and performance among students, and teacher job satisfaction and dedication seem to bemisery. These issues suggest that public secondary schools with incompetent principals lacking digital knowledge and suitable leadership styles may struggle to achieve their educational goals. Previous studies have identified various factors that contribute to this, including poor working environments, non-digitalized principals, poor decision-making skills, bad government policies, insufficient teacher cooperation and staffing, and inadequate funding (Friedländer, Röber& Schaefer, 2021). However, there is still much work to be done in exploring the impact of leadership styles on the administrative effectiveness of public senior secondary school principals in Oyo State. Therefore, this study aims to investigate how leadership styles can influence the administrative effectiveness of public senior secondary school principals in Oyo State.

3. Aim and Objectives of the Study

The aim of the study is to investigate the relationship between leadership styles and administrative effectiveness in public secondary schools in Oyo State, Nigeria. The objectives of the study are to:

1. assess the level of administrative effectiveness (planning, coordinating and supervision) of public secondary school principals in Oyo State.
2. identify the prevalent leadership styles (autocratic, democratic, laissez-faire, and digitalleadership) that is being adopted by public secondary school administrators in Oyo State.
3. examine the relationship between leadership styles (autocratic, democratic, laissez-faire, and digital), and administrative effectiveness in public secondary schools in Oyo State.

4. Research Questions

For the purpose of this study, the following research questions are posed to be answered.
1. What is the level of administrative effectiveness (planning, coordinating and supervision) among public secondary school principals in Oyo State?
2 What is the most prevalent leadership style (autocratic, democratic, laissez-faire, and digital) among public secondary school principals in Oyo State?

5. Hypothesis

H_01:   There will be no significant relationship between leadership styles (autocratic, democratic, laissez-faire, and digital), and administrative effectiveness of public secondary school principals in Oyo State

6. Methodology

6.1. Research Design

The descriptive research design of survey type was used for this study, this is because the variables of interest in the study have been identified and the researcher has no control over them or cannot manipulate them. Also, the design is considered appropriate because the existing characteristics of leadership styles and administrative effectiveness of principals were described.

6.2. Selection of Participants

A multistage sampling procedure using stratified and simple random sampling techniques was used to arrive at a reliable sample to represent the population of the study. In the first stage, Oyo State was stratified into three using the existing senatorial districts, which are Oyo Central, North and South senatorial districts. Secondly, in each of the strata, local governments with the highest and lowest number of schools were selected. In the case of two local governments having the same number of schools, the one with the highest number of teachers was selected. In the third stage, Yamane formula was used to determine number of sample size of teachers for each of the selected local governments. These teachers were selected using Simple Random Sampling technique. The Local Government Area with the least number of teachers was used as a baseline for the selection of the teachers having a total of 4,204 respondents (teachers) and all the principals (629) of the selected schools as well.

6.3. Ethical Consideration

Ethical guideline relating to data collection, analysis and interpretation on research as specified by Lead City University was followed.

6.4. Analysis of Data

Data collected from the field were analyzed using inferential and descriptive statistics. The descriptive statistics of frequency, percentage and mean and standard deviation were used for research questions while inferential statistics of Pearson Product Moment Correlation (PPMC) was used for the hypothesis.

7. Results

7.1. Research Question One

What is the level of administrative effectiveness (planning, coordinating and supervision) among public secondary school principals in Oyo state?

Table 1: Level of administrative effectiveness (planning, coordinating and supervision) among public secondary school principals in Oyo state.

S/N	Items	Always Freq Per(%)	Often Freq Per(%)	Rarely Freq Per(%)	Never Freq Per(%)	Mean	SD
	Planning						
1	ensures academic activities are planned early before the commencement of the term.	3227 (82.6%)	557 (14.3%)	114 (2.9%)	10 (0.3%)	3.79	.489
2	ensures provision of human resources needed for smooth operation in the school	2254 (57.5%)	1422 (36.3%)	236 (6.0%)	6 (0.2%)	3.51	.616
3	ensures provision of materials resources needed for smooth operation in the school	2254 (57.5%)	1294 (33.0%)	360 (9.2%)	10 (0.3%)	3.48	.670
4	calls stakeholders meeting when planning school activities	2059 (52.6%)	1399 (35.7%)	324 (8.3%)	136 (3.5%)	3.37	.780
5	plans for maintenance of school infrastructural facilities	1994 (50.9%)	1540 (39.3%)	322 (8.2%)	62 (1.6%)	3.40	.706
6	plans for co-curricular activities	2317 (59.1%)	1268 (32.4%)	307 (7.8%)	26 (0.7%)	3.50	.668
7	sets discipline policy at this school	2613 (66.7%)	949 (24.2%)	336 (8.6%)	20 (0.5%)	3.57	.669
8	decide how school budget will be spent	1916 (48.9%)	1218 (31.1%)	506(12.9%)	278 (7.1%)	3.22	.924
	Weighted Mean					3.48	
	Coordination						
1	create and implement shared school vision	1616 (41.2%)	1752 (44.7%)	466 (11.9%)	81 (2.1%)	3.26	.759
2	nurture and sustain a culture and instructional program conducive to learning and staff development	1648 (42.1%)	1791 (45.7%)	416 (10.6%)	63 (1.6%)	3.28	.715
3	ensures management of school operations to produce a safe and effective learning environment	2263 (57.8%)	1301 (33.2%)	331 (8.4%)	23 (0.6%)	3.48	.674
4	collaborates with families and the diverse communities that schools serve	1524 (38.9%)	1730 (44.2%)	487 (12.4%)	177 (4.5%)	3.17	.815
5	promotes integrity, fairness, and ethical behavior	2561 (65.4%)	987 (25.2)	308 (7.9%)	62 (1.6%)	3.54	.707
6	interacts with government agencies on school matters	1928 (49.2%)	1334 (34.0%)	556 (14.2%)	100 (2.6%)	3.30	.804
7	coordinates all units or departments in the school to achieve synergy	2396 (61.3%)	1123 (28.7%)	288 (7.4%)	101 (2.6%)	3.49	.743

8	encourages team spirit among teachers and other school staff	2560 (65.3%)	1066 (27.2%)	239 (6.1%)	53 (1.4%)	3.57	.670
	Weighted Mean					3.39	

Supervision

1	ensures teachers write lesson plan/note	2823 (72.1%)	839 (21.4%)	186 (4.7%)	70 (1.8%)	3.64	.658
2	visits teachers in the classroom	1900 (48.5%)	1429 (36.5%)	523 (13.3%)	66 (1.7%)	3.32	.765
3	ensures resources in the school are used for the right purpose	2146 (54.8%)	1465 (37.4%)	301 (7.7%)	6 (0.2%)	3.47	.642
4	monitors teachers and other staff's punctuality	2658 (67.8%)	968 (24.7%)	226 (5.8%)	66 (1.7%)	3.59	.677
5	ensures teaching is in accordance with the curriculum	2674 (68.2%)	1024 (26.1%)	195 (5.0%)	25 (0.6%)	3.62	.611
6	ensures standard of examination in the school	2557 (65.3%)	1145 (29.2%)	198 (5.1%)	18 (0.5%)	3.59	.608
7	maintains student/staff discipline	2625 (67.0%)	1000 (25.5%)	254 (6.5%)	39 (1.0%)	3.59	.657
	Weighted Mean					3.54	
	Overall Weighted Mean					**3.47**	

Source: Fieldwork, 2023
Decision Rule: 0 – 1.49= Very Low, 1.50 - 2.49= Low, 2.5 – 3.49 = High, 3.50 –4.0 = Very High

The study aimed to assess the level of administrative effectiveness among public secondary school principals in Oyo state by examining their planning, coordinating, and supervising abilities. The data collected from the principals through a survey was tabulated in Table 1.The findings of the study revealed that the principals were effective in planning activities for the school, as most respondents (82.6%) reported that they always ensure academic activities are planned early before the commencement of the term. However, their effectiveness in ensuring provision of human and material resources needed for smooth operation in the school was rated lower, with 57.5% of respondents reporting they always ensure provision of human resources, and 57.5% also reporting they always ensure provision of material resources. Regarding coordination, the principals reported being effective in promoting integrity, fairness, and ethical behaviour (65.4%) and in coordinating all units or departments in the school to achieve synergy (61.3%). However, creating and implementing shared school vision (41.2%) and nurturing a culture and instructional program conducive to learning and staff development (42.1%) were rated as areas needing improvement. The principals' effectiveness in supervision was rated high. Coordinates all units or departments in the school to achieve synergy: 61.3% of the principals reported always coordinating all units or departments in the school to achieve synergy, while 28.7% often coordinate, 7.4% rarely coordinate, and 2.6% never coordinate. The weighted mean for this item was 3.49, indicating that the principals were relatively effective in this area. Encourages team spirit among teachers and other school staff: 65.3% of the principals reported always encouraging team spirit among teachers and other school staff, while 27.2% often encourage, 6.1% rarely encourage, and 1.4% never encourage. The weighted mean for this item was 3.57, indicating that the principals were relatively effective in this area. Overall, the study found that the level of administrative effectiveness among public secondary school principals in Oyo state was relatively high, with a weighted mean score of 3.48 for planning, 3.39 for coordination, and 3.58 for supervision. However, there were areas for improvement, particularly in ensuring the provision of human and material resources for smooth school operation, calling stakeholders meeting when planning school activities, planning for maintenance of school infrastructural facilities, and deciding how school budget will be spent.

7.2. Research Question Two

What is the most prevalent leadership style (Autocratic, Democratic, Laissez-faire, and Digital) among public secondary school principals in Oyo state?

Table 2: The most prevalent leadership styles (autocratic, democratic, laissez-faire, and digital) among public secondary school principals in Oyo state

Items	Most of the Time Freq Per (%)	Some of the Times Freq Per (%)	Seldom Freq Per (%)	Never Freq Per (%)	Mean
Autocratic	1746.25 (44.575)	1507.75 (38.475)	434.5 (11.1)	229.5 (5.85)	3.22
Digital	1350.5 (34.45)	1568.5 (40.05)	645.75 (16.5)	353.25 (9.025)	3.00
Democratic	1216.5 (31.05)	1474 (37.625)	479 (12.2)	748.5 (19.1)	2.81
Laissez-faire	767 (19.575)	1543 (39.375)	578 (14.775)	1030 (26.275)	2.52

Source: Fieldwork, 2023

Based on the findings presented in Table 2, the most prevalent leadership style among public secondary school principals in Oyo state varies depending on the style. The table indicates that autocratic leadership is the most prevalent style, with 44.575% of respondents indicating that they use this style most of the time. Digital leadership is the second most prevalent style, with 34.45% of respondents indicating that they use this style most of the time, followed by democratic leadership with 31.05% of respondents indicating that they use this style most of the time. Finally, laissez-faire leadership is the least prevalent style, with only 19.575% of respondents indicating that they use this style most of the time.It is worth noting that while autocratic leadership is the most prevalent style among public secondary school principals in Oyo state, it is not used exclusively, as a significant proportion of respondents reported using democratic and digital leadership styles some of the time. This suggests that there may be a degree of flexibility in the leadership styles employed by public secondary school principals in Oyo state. Overall, these findings provide insight into the prevailing leadership styles among public secondary school principals in Oyo state, which can inform efforts to improve educational leadership and management in the state.

7.3. Testing of Hypothesis

H$_0$1: There will be no significant relationship between leadership styles (autocratic, democratic, laissez-faire, and digital) and administrative effectiveness of public secondary schools' principals in Oyo state.

Correlation

	Administrative Effectiveness	Leadership Styles
Administrative Effectiveness	1	.958**
Leadership Styles	.958**	1

Source: Fieldwork, 2023

The findings in the table suggest that there is a significant positive relationship (r= 0.958) between leadership styles and the administrative effectiveness of public secondary school principals in Oyo State, despite the initial

hypothesis (H_01) that there would be no significant relationship. However, it can be concluded that leadership styles have a unique relationshipwith administrative effectiveness.

8. Conclusion

In conclusion, the findings suggest that the principals were effective in planning activities for the school, coordinating all units or departments in the school to achieve synergy, and encouraging team spirit among teachers and other school staff. However, there were areas identified for improvement, particularly in ensuring the provision of human and material resources needed for smooth operation in the school, creating and implementing shared school vision, and nurturing a culture and instructional program conducive to learning and staff development. The study highlights the importance of addressing these areas to enhance the overall effectiveness of public secondary school principals in Oyo state. These findings could serve as a basis for policy recommendations to improve the quality of education in Oyo state and other parts of Nigeria.

The study also sheds light on the prevailing leadership styles among public secondary school principals in Oyo state. The findings suggest that autocratic leadership is the most prevalent style, followed by digital and democratic leadership, with laissez-faire leadership being the least prevalent style. It is important to note that the principals do not use one leadership style exclusively, indicating a certain degree of flexibility in their leadership approaches. These findings provide valuable insights for improving educational leadership and management in Oyo state and can serve as a basis for developing appropriate leadership training and development programs for school principals. The study also underscores the need for further research to explore the factors that influence the choice of leadership styles among school principals in Oyo state and other parts of Nigeria.

Test of hypothesis indicated that leadership styles significantly influence the administrative effectiveness of public secondary school principals in Oyo state, contrary to the initial hypothesis. These results could have implications for educational policy and practice in the state and beyond.

9. Discussion of Findings

The findings of the study are presented in the table; its aim is to assess the level of administrative effectiveness among public secondary school principals in Oyo state. Research question one examines the level of administrative effectiveness by examining their planning, coordinating, and supervising abilities. The findings indicate both strengths and areas for improvement in the principals' effectiveness. In a study by Pardosi and Utari (2022), they found that effective planning positively influences student achievement. Their findings align with the current study, which reported that a majority of respondents (82.6%) acknowledged the importance of planning academic activities early before the term begins. This high percentage indicates a shared understanding among educators that proactive planning contributes to successful academic outcomes. Furthermore, the present study identified coordination as a critical dimension in school management. The importance of creating and implementing a shared school vision was recognized by 41.2% of the respondents. This finding resonates with the research conducted by Zina (2017), who emphasized the significance of a shared vision in promoting collaboration and alignment of goals among school stakeholders. The moderate level of agreement (mean score: 3.26) in the present study suggests that there is room for improvement in fostering a stronger shared vision among participants. Another aspect of coordination highlighted in the current study is the emphasis on integrity, fairness, and ethical behavior within the school community. This finding aligns with the research by Neal, Justice and Barron (2019), who found that promoting ethical behavior positively impacts the school climate and student engagement. The relatively high agreement (65.4%) and mean score (3.54) in the present study demonstrate the importance placed on ethical values in school management. In terms of supervision, the present study emphasizes the significance of ensuring teachers write lesson plans/notes (72.1%) and maintaining punctuality among school staff (67.8%). These findings are consistent with the research conducted by Pardosi and Utari, (2021), which emphasized the positive impact of effective supervision practices on teacher performance and student achievement. The high agreement percentages and mean scores for these items in the present study further emphasize their importance in ensuring a conducive learning environment.

Research question two provides insights into the most prevalent leadership among public secondary school principals in Oyo State. The study examined four leadership styles: Autocratic, Digital, Democratic, and Laissez-faire. The findings indicate that the Autocratic leadership style was reported to be most prevalent, with a frequency of 44.575%. This finding is consistent with previous research highlighting the prevalence of autocratic leadership in educational settings (Daniëls, Hondeghem, &Dochy, 2019). Autocratic leadership is characterized by centralized decision-making and limited input from subordinates, with the leader making decisions and setting directions unilaterally. While autocratic leadership may provide quick decision-making and clarity in certain situations, it can limit participation, creativity, and ownership among staff members (Abdullatef, 2019). On the other hand, the Digital leadership style, with a frequency of 34.45%, was reported to be somewhat prevalent. Digital leadership refers to leadership practices that embrace technology and digital tools to enhance communication, collaboration, and instructional practices (Gedifew, 2022). The emergence of digital leadership reflects the changing landscape of education and the need for leaders to leverage technology effectively. Digital leadership can facilitate connectivity, knowledge sharing, and innovation among staff and students, leading to enhanced learning experiences (Elrehail, 2018). The findings also indicate that the Democratic leadership style, characterized by shared decision-making and involvement of stakeholders, was reported to be moderately prevalent (31.05%). Democratic leadership emphasizes collaboration, inclusiveness, and participatory decision-making processes (Mburuki&Thinguri 2022). This finding aligns with previous research highlighting the positive impact of democratic leadership on school climate, teacher motivation, and student engagement (Wina Novita, Sulaiman&MuhyaniRizalie 2022). By involving teachers, staff, and other stakeholders in decision-making processes, democratic leadership can foster a sense of ownership, empowerment, and commitment to the school's goals. Lastly, the Laissez-faire leadership style, with a frequency of 19.575%, was reported to be relatively less prevalent. Laissez-faire leadership is characterized by a hands-off approach, where leaders provide minimal guidance or direction to subordinates (Zhang, Wang & Gao 2023). This leadership style can lead to ambiguity, lack of accountability, and reduced organizational effectiveness (Mburuki&Thinguri 2022). However, in certain contexts where there is a high level of expertise and self-motivation among staff members, a laissez-faire approach can foster autonomy and innovation (Zhang, 2023).

Test on hypothesis on significant relationship between leadership styles and administrative effectiveness of public secondary school principals in Oyo State. The correlation coefficient of .958** between administrative effectiveness and leadership styles indicates a strong positive relationship between these two variables. This finding suggests that the leadership styles employed within an educational setting significantly influence the administrative effectiveness of the school. When leadership styles align with administrative effectiveness, it can lead to improved organizational outcomes, enhanced staff performance, and positive student experiences. Previous research has also highlighted the importance of leadership styles in determining administrative effectiveness in educational settings. For example, a study by (Krishnan, 2004) found that transformational leadership, characterized by inspiring and motivating followers, was positively correlated with administrative effectiveness. Transformational leaders have been shown to foster a positive work climate, enhance staff satisfaction, and promote innovative practices (Masood &Afsar, 2017). Another related study by Elrehail (2018) examined the impact of transactional leadership, characterized by contingent rewards and punishment, on administrative effectiveness. The results indicated a positive correlation between transactional leadership and administrative effectiveness, suggesting that leaders who provide clear expectations and rewards for performance can positively influence organizational outcomes. Furthermore, research by Zhang, Wang & Gao 2023) explored the relationship between laissez-faire leadership, characterized by a lack of guidance and involvement, and administrative effectiveness. The findings revealed a negative correlation between laissez-faire leadership and administrative effectiveness, indicating that a hands-off approach to leadership can hinder organizational success and staff performance. The high correlation coefficient of .958** in the current study underscores the importance of leadership styles in shaping administrative effectiveness. It suggests that leaders who adopt effective leadership styles, such as transformational or transactional leadership, are more likely to contribute to the overall effectiveness of the administration. On the other hand, ineffective leadership styles, such as laissez-faire leadership, can have detrimental effects on administrative effectiveness.

10. Recommendations

1. There is a need for develop training programs to improve principals' ability to ensure provision of human and material resources needed for smooth operation in the school. This could involve providing training on budgeting and resource allocation, as well as identifying and leveraging available resources. The training should be designed to address the areas where principals rated themselves lower, such as ensuring provision of human and material resources.

2. Government should foster a culture of shared vision and continuous learning by creating opportunities for principals to collaborate and learn from each other. This could include establishing peer learning networks, promoting a culture of continuous improvement, and facilitating ongoing professional development opportunities. This would help principals to improve their ability to create and implement a shared school vision, nurture a culture and instructional program conducive to learning and staff development, and call stakeholders meetings when planning school activities.

3. There is a need for periodic develop training programs for public secondary school principals in Oyo state. The training should focus on developing a range of leadership styles. The training should aim to enhance the skills and knowledge of school principals in using democratic and digital leadership styles, which were also found to be prevalent. This will help to increase the flexibility and adaptability of principals in responding to different situations, and to develop their capacity to lead their schools towards improved educational outcomes. The training could also include opportunities for principals to share their experiences and learn from one another.

4. Public secondary school principals in Oyo state should be encouraged to adopt a balanced approach to leadership that incorporates different leadership styles. This can be achieved by providing leadership training and coaching that focuses on developing the skills and knowledge required to effectively use different leadership styles in different situations. This approach will enable school principals to be more flexible and adaptable in responding to different challenges and circumstances, and to leverage the strengths of each leadership style to improve administrative effectiveness in their schools.

5. It is also recommended that future research be conducted to investigate the unique influence of each leadership style on administrative effectiveness in public secondary schools in Oyo state, to provide a more nuanced understanding of the relationship between leadership and school effectiveness.

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Academic Supervision and Professional Performance of State High School Teachers

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Abstract

The purpose of this study is to describe the implementation of academic supervision and best practices in the implementation of academic supervision in Public High School, Sumatera Utara Province. Indonesia. Academic supervision is a set of activities designed to help teachers develop their ability to manage the learning process in the classroom. The results of this study indicate that in order to implement effective supervision, the supervisor must be able to choose the best practice to be applied. The academic supervision techniques implemented are individual supervision techniques and group supervision techniques. The individual supervision techniques implemented are: 1) classroom visits, 2) classroom observations, 3) individual meetings, 4) inter-classroom visits and 5) self-assessment. Group techniques are implemented by involving a number of teachers in solving problems, talking and discussing together with the supervisors. The implementation of academic supervision at Public High School, includes (1) the planning stage with activities to prepare a schedule for the implementation of supervision, an evaluation program, a follow-up program for the results of the evaluation of supervision, the preparation of administrative documents, (2) the implementation stage, (3) the evaluation stage of the results of supervision, (4) the follow-up stage.

Keywords: Academic Supervision, Best Practices, Teacher Professional Performance

1. Introduction

The body of a manuscript opens with an introduction that presents the specific problem under study and describes the research strategy. Because the introduction is clearly identified by its position in the manuscript, it does not carry a heading labeling it the introduction. Before writing the introduction, consider the following questions (Person & Brew, 2002): Teachers are the dominant factor in improving the quality of education (Aqib & Elham, 2007). Through a quality learning process in the form of planning, implementation and evaluation so that it is effective and efficient (Fritz & Miller, 2003). Therefore, students experience an increase in knowledge, skills, attitudes, motivation, talent, interest, personality, intelligence and noble character because the authority and responsibility of teachers is to educate, guide, instruct, train, assess and evaluate students so that the participants themselves have the optimal quality of knowledge based on the potential of the knowledge they possess (Glickman., Gordon & Ross-Gordon, 2007).

For this reason, teachers, as an important part of the organisation of education, must be able to work professionally. Professional in the sense that teacher must have special skills and work according to the knowledge they have mastered in order to make a positive contribution to improving the quality of education (Tyagi, 2018). Professional teachers have personal, social, intellectual, moral and spiritual responsibilities that are in line with their main duties and functions to educate, teach, guide, direct, train, assess and evaluate students by making them partners in learning, because their hope is to become moral, creative and innovative people to achieve their goals (Alila, Uusiautti, & Matta, 2016).

Generally, there are three tasks of the teacher as a profession, such as to educate, teach and train (Silva & Dana, 2001). On the other hand, teacher's duties can also change behaviour and discipline to guide students towards the desired goal and prepare generations of people who can live and play an active role in society (Abas, 2019). Teacher professionalism in educational activities can produce students who are truly qualified in both academic, non-academic, ethical, moral, attitude, behaviour, character and others because teachers have the right knowledge, skills and values (Sullivan & Glanz, 2005). In the implementation of teacher professionalism, it can be carried out through the learning process in the classroom, by creating a climate and services for the abilities, potentials, interests, talents and needs of different learners, so that there is an optimal interaction between teachers and students and between students and students (Suhertian, 2010; Sagala, 2010), so that a professional learning process takes place (Prasetia., Akrim & Sulasmi, 2022).

In order to professionally optimise learning activities, teachers must have good intellectual abilities, understand the vision and mission of national education, have the expertise to effectively transfer knowledge to students, understand the concept of psychological development of children, have the ability to organise the learning process, and have creativity and the art of teaching (Bright, 2019). In addition, they also have the expertise or ability to guide and nurture students both intellectually, spiritually and emotionally (Sullivan & Glanz, 2005).

Poor teacher competence will certainly have a negative impact on the quality of education in schools and, more specifically, on the quality of students' human resources. Therefore, concrete steps to improve teacher competence are needed to make a positive contribution to enhance teacher performance (Alan, 2021). Improving teacher performance can be done by providing better welfare, training, supervision and performance evaluation, shaping the mentality of teachers, tightening the recruitment process and increasing the use of technology (Kahramanoglu, 2019).

Teacher performance is defined as the achievements, results, and abilities achieved or demonstrated by teachers in carrying out their educational and teaching tasks (Lorensius, Anggal & Lugas, 2022) and the performance of teachers in carrying out their duties as educators (Fall & Sutton, 2004). According to Sagala (2010) the performance of teachers is not optimal. Teachers only perform their duties as routine activities. Teachers should be able to Innovate learning. Instead, learning innovation for teachers is relatively constrained and creativity is not considered part of performance. The poor performance of teachers is due to low salaries and incentives or income levels, competence, work discipline, job satisfaction, the organization where teachers teach, principal leadership, government policies on education, supervision services and the application of supervision that has not been maximised (Suhertian, 2010).

In particular, supervision activities can basically have a positive impact on improving teacher performance. This is because supervision activities on teacher performance are a form of planned activities to assist teachers in doing their jobs effectively, which improves teachers' performance in carrying out their professional duties (Lorensius, Silpanus & Ping, 2021). Supervision is basically a service and assistance, improvement, guidance to teachers in improving teaching and learning activities in accordance with their professional duties. Comprehensively, it aims to support, guide and assess the ability of teachers in education and teaching based on their respective fields to make the necessary improvements by working together and looking for problems that teachers experience in the learning process and then find a way out to overcome these problems, which in the end the learning process can be conducted (Marmoah, 2018).

In supervision activities to improve teaching and learning, it is often emphasised in educational supervision activities because the scope of activities relates to the technical teaching and learning carried out by teachers, students, principals and school supervisors. Supervision or educational supervision in essence is the efforts of supervisors in providing services to educational stakeholders, especially teachers, both individually and in groups, in an attempt to promote and improve the quality of learning processes and outcomes (Sahertian, 2010). The support provided by supervisors can make a positive contribution to teachers and can proceed well if there is a unified perception, commitment, openness, supervision and coaching planning prepared jointly by supervisors and teachers, sharing of responsibilities between supervisors and teachers and building harmonious relationships between supervisors and teachers (Glickman, Gordon & Gordon, 2007).

Educational supervision activities are very important to implement because it can improve teachers' professionalism in terms of quality and teachers' performance in teaching and learning activities in the classroom, so that it contributes positively and directly to improving the quality of learners (students). Thus, the purpose of educational supervision is basically to support teachers in the development and implementation of the curriculum in the teaching and learning process, to improve the potential quality of teachers in classroom teaching and to develop school staff, so that ultimately it will improve the quality of student learning (Silva & Dana, 2001).

Supervision activities are generally divided into three forms, such as academic, managerial and institutional supervision. Academic supervision emphasises the supervisor's observations on academic issues related to the learning and teaching process. Managerial supervision focuses the supervisor's observations on administrative aspects to facilitate the implementation of learning. Institutional supervision highlights the supervisor's observations on the institutional aspects of the school, especially the school's performance (Mensah, 2019).

Specifically, academic supervision is the ability of the supervisor to carry out academic supervision, that is, to evaluate and develop teachers to improve the quality of the learning process carried out, including the subject matter of learning, the preparation of syllabus and lesson plans, the selection of strategies/methods/techniques, the use of media and information technology, the evaluation of the process and results, and classroom action research, so as to have a positive impact on the quality of student learning outcomes (McGhee & Stark, 2018). The basic essence of academic supervision in the effort to improve the quality of teaching and learning by teachers in order to improve the quality of student knowledge, certainly has a positive aim to improve learning activities in an educational institution (school). Sagala (2010) the purpose of academic supervision is basically to help teachers improve their skills to become better and professional teachers in the implementation of teaching. On the other hand, Mehr., Ladany & Caskie (2010) suggests that the purpose of academic supervision is to help teachers develop their abilities, develop curriculum, develop teacher working groups and guide teachers in classroom action research.

Based on the above, this study was conducted to improve teachers' professional performance through supervision activities by school principals and to create best practices in supervision activities for teachers in Public High School's Province of North Sumatra, Indonesia.

2. Method

This research is a school action research conducted by the principal. The focus of the research is clinical supervision on academic aspects, which is the learning process organised by teachers at Public High School in 5 schools spread across the Province of North Sumatra, Indonesia. The description of the research participant is presented in Table 1 below.

Table 1: Overview of the Research Participant

School Name	Participant Gender (N)		N
	Male	Female	
Public High School 1	6	6	12
Public High School 2	7	5	13

Public High School 3	5	6	11
Public High School 11	7	5	12
Public High School 15	9	7	16
Amount	34	29	54

The action procedures carried out included planning, alternative solutions to problems, and preparing the various data collection instruments needed. Afterwards, the action was carried out according to the plan determined in the planning section (Praseti, 2022). When the action was carried out, it was also observed using the tools prepared during the planning. After the observation of the action, a reflection was carried out, which was a discussion between the actors of the action (teachers and principals) to evaluate the next action. Data collection techniques were through interviews, observation and documentation. Material or media used as another tool in data collection was a recording device (video). Data analysis techniques were data reduction, data presentation, conclusion drawing/verification, which was an interactive cycle (Miles & Huberman, 2014).

3. Results

The implementation and results of the research in the field are described in the data description. The most important stage in the implementation of supervision in schools is planning, implementation, evaluation and follow-up. This stage analyses how supervision can be carried out more effectively and efficiently in order to achieve better educational goals. This stage of the study will produce best practice supervision that can ultimately be used to improve teachers' professional performance.

To obtain information on how supervision is implemented in Public High School, the data analysis technique used in the field research was through descriptive analysis, which was conducted repeatedly. While data collection techniques used questionnaires, interviews, observation and documentation studies. The respondents at this stage were 54 subject teachers. While the indicators used were such as the planning, implementation, evaluation and follow-up stages of academic supervision. In the implementation of academic supervision in the field, it used individual and group supervision techniques.

3.1. Supervisory Planning Practice

In supervision activities, the planning stage is very necessary, whether in individual or group supervision. Planning is a pre-supervision activity carried out by the supervisor (principal) together with the teacher, which is an initial review activity, a data collection activity or an initial review of problems before carrying out supervision activities. A well-planned supervision makes it easier for the supervisor to carry out the supervision in a way that minimises errors. In the area of supervision planning, the researchers conducted interviews with teachers to obtain information about the importance of planning in supervision activities.

> "Structured and systematic planning is the main prerequisite for the success of the supervision to be carried out. This is because planning is basically a guide that can be used to carry out activities in order to achieve the goals to be achieved" (Teacher interview, P-1).

In the implementation of supervision in schools, the planning stage is an important part that needs to be carried out by supervisors. This is in line with what one of the teachers stated:

> "Planning is an important aspect of conducting a supervision, especially for us teachers who need help in solving teaching problems in the classroom. Because at this stage the supervisor will prepare various things that are needed before carrying out the supervision" (Teacher Interview, P-3).
> "Other interviewees also argued that the success of academic supervision activities carried out by school principals for us is highly dependent on the maturity of the planning carried out" (Teacher Interview, P-4).

The two opinions above show that planning activities are an important part of carrying out supervision. Since supervision is different from inspection, planning is expected to be a guideline in providing guidance to teachers to improve the teaching and learning process in the classroom. Effective teaching requires a variety of strategies.

In order to achieve this goal, an effective system of supervision must be in place. Effective supervision is highly dependent on effective planning.

In connection with the implementation of academic supervision at Public High School, one of the activities carried out in the planning stage is the preparation of supervision planning documents and monitoring documents by principals together with teachers. The planning documents prepared include (1) documents of teachers' learning materials to be supervised, (2) annual, monthly and weekly activities, (3) schedules of class visits, and (4) documents of evaluation instruments for the implementation of supervision. This is in line with what was stated by the teachers who mentioned that "there must be a plan prepared collaboratively between the principal and the teacher for each implementation of supervision in the classroom. Similarly, 'at this stage there needs to be a common understanding of the concept, benefits, objectives and its application.

3.2. Supervision Implementation Practices

In practice, supervision at Public High School is effective. This is because before carrying out supervision activities, planning is carried out together with the teachers according to the problems and needs of the teachers in the field. Supervision planning activities are important in carrying out supervision. This is because in this activity the supervisor (principal) can identify all the problems faced by the teachers and work together to identify solutions to solve these problems. This aspect of collaboration and participation effectively builds a conducive atmosphere and climate, a feeling of comfort and familiarity between the principal as supervisor and the teachers. Building positive relationships in the implementation of supervision is the best practice in supervision activities. This is in line with what the teachers said:

> "We feel comfortable and happy in the implementation of supervision by the principal because we feel involved in the supervision process. We also identify problems and solutions and set the schedule for class visits together. When supervision is carried out, the principal and the teachers do not see a barrier between the supervisor and the supervisee, because a collegial, participative and empowering relationship has been established between us" (Teacher interview, P-31).

In the implementation of supervision at Public High School, the activities carried out by the supervisor include four activities carried out by the principal at this stage of implementing academic supervision, which are: (1) supervising learning tools, (2) supervising the monitoring of lesson plans, (3) supervising the learning process, and (4) supervising the assessment of student learning outcomes. This activity basically takes place when the teacher is learning in the classroom and the supervisor (principal) makes observations and various other actions, especially in the supervision process during the teacher's teaching and learning process in the classroom.

For the implementation of supervision to be effective, the supervisor (principal) must have the right way of carrying out supervision, both in supervising learning tools, in implementing learning and in evaluating learning. The difference in the number of teachers to be supervised determines the level of effectiveness. In schools with a small number of teachers, supervision activities can be carried out individually, but in schools with a large number of teachers, supervision can be carried out in groups. Specifically, in the implementation of supervision of the learning process, supervision activities at Public High School are carried out using individual or individual techniques arranged based on each teacher's class schedule. In the implementation of supervision in this class, the teacher's teaching activities in the classroom or the implementation of supervision through recording techniques (documented) uses digital video recording devices. The presence of the supervisor in the classroom does not have to be 100% present. The supervisor's activity in the classroom is only to ensure that any matters or technicalities relating to any support facilities, such as recording equipment, are properly available and can be operated. This means that during the observation phase, the supervisor will not enter the classroom directly, but will do so via video recording.

The use of technology or media in human life activities is actually very beneficial, especially for the implementation of academic supervision at Public High School. Supervision of learning in the classroom with the help of this recording media in practice is very effective and efficient, which is able to produce a process of supervision activities that is free from the burden, depressed atmosphere and discomfort of the teachers in the

classroom. This is because the teachers do not feel disturbed and are very confident with the supervision model supported by these recording media. As the teachers have an opinion about the implementation of the supervision carried out with this video recording technique, including:

> "The implementation of supervision using this recording technique is, in our opinion, very helpful, practical and enjoyable, away from the feeling of pressure and loss of self-confidence. We can see the results of the recording of learning implementation, assess and analilise aspects of our weaknesses and strengths repeatedly in learning practice... obviously this is very practical, effective and efficient in supervision activities". (Teacher Interview, P7).

It can be explained that the best practice in implementing learning supervision in the classroom can be carried out by recording teachers' teaching activities in the classroom by using media or recording devices. The advantages of supervision through this recording activity are that (1) the recording can be stored for a long time, (2) it can be repeated, and (3) it becomes material for improving the professional performance of the teacher.

3.3. Evaluation Practice and Supervision Report

In this stage of evaluation, the activity carried out is to reflect on teacher learning activities in the classroom. The evaluation of the teacher's learning is, obviously, carried out through the data of the video recording. This evaluation activity is carried out by the supervisor (principal) together with the teacher by evaluating the recording of the teacher's teaching activities in the classroom. The activity of evaluating or analysing this video recording can be divided into two analyses, (1) the analysis is carried out individually (evaluation by principal or teacher) and (2) the analysis is carried out collaboratively (principal and teacher).

Individual analysis. In an individual analysis, the school manager evaluates video recordings of teacher learning activities in the classroom. The principal records and evaluates all teacher learning activities on the basis of the evaluation tool and then prepares an evaluation report. The assessment report on teacher learning in the classroom must be given to each teacher and then discussed with the teacher for the next follow-up. In the case of individual analysis by teachers, if teachers have been authorised by the principal to carry out self-assessment and objectively evaluate themselves on the basis of the assessment instruments prepared, then they submit a report on the results of their assessment to the principal and together they discuss, identify solutions and plan corrective or follow-up actions.

Collaborative analysis. Effective evaluation is carried out collaboratively by principals and teachers or through peer involvement. Principals and teachers carry out collaborative assessments and produce reports on all teacher learning activities in the classroom through videotaped learning. They identify strengths and weaknesses together, and work together to find and follow up solutions.

Implementation of supervision has a positive effect on improving teacher professional performance. During the implementation process up to the evaluation, the participants have shown good performance during class teaching. Total of 34 participants showed very good performance (62.96%), 6 participants with good performance (29.63%), 11 participants with pretty good performance (25.93%). Teacher performance is shown in Table 1.

Table 1: Participant Profesional Performance

Score Interval	Category	F	%
90 – 100	very good	34	62,96
80 – 89	good	16	29,63
70 – 79	Enough	14	25,93
< 70	Need guidence	0	0,00
Total		54	100

The results of the supervision evaluation based on the participants' assessment provide an explanation as in Table 2.

Table 2: Participant Assessment of Supervision Practice

No	Rated Aspect	Partisipant Persception
1	Clarity of supervision objective	Very good
2	The relevance of supervision to teacher needs	Good
3	Supervision planning	Very good
4	Implementation of supervision	Very good
5	Teacher participation in supervision	Very high
6	Contextual Supervision	Very precise
7	Supervision builds harmonius	Very high
8	Supervision effectiveness	Very effective

Based on Table 1 above, the participants rated the practice of supervision as effective and as expected, based on 8 perceived indicators. This means that the supervision practices carried out can become models of academic supervision that need to be imitated and implemented.

Based on the supervision practices that have been implemented at Public High School, there is a general improvement in teacher performance compared to previous performance. The academic supervision model developed as an effort to improve teachers' professional performance at Public High School consists of four stages, which are (1) supervision planning; (2) supervision implementation; (3) supervision evaluation and follow-up; (4) reporting results. The four stages are shown in Figure 1 below:
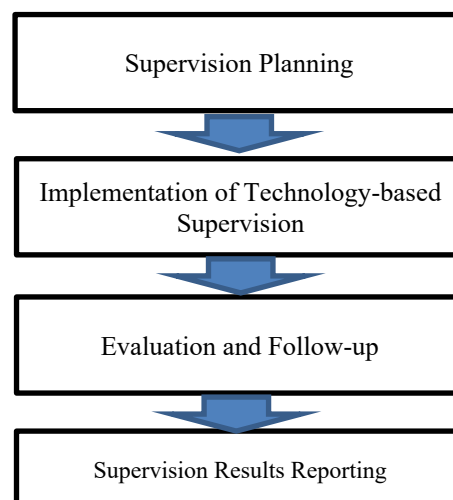

Figure 1: Factual Practices of Academic Supervision

Supervision activities are the main tasks and functions of school principals or supervisors. It aims to improve learning activities and the improvement and professional development of teachers. Ideally, efforts to improve learning activities should come from teachers themselves, not from principals or supervisors.

This is the view of experts on academic supervision that is, coaching teachers' performance in managing learning (Sullivan & Glanz, 2005). According to Knox et al. (2008) the activity of promoting teacher performance in managing the teaching and learning process. Clinical supervision is the activity of coaching teachers to improve performance in the learning process. According to Fall & Sutton (2004) there are two aims of clinical supervision: (1) professional development, and (2) motivating teachers' work and improving ineffective learning processes. Supervision is a planned coaching activity to assist teachers and other school staff to perform their jobs effectively (Goodwin, Roegman & Reagan, 2016). Supervision is an integral part of the whole process of educational administration, which is primarily aimed at developing the effectiveness of the performance of school personnel in relation to the main tasks of education. Supervision is the effort of school officials in guiding

teachers and other officials in improving teaching, including stimulating, selecting the growth and development of teachers and revising educational goals, teaching materials and methods and teaching evaluation (Suhertian, 2010). This is supported by the results of Triani's research (2008) in the initial study of the principal's understanding of clinical supervision was not good, after the research developed to be very good and was able to carry out clinical supervision appropriately, so that difficulties in the use of basic teaching skills could be improved.

4. Conclusion

The implementation of supervision at Public High School has produced best practices that have an impact on improving teachers' professional performance. The supervision practices include aspects of planning, implementation, evaluation and follow-up and reporting. In the planning stage, what is carried out is the compilation of supervision planning documents and monitoring documents by the principal and teachers. The planning documents compiled include (1) documents of the teachers' learning materials to be supervised, (2) annual, monthly and weekly activities, (3) schedules of class visits, and (4) documents of evaluation instruments for the implementation of supervision. Specifically, in the implementation of learning supervision, supervision activities at Public High School are carried out with individual techniques through learning video recording techniques. The use of technology or media in the implementation of academic supervision at Public High School is very effective and efficient, which is able to produce a process of supervision activities that are free from the burden, depressed atmosphere and discomfort of teachers in the classroom. This is because teachers do not feel disturbed and are very confident with the technology-assisted supervision model. Meanwhile, evaluation activities were carried out through the analysis of video recordings of teachers' classroom teaching activities. Analyses of the video recordings of teaching activities were carried out on the basis of: (1) individual analyses (assessments by principals or teachers independently), and (2) collaborative analyses (principals together with teachers). The results of the evaluation of the implementation of supervision are then reported to the responsible parties (principals and teachers) for follow-up. Based on the practice of supervision carried out at Public High School, it generally leads to better teacher performance compared to previous performance.

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Smart System Empowerment Through Virtual Business Incubator to Increase Student Entrepreneurial Capacity in Higher Education

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Abstract

The purpose of this journal is to present the development and implementation of a virtual incubator aimed at assisting students in establishing their businesses. The virtual incubator offers the flexibility and accessibility required for entrepreneurial endeavors to thrive in an increasingly interconnected world. The research methodology employed a research and development approach, combining interviews with key personnel from university incubator departments, lecturers, and students, as well as conducting Focus Group Discussions (FGDs). The collected data informed the creation of a virtual incubator prototype, which was subsequently tested at the Nobel Indonesia Institute of Technology and Business. The virtual incubator serves as an assistant to student entrepreneurs, providing them with the necessary tools and resources to develop their business ideas Virtually. By utilizing information and communication technologies, the virtual incubator enables students to access mentorship, networking opportunities, and relevant resources regardless of their physical location. This eliminates geographical barriers and allows students to work on their businesses at their convenience, promoting a flexible and conducive entrepreneurial environment. The research findings demonstrate the successful implementation of the virtual incubator prototype, showcasing its effectiveness in supporting student entrepreneurs. Through interviews and FGDs, insights were gained into the preferences and requirements of students, as well as the challenges they face when establishing businesses. These findings guided the development of a user-friendly and comprehensive virtual incubator platform.

Keywords: Virtual Incubator, Student Entrepreneurship, Entrepreneurship Education

1. Introduction

The purpose of entrepreneurship education is basically to educate students to be ready for work and able to create jobs for that entrepreneurship education must weigh the demands of the real world of work, where entrepreneurship education must be directed so that students can master the knowledge, skills, attitudes, and values needed by the world of work, (Hidayat, et al., 2015); (Siregar, D., Yuslem, N., & Nawawi, Z. M , 2023). The flexible attitude of entrepreneurship education is also needed today, especially with the importance of adaptation to the increasingly massive development of science and information technology, especially in responding to the rise of the industrial revolution 4.0 which is currently underway.

Departing from the argument above, there needs to be a more comprehensive approach in developing entrepreneurship learning in higher education so that this course is not only a subject that is understood textually but must be comprehensively linked to real entrepreneurial practice. There are several things that must be done related to college management and entrepreneurship learning management in Higher Education. Among them is the need to apply and develop entrepreneurial learning by integrating a business incubator system that is integrated with the learning process in entrepreneurship courses, this is important so that learning Creative Products and Entrepreneurship in universities must be integrated with business incubator programs that are for. (Ari Saptono, S., & Disman, H. ,2020). Departing from the argument above, there needs to be a more comprehensive approach in developing entrepreneurship learning in higher education so that this course is not only a subject that is understood textually but must be comprehensively linked to real entrepreneurial practice. There are several things that must be done related to college management and entrepreneurship learning management in Higher Education. Among them is the need to apply and develop entrepreneurial learning by integrating a business incubator system that is integrated with the learning process in entrepreneurship courses, this is important so that learning Creative Products and Entrepreneurship in universities must be integrated with business incubator programs that focus on product development and student creativity in order to have an output that can be commercially viable on product development and student creativity in order to have an output that can be commercially viable.

The biggest problem in the implementation of the entrepreneurship curriculum is the imbalance between theory and practice, while proper entrepreneurship teaching is the existence of direct entrepreneurial practice considering that the entrepreneurial mentality will not be enough if it is only developed from a theoretical side, to meet these demands, the presence of a business incubator becomes one of the important units in bridging theoretical idealism with real practice. The existence of the Business Incubator as a student entrepreneurship mentoring institution is needed so that the development of student startups can be followed up properly until the commercialization value can be realized as intended as one of the goals of campus innovation management (Permendikti No. 14 of 2019).

Along with the times and real needs in the field, the demand for the effectiveness of business incubators is getting stronger today, almost all business incubators that are mentoring are currently carried out directly both in development practices (pilot projects) and in market development, the need for innovation in business incubators, especially related to accessibility, is felt because incubators can only be accessed directly by heading to the room Incubators Become a Problem When Their Implementation Is Constrained One of the valuable lessons is from the outbreak of the Covid 19 pandemic which makes the implementation of direct assistance difficult to do, so it is necessary to do the right way to implement assistance by compiling alternative assistance with the concept of Virtual incubator business. So that assistance can still be done even though it is not done directly (Vieqi Rakhma Wulan, Agus Hermanto, 2019),

One of the principles of incubation, namely to keep business startups can continue to be directed in accordance with the goals that have been set with the inherent concept of assistance, of course, it must remain a principle in the preparation of a mentoring system with the concept of Virtual incubator so that the results of Virtual assistance can be maximally no different from the results of direct assistance. Furthermore, ideally the presence of a Virtual incubator can provide wider services and space for movement because in accordance with the aims and objectives of the Virtual incubator is to provide assistance that is not limited to space and time can be accessed easily so that Virtualrs can be more flexible in using these assistance facilities.

2. Literature Review

2.1. The Importance of Business Incubator

The business incubator developed in Higher Education, is a unit prepared to incubate business plans and business practices resulting from entrepreneurship lectures so that the plans grown from these lectures can develop as a real business, this is important to help students as prospective entrepreneurs or novice entrepreneurs in achieving goals by commercializing the results of student business practices, The existence of incubators in

universities is also to support the commercialization of university research results, provide infrastructure, improve technological capabilities and facilitate the improvement of student business capabilities so that these startups can be released to do business independently (Allahar, et al., 2016).

The development of business incubators in universities is also in line with the development of business incubators in general, some business incubator developments that also affect business incubators in universities, (Gozali, L., et al 2020), including innovative ideas related to the content and implementation system of business incubators as proposed by Wulan &; Hermanto, (2019). Which proposes the design of a sociopreneurship (Social Entrepreneurship) business incubator system by integrating Library and Information Technology Infrastructure (ITIL) features as a supporting tool in managing business incubators. Through this proposal, the business incubator system is designed by integrating the features of the Information Technology Infrastructure Library (Information and Technology Infrastructure Library) as a supporting tool in managing business incubators. As an effort to accommodate the needs of the community for business fields so that business incubator services and programs are obtained that are in accordance with the needs of the community. This incubator system seeks to present a business incubator tailored to the needs of the community so that the community not only has economic independence but can be transmitted together and sustainably with other communities (sociopreneurship) and by utilizing information technology.

Allahar, et al (2016) stated the importance of understanding business incubators as a whole so that their utilization can have a maximum effect, of course, this understanding must be an understanding and can be a general reference including international references, these factors are the category of business incubator, type and evolution of business incubators, stages of business incubators, innovation-based Ikubortor, the incubation process and the role of universities in implementing and developing Business Incubator.

In its implementation, the results of the incubator function are not always positive as conveyed by Tengeh & Choto, (2015) which proves that, 55.1% of entrepreneurs who participated in the incubation program benefited from participating in the incubation program, while 44.9% indicated that they did not benefit from the program followed. In addition, lack of funding is a major challenge facing Business Incubator. Other less significant challenges include lack of support from stakeholders, and non-committed clients. The implication of this result is that just like what clients face, Business Incubator also faces a number of challenges that threaten its long-term existence, as well as the importance of improving the quality and quantity of services that can be provided., from this result it becomes relevant what was conveyed by Allahar, et al. (2016) which states that the implementation of business incubators requires a correct understanding of the effective functions offered by A Business Incubator.

From previous research references about business incubators, several important things can be taken as references in this study, namely: 1) All researchers agree that business incubators are very important to be carried out 2) Business incubators must be able to encourage innovation and creativity so that incubator participants can continue to adapt to market developments and demands 3) business incubators must evolve modernly by applying technology Information so that the incubation process can be carried out anytime and anywhere. Including the development of a WEB based business incubator so that the incubator is Virtual or virtual that can be accessed anytime and anywhere by the participants

In the virtual era, the importance of virtual incubators cannot be overstated. These incubators play a crucial role in supporting and nurturing entrepreneurial endeavors in a digital landscape. Here are some key reasons why virtual incubators are significant in the virtual era:
1. Accessibility: Virtual incubators break down geographical barriers and provide accessibility to aspiring entrepreneurs regardless of their location. With the widespread availability of internet connectivity and digital tools, students and aspiring entrepreneurs can access virtual incubators from anywhere, allowing them to participate in entrepreneurial activities without being constrained by physical proximity to traditional incubator spaces.
2. Flexibility: Virtual incubators offer flexibility in terms of time and resources. They enable entrepreneurs to work on their business ideas at their own pace and convenience, fitting entrepreneurship into their existing

schedules. This flexibility is particularly important for students who are juggling academic commitments or have other responsibilities. Virtual incubators allow them to pursue their entrepreneurial aspirations without compromising their other obligations.

3. Networking and Collaboration: In the virtual era, virtual incubators facilitate networking and collaboration among entrepreneurs, mentors, and industry experts. Through online platforms, entrepreneurs can connect with a diverse network of individuals who can provide guidance, advice, and valuable connections. Virtual incubators foster a sense of community and provide opportunities for collaboration, enabling entrepreneurs to tap into a global pool of talent and resources.

4. Resource Sharing: Virtual incubators offer a wealth of resources, including educational materials, tools, templates, and market research data. These resources are easily accessible to entrepreneurs, empowering them with the knowledge and tools necessary to navigate the complexities of starting and growing a business. Additionally, virtual incubators provide access to mentors and experts who can offer personalized guidance and support based on their expertise and industry experience.

5. Cost-Effectiveness: Virtual incubators are often more cost-effective compared to physical incubators. Without the need for dedicated office spaces or physical infrastructure, virtual incubators significantly reduce overhead costs. This cost-effectiveness allows more aspiring entrepreneurs, including those with limited financial resources, to participate in the incubation process and receive the support they need to succeed.

6. Adaptability Virtual incubators are well-suited to harnessing and leveraging the latest technological advancements.

Virtual incubators indeed have inherent advantages when it comes to harnessing and leveraging the latest technological advancements. Here are a few reasons why virtual incubators are well-suited for adapting to technological advances: Virtual incubator offer us on access to global talent, Virtual incubators can tap into a diverse pool of talent from around the world. By leveraging technology, they can connect with entrepreneurs, mentors, and experts regardless of their geographical location. This enables virtual incubators to bring together a broader range of skills and expertise, fostering innovation and collaboration on a global scale.

Virtual incubator gives the opportunity on Virtual collaboration and communication, technology has revolutionized communication and collaboration, making it easier than ever to work Virtually. Virtual incubators can leverage various digital tools and platforms to facilitate real-time collaboration, mentoring, and knowledge sharing among startups, mentors, and investors. This Virtual accessibility eliminates the need for physical proximity and allows for flexible working arrangements.

2.2. Business incubator models

The most common incubator model carried out by universities, especially in Indonesia, is the incubator function to support the growth and development of business plans which include three important stages, namely (1) the Pre-Incubation stage (2) the incubation stage and (3) the post-incubation stage with important pressures that have specific objectives at each stage, the complete specific objectives are as follows

1) Pre-Incubation Stage
   At this stage, the condition of prospective tenants will be seen when they first enter the business incubator program, such as having research results and business prototypes that will be developed This information is important so that the incubation program can be run according to needs

2) Incubation Stage
   At this incubation stage, there are three phases that need to be passed*, the first phase* that is important to do in incubating a business is the peak of education and training, internships, business plan preparation, market validation, market test stage 1 Product Revision and business sharing. *Second phase* Initial production, market test, Intellectual property rights, certification and standardization, business licensing, coaching mentoring, promotion, advance business sharing business Consulting and business expo *Third phase Commercial* production, market expansion, networking, business matching and business pitching

3) Post-Incubation Stage
   Things that need to be considered in businesses that have passed incubation and have been declared graduated (graduation) then further assistance can be carried out to ensure the following; Achievement of

Profitability, Viable Companies, economic development, job creation, industrial competitiveness, bankable proposal and anchor tenant

Taking into account the entire series of incubation processes above, it can be seen that many parts can be done independently by incubator participants, meaning that not all materials must be carried out directly, many maeri materials can be self-taught from this, Wulan &; Hermanto, (2019). propose integration between business incubators and Information and technology Library by integrating libraries as part of business incubators. Thus incubators can be done with a virtual system as stated by Allahar, et al. (2016) who emphasized that business incubators can be done directly (traditional) or indirectly (Virtual Incubator) or in other words business incubators can be run directly or physically (Physical Incubator and incubator indirectly (Virtual Incubator) Allahar, et al. (2016).

3. Methodology

This research is qualitative research. This research was conducted using Research and Development approach. Data were collected through field observations by conducting systematic observation and recording activities of the phenomena investigated, especially those related to business incubator practices at universities in South Sulawesi, Indonesia. Through this observation, researchers also observe the implementation of Business Incubators to find out the categories of business incubators run by each university, the type and evolution of business incubators that have been carried out, standard operational procedures and stages of business incubators implemented, innovations that have been applied, and the role of universities in implementing and developing business incubators. In addition to the observation process, data collection is also carried out through Focus Group Discussion (FGD). It is an activity to conduct in-depth discussions that are followed by all interested parties to discuss the data found during the research. This forum is also intended to see trends, similarities, differences from participants in seeing a phenomenon. In this study, the data collected during the next research is used as a basis for the development of a virtual business incubator which is expected to be run effectively because it is developed by taking into account all the interests of all involved in developing a business incubator in Higher Education

4. Results and Discussion

4.1. Development of Virtual Features of the Incubator

Virtual Business Incubator was built with the intention to provide business assistance to students and other parties who can use the business incubator as tenants through mentoring materials that can be accessed online, for that the system needs to be equipped with the features needed to be able to provide maximum assistance. Through focus group discussion (FGD), it was agreed that what can be provided by the business incubator system virtually must cover all facilities that have been provided by traditional business incubators.

Thus the virtual business incubator has the same function as the traditional incubator, the difference is that in the virtual incubator all business assistance is carried out online based on the web, as an innovation, the advantages of the virtual incubator can be integrated with other systems that will add to the advantages of the virtual incubator, as an example is the integration of virtual incubator services with digital library services owned by universities so that tenants can directly access reference support through integrated digital library, another advantage is the integration of the incubator system with strategy tools through templates such as SWOT Analysis calculations, business performance calculations, Feasibility Studies and partner catalogs as support for business network development.

To meet these demands, the features in the virtual incubator must include three stages of the business incubator, namely: (1) the section used for access to incubator participant registration, (2) the incubator implementation section, in this section incubator participants can access all online mentoring materials, including providing references combined with the system on line library and questioner and answer (Q&A) facilities, (3) the post-incubator section is equipped with: Advanced facilities include a performance appraisal system that can help

participants to use Strategic tols in business development as well as a performance appraisal system equipped with accessible templates and interactive discussions.

To meet the increasingly complex and varied needs for assistance, incubator features must be prepared in a comprehensive manner resulting from in-depth discussions with all stakeholders related to business incubators, especially from universities, the core of the features of the business incubator can be described through figure 1 as follows:
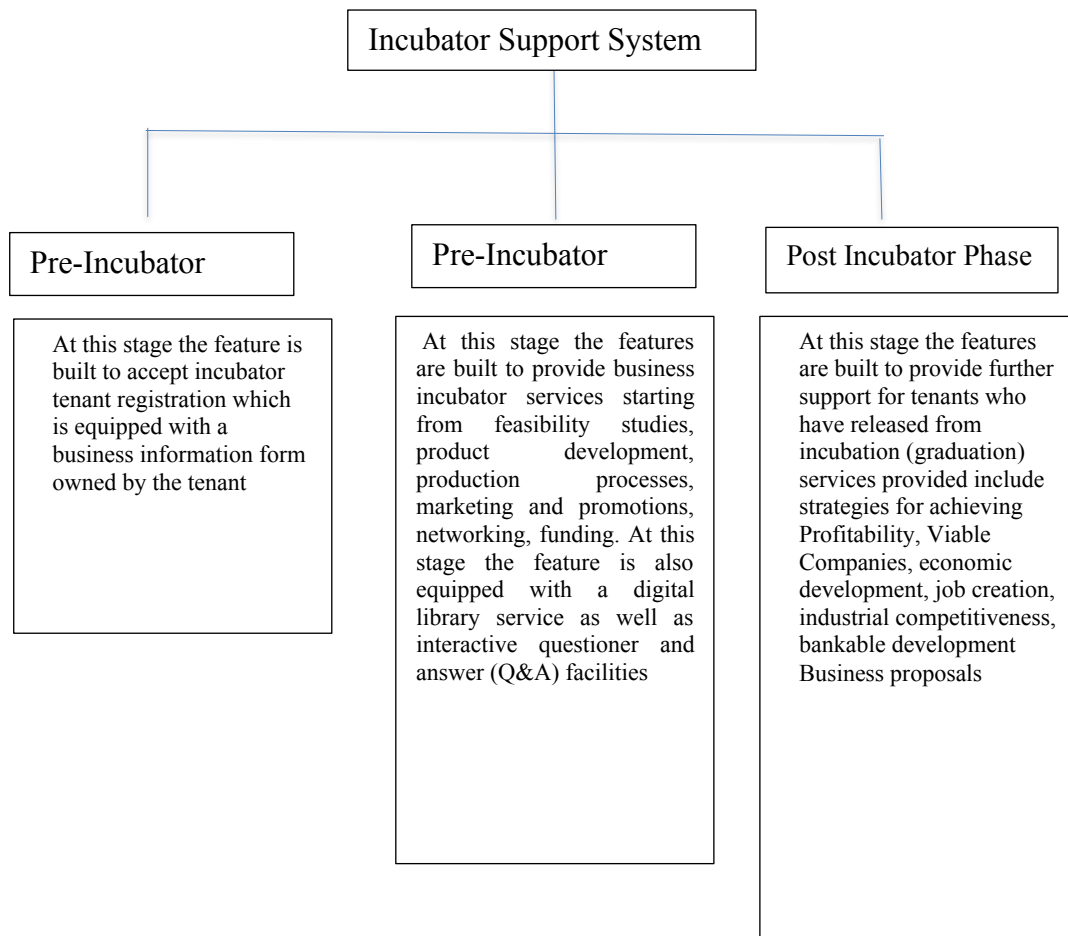
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                    ┌─────────────────────────────┐
                    │  Incubator Support System   │
                    └─────────────────────────────┘
                                  │
        ┌─────────────────────────┼─────────────────────────┐
        │                         │                         │
┌───────────────┐        ┌───────────────┐        ┌──────────────────────┐
│ Pre-Incubator │        │ Pre-Incubator │        │ Post Incubator Phase │
└───────────────┘        └───────────────┘        └──────────────────────┘
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Pre-Incubator	Pre-Incubator	Post Incubator Phase
At this stage the feature is built to accept incubator tenant registration which is equipped with a business information form owned by the tenant	At this stage the features are built to provide business incubator services starting from feasibility studies, product development, production processes, marketing and promotions, networking, funding. At this stage the feature is also equipped with a digital library service as well as interactive questioner and answer (Q&A) facilities	At this stage the features are built to provide further support for tenants who have released from incubation (graduation) services provided include strategies for achieving Profitability, Viable Companies, economic development, job creation, industrial competitiveness, bankable development Business proposals

Figure 1: Features of a Business Incubator

4.2. Virtual Incubator Design

Design Virtual Incubator is built d to achieve effectiveness and efficiency. Considering that this virtual business incubator will be aimed at students, the design is built to achieve the principle of user friendly that makes it easier for users. Virtual incubator design is divided into three main functions, namely the pre-incubator function, the incubator implementation function and the post-incubator function. The results of the Focus Group Discussion concluded the importance of a simple but comprehensive display so that the initial display of the virtual incubator web page can be seen in figure 1 as follows:
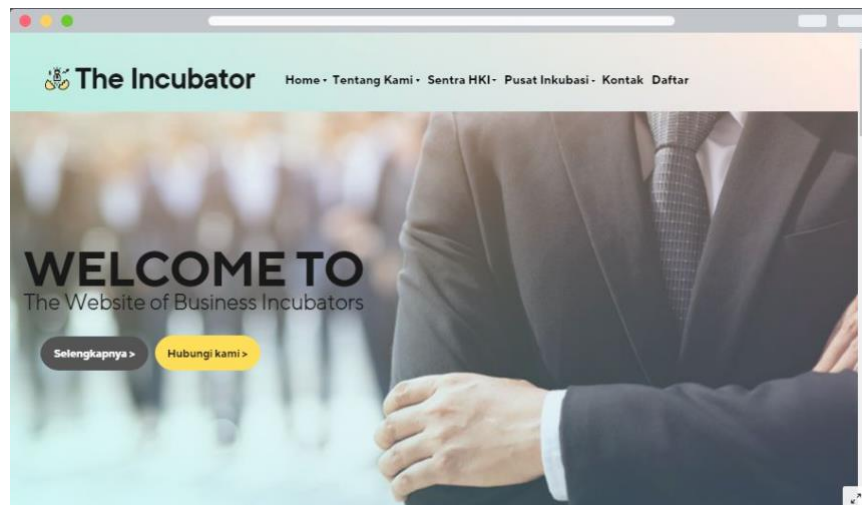
Figure 2: Incubator Virtual Start layer view

The main functions displayed in the screen display above are (1) Home, which is a page that will provide general information about the virtual incubator, by displaying the main layer and the features owned by the virtual incubator (2) About us, is a feature that explains why this virtual incubator was built, the purpose and purpose and benefits of the Virtual Incubator on this feature are also explained the person in charge and the resources owned by the Virtual Incubator (3) Sentra HKI is a service from Virtual Incubator to support the management of Intellectual Property Rights for products produced by students to obtain intellectual property rights certificates from the department of law and Human Rights (4) The Incubation Center is an incubator feature offered by the system to provide assistance to students in developing their products until the product is declared suitable to be marketed directly to consumer (5) contact, is a feature that provides information about important numbers that can be contacted and question and answer services used to conduct discussions from incubator participants with experts in the incubator (6) Register, is a registration feature used for incubator participants when registering as a member.

4.3. Flow map Business Incubator System

The virtual incubator system is arranged in such a way as to meet the needs of the implementation of the incubation system which is expected to meet the objectives of the implementation of business incubation, the flow map system proposed in the development of virtual business incubators at ITB Nobel Indonesia is illustrated in figure 3. As follows:
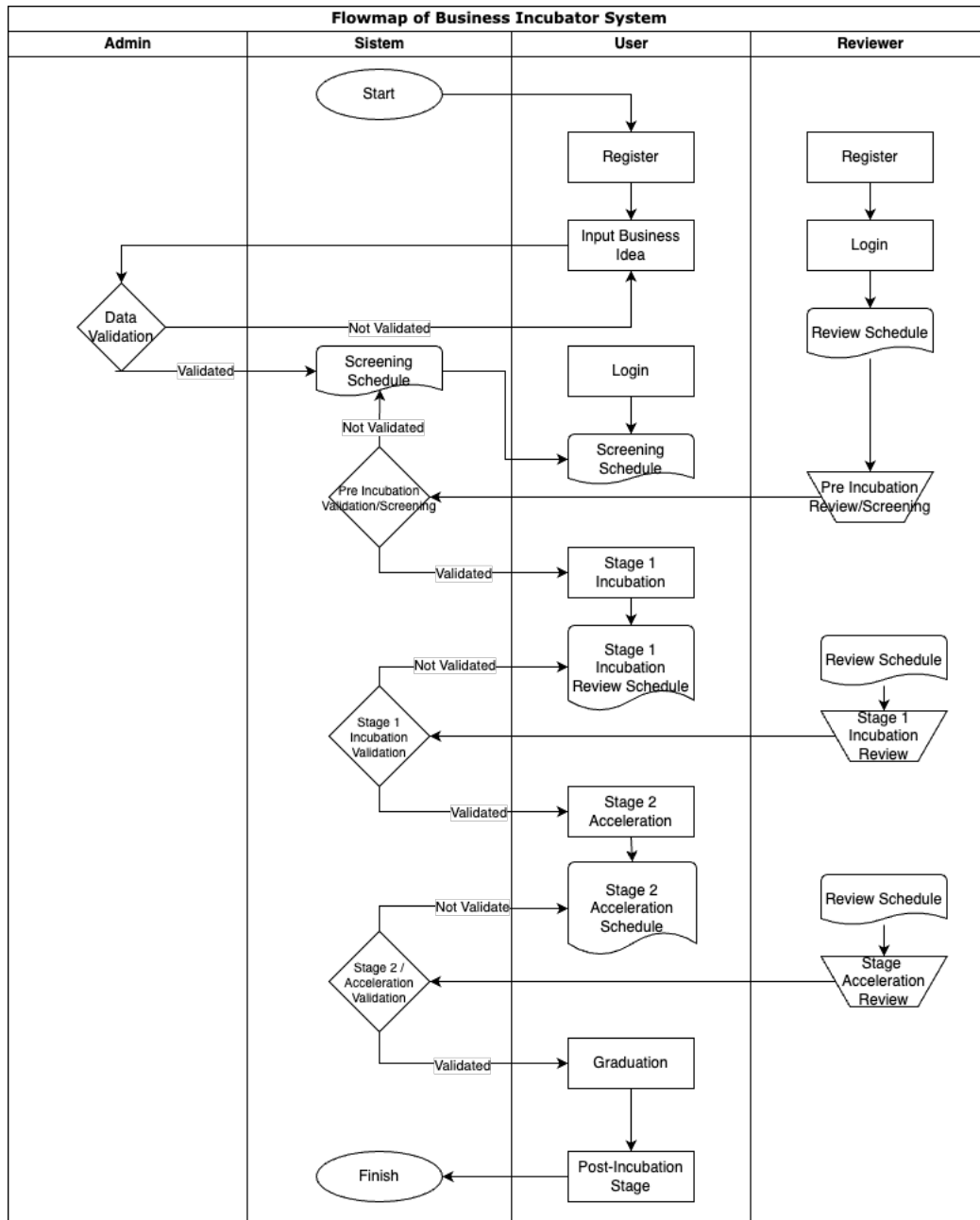
Figure 3: Flow map Business Incubator System

4.4. Discussion

Virtual incubator is a very important demand today so that business assistance can be done anytime and anywhere, especially for students who have a tight schedule because in addition to completing business incubator assignments, students also still have assignments in other courses, with the virtual incubator, time management can be done better, Based on the results of the discussion, the features that must be developed by the virtual incubator system must include all facilities owned by traditional incubator facilities.

The virtual incubator prototype built and reported in this manuscript has answered all the expectations of all FGD participants so that this Virtual Incubator can be realized immediately so that the need for comprehensive assistance for students in the field of business practice can be realized immediately

Web development for the Virtual Incubator program must continue to be done so that important things that have not been covered in the features can be updated according to needs, especially related to features that support the achievement of partnerships and networking, updating data from parties that can provide support for achieving

extensive networking continues to need to be developed and updated at any time so that important data that can be used by incubator participants is data which is real and valid.

In the era of digitalization, the development of a virtual incubator holds significant importance. A virtual incubator refers to an online platform or ecosystem that supports the growth and development of startups and early-stage companies. It provides a range of resources, services, and networking opportunities to entrepreneurs, allowing them to thrive in the digital world. Here are several reasons why developing a virtual incubator is crucial in the time of digitalization:

1. Global Accessibility: Virtual incubators break down geographical barriers and provide access to resources and support for entrepreneurs regardless of their physical location. It allows startups from Virtual areas or developing countries to participate in the entrepreneurial ecosystem and benefit from the expertise of mentors, investors, and industry professionals worldwide.

2. Cost-Effectiveness: Traditional physical incubators often require significant financial investments, including office space, infrastructure, and maintenance costs. In contrast, virtual incubators offer a more cost-effective approach as they eliminate the need for physical infrastructure. Entrepreneurs can access resources, guidance, and mentoring from the comfort of their own workspace, reducing expenses associated with office space and commuting.

3. Diverse Support Services: Virtual incubators provide a wide range of support services to startups, including mentorship, networking opportunities, training programs, and access to funding sources. These services are often tailored to the specific needs of digital entrepreneurs and cater to various aspects of business development, such as technology development, marketing strategies, and legal assistance.

4. Flexibility and Scalability: Digital startups often require flexibility and scalability to adapt to rapidly changing market dynamics. Virtual incubators enable entrepreneurs to scale their businesses more efficiently by providing guidance on technology infrastructure, market expansion, and customer acquisition. The virtual nature of the incubator allows for quick adjustments and changes in the support services as per the evolving needs of the startups.

5. Collaboration and Networking: Virtual incubators foster collaboration and networking among entrepreneurs, mentors, and industry experts. Online platforms enable startups to connect with like-minded individuals, potential partners, and investors from different parts of the world. This collaboration not only promotes knowledge sharing but also enhances access to diverse perspectives, innovative ideas, and business opportunities.

6. Technological Advancements: As the digital landscape continues to evolve, startups need to stay updated with the latest technologies and trends. Virtual incubators serve as a hub for sharing information on emerging technologies, industry best practices, and market insights. They can provide startups with access to cutting-edge tools, software, and platforms that can help them stay competitive in the digital era.

7. Resilience and Adaptability: The digitalization era brings both opportunities and challenges for startups. Virtual incubators equip entrepreneurs with the necessary skills and knowledge to navigate the ever-changing digital landscape. By fostering a culture of resilience and adaptability, virtual incubators empower startups to embrace innovation, iterate their business models, and overcome obstacles more effectively.

Developing a virtual incubator is essential in the time of digitalization. It promotes global accessibility, cost-effectiveness, diverse support services, flexibility, collaboration, technological advancements, and resilience for startups. By leveraging the power of the digital world, virtual incubators contribute to the growth and success of entrepreneurs in the digital era

5. Conclusion

Through the results of this study, it can be concluded that virtual incubators can be the best solution for mentoring incubator activities in business practices in student entrepreneurship development, through Virtual incubators business assistance can be done anytime and anywhere so that assistance can run effectively without disturbing by schedule or student time which is also quite tight.

The Virtual incubator has emerged as a vital tool in supporting students to establish successful businesses that can be managed from anywhere and at any time. This importance is particularly evident in the context of the rapid growth and utilization of information and technology. By leveraging Virtual incubators, students can tap into a wealth of resources, mentorship, and networking opportunities without being bound by physical limitations. The flexibility and accessibility offered by Virtual incubators empower students to pursue their entrepreneurial ambitions irrespective of geographical constraints, enabling them to take their businesses in any direction they choose. As the world becomes increasingly interconnected and reliant on technology, the Virtual incubator proves instrumental in fostering innovation and entrepreneurship among students, paving the way for a more dynamic and globally connected business landscape.

To maintain the elevation and suitability of virtual incubator facilities, the Virtual Incubator Facility must continue to be developed and updated so that the facilities owned are in accordance with the demands and updated business conditions, to anticipate this, questioner and answer services that have been prepared will provide very important input related to the needs of incubator participants and may even lack incubator facilities so that the results of questioners And answer will be used as one of the data in developing a virtual incubator.

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The Paradigmatic Nature of Social and Human Research

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Abstract

This article of reflection, theoretical and methodological, of an epistemological nature, presents relationships of commitment between universities and the productive sector through research. Society in general, unions and the state have understood that more and more professionals require scientific research processes. Therefore, advanced education must be supported by inquiry processes that transform these sectors. In general, investigative issues that generate epistemological contradictions are addressed due to the misuse of investigative techniques and procedures. Both the first and the second are more specific and inseparable from the investigative action. Techniques are the DNA of research: they condense the theoretical and methodological history of whoever has developed them and whoever chooses them. That history can be deconstructed from a technique. A strong presence of an orthodox positivism persists, anchored from the analytical empirical that invades the limits of qualitative research that requires an exhaustive review. On the other hand, according to the so-called mixed investigations, mixtures are made that are not coherent with the proposed paradigmatic models. This dispersion of the sciences, paradigms and types of research are limiting to understand, interpret or transform the contexts involved in the investigative processes. For this reason, for the researcher, the techniques are presented, in their pedagogical dimension, as the access door to the research experience, which enriches it, broadens it, and makes it more fruitful the more and better the instruments are handled articulated between the parts. and these integrated with the whole, highlighting that we are immersed in a productive process in which the researcher must make decisions at each step, which must be marked by the social conditions in which said process is carried out. The opposite produces paradigmatic blindness or obstacles.

Keywords: Research, Paradigmatic, Social Research, Human Research

1. Introduction

Research is action and is product. Action of the subjects, who build knowledge with varying degrees of autonomy. Product that is formalized in institutional discourses, which in turn are a condition and opportunity for action by researchers. The role that methodology plays depends on the epistemological position of the researcher and the scientific method that he intends to use. The logic and its foundation derive from the different conceptions about knowledge and about the possibility that the researcher has to access it, as well as the current controversies about the nature of physical reality and social reality, that is, the subject-object relationship.

The idea is that both the practice of research and its products objectified in scientific discourses are always traversed by the ontological, axiological, epistemological, theoretical, and technical-methodological assumptions with which each scientist deploys his work. Within this framework, the methodology offers, on the one hand, its

theoretical principles, operations, and internal control rules that researchers use to generate new knowledge in the area to which they belong; on the other hand, the external control norms that institutionalized science demands from each discipline and how it relates to the others.

But this scaffolding that conditions and determines each specific investigation does not exhaust the set of forces that operate on the products of science. The researcher, as a subject who investigates, also has his voice and his desire among all these voices. He is not a mere mechanical reproducer of already established paths, but in a continuous moment of going back and forth, he himself makes decisions at each step, creatively exploring and interweaving those determinants with his own ideas and intentions and with the demands imposed on him by the empirical world and the complex and emerging social world.

Until the 20th century, there were three types of research designs, which guided the investigative processes: the positivist paradigm or analytical empirical paradigm, the rationalist hermeneutic paradigm, the socio-critical paradigm. The design is a type of plan to arrive at a product. What is distinctive about the design is that it is a plan that allows the researcher to get out of speculation and make the model work in reality; but also, be consistent in the use of research procedures, methods and techniques.

In this context of academic and investigative reflections, the 21st century made evident the adoption of another paradigm called emerging and in which the transdisciplinary and complex approach is privileged; that is, the dialectically qualitative spiral situates the approach to new topics from another conception that favors the interconnection of knowledge and knowledge, overcoming simplistic views and advancing towards horizons that reconnect, that unite the dispersed, that bet on strategic thoughts and complexes.

In a previous article, we discussed three paradigms together; what a research paradigm consists of, but then we cannot point out that the research paradigm is a model of thought or a set of theories, methods, techniques, procedures, norms, principles, shared by a scientific community to focus on certain problems and give them answer and solution. In this case, when it comes to research paradigms, reference is made to a multiplicity of scientific perspectives on the problem of research in general. As indicated at the beginning we are going to see in this case the positivist paradigm or analytical empirical paradigm, the rationalist hermeneutic paradigm, the socio-critical paradigm, and we will address the paradigm of complexity, also called emergent.

When considering an investigation at any level or modality, it is part of the organization of a design that may or may not be made explicit in writing. An investigation involves answering a question or several questions, whether of a purely bibliographical type or in reflective research (what is said or debated around a certain topic), how certain concepts or certain dimensions are related (economic, political, religious, social, etc.), or what happens to a group of people: what they think, what they do, how they proceed with respect to X issue, and basic or applied research

In the Social Sciences, scientific research is usually associated with the achievement of a tentative answer to said question, what we call "hypothesis" and which is made up of relationships between variables to be investigated in the empirical world, but which is also our tentative answer to the problem. emerged. Now, the hypothesis has managed to insert itself into the qualitative world, coming to quantify the unquantifiable, warning of course that there is no prevention against the data, which is essential, but it must be resignified now of entering the territories of interpretation, understanding, transformation, emancipation, liberation and religation.

Lately, the possibility of working in the qualitative field with premises, conjectures and uncertainties has been considered more. A premise is the result of reasoning that must be supported with arguments and that allows a conclusion to be established. The premise is a proposition or reasoning process that supports the arguments to develop a synthesis. This view as a complex framework that results from bringing together different elements that were dispersed or separated, organizing, and relating them. The conjecture is a judgment or opinion formed from evidence or incomplete data or assumptions. And uncertainty is the lack of security, confidence, or certainty about something, especially when it creates concern.

However, not all questions or all hypotheses or premises require field work. Not all investigations should have a question. In the first case, when it comes to research in specific knowledge, for example, linguistics, literature, semiotics if it is a Bachelor's Degree in Languages, Biology, Zoology, Physiology, Chemistry; if it is a Bachelor of Natural Sciences, etc. And in the second option if it is an applied or intervention research, in the case that we already know what to do.

The narrative orients its purposes towards the interest of examining the epistemological assumptions that affect the selection of the research method in Social Sciences, procedures and techniques. We call this selection "methodological option": every researcher adopts a "methodological option", which guides his project and bases, from epistemology, his hypothesis and his object of study. The methodological option contributes to define a research work for various reasons:
a) Frames the criteria from where scientific knowledge is produced and
b) Gives said knowledge the value and guarantee of being "science."
c) There would be another reason: when doing research, not only a technical decision is made based on the objective and scientific obtaining of relevant data to investigate; When investigating, reality is understood (and the real at stake) in a certain way.

Fundamental and traversing the method are the "epistemological assumptions." By knowing in a certain way, based on the purposes or epistemic claims that build the research, an object of knowledge is also built, traversed by a vision of what can be known and also by a guarantee of greater or lesser "scientificity" of the subject. obtained result. This means that sometimes it is possible to know without implying producing science, but also, and on the other hand, that in scientific production within the field of Social Sciences, what is not science does not always cease to have the value of knowledge. The relationship between knowledge and science presupposes a certain type of knowledge that is often problematic and, in the age of science and technology, of control and efficiency, even more so. Epistemological approaches are ways of accessing knowledge and ways of producing knowledge. Outside of them we cannot access science or produce it. Let's review each of these approaches.

2. The relationship between knowledge and interest

The first dimension that is dealt with in this article about epistemological paradigms or approaches is what is their interest in knowledge, what is their anthology or what is the conception that these paradigms have about what reality is. What is the relationship between the subject and object of research and the purpose of each research paradigm?

Philosophical reflection with the social sciences since the beginning of its research activity has tried to connect the theory of knowledge with praxis in various ways. Habermas reflects on our ways of knowing, criticizes Husserl and positivism. According to Habermas (2001) he maintains that in all communicative utterance the speaker raises validity claims, against which the receiver can take a position with a yes or a no. If the listener recognizes the validity claims implicit in the act, the understanding or agreement will have been achieved. only the study of philosophical theory is what enlightens us with ideas and only them. "Can give relevance and ethical meaning to the action". (Valencia López, 2007: 37). The true orientation for action can only be given by knowledge, previously freed from interests.

The study of the sphere of morality brings to light the structure of human action, and in this structure the process of the will for action is inserted. Subjectivity is firstly analyzed in its unilaterality and then in relation to other subjectivities, which enriches the thought to think about contemporary ethics because for Hegel according to Heidegger (1994), the elements that allow the individual and the citizen to be articulated. The theoretical treatment of human action deserves such space and situation, for being the necessary link between the individual will and the political will. This sphere exposes the complex constitution of man, in which the individual objective and subjective come together, charged with a permanently manifest historicity as a product, and which, at the same time, contributes as a means that is always renewed and, in turn, renews itself. what is in it. The sphere of morality, in short, indicates how to live or, the process of the individual will for the political will. On the other hand, for Habermas according to Boladeras Cucurella, (2001), the private is opposed to the common and the state; The

opposition between common interest and private or particular interest confers authority on the absolute state as guarantor of that interest.

The rigorous study of a philosophical theory is what most imminently relates us to ideas most closely, and "only ideas can give relevance and ethical meaning to action" (Habermas, J. (2003:27). A true orientation for acting can only be given by a knowledge that has been freed from mere interests and has been directed towards ideas that a theoretical attitude has been adopted towards that knowledge. Now, the emerging praxis, surpasses the traditional practice and intertwines the triad of thinking, feeling, and acting, a scenario that challenges subjectivity with objectivity.

In the context of the emerging, the term complexity was introduced by the French thinker Edgar Morin in his work "Introduction to Complex Thought," to indicate that it is not possible to define social facts in a simple way, nor to investigate reality through a recipe that simplistically reveals the study problem. It raises the question of how to assume the complexity of the contemporary world in which we live. A different way of approaching social research, its historicity, to get rid of the illusions inherited from positivist thinking, which is to eliminate simplicity through complexity, since this type of thinking unites, integrates, and connects social phenomena and rejects reductionism in an exemplary way. which sought to break the whole into unconnected and totally isolated parts. (Salazar, 2004). For him, social phenomena work from a systemic perspective. Complex and systemic thinking offers an option to comprehensively analyze the processes in intercultural encounters focused on people in their cultural particularities and act on that difference through respect. These reflections point towards a transformation into a new social system, which is experienced in times of globalization. (Soto-Molina, 2019).

The relationship between knowledge and science as a particular type of knowledge is often problematic and, in the age of science and technology, of control and efficiency, even more so. Epistemological approaches are ways of accessing knowledge and ways of producing another knowledge. Outside of them we cannot access science or produce it. Let's review each of these approaches.

For positivism or the empirical analytical approach, the interest in generating knowledge is to be able to explain reality through the construction of cause and effect relationships, that is, of causal relationships, which will allow it to predict the behavior of reality, and, therefore, from the prediction, the possibility of controlling. For the hermeneutic historical paradigm, what really matters is something contrary to what positivism proposes. From hermeneutics, the most important thing is to understand reality through interpretation and obviously it will not focus so much on reality as an object. Otherwise, it will focus on reality more as a subject, as a construction of senses, of meanings that are in people.

While for the socio-critical paradigm, the positivist idea of the need to explain social phenomena to unravel the causal relationships is going to be shared in a certain way, but also to have some predictive capacity, but from the socio-critical paradigm. What is critical is to achieve the transformation, emancipation or liberation of communities from immersion processes where everyone becomes researchers and transformers of their own reality, this paradigm does not admit predetermined rules, nor pre-established formats, it is precisely its the community itself that elaborates and approves the inquiry instruments, even more, the systematic return becomes part of the agenda of the collectives or reflection groups for the final validation of the information. Soto 2021 States that:

> "The confluence of subjectivities that promote intercultural dialogue is required to weave emancipations that defragment contemporary sociopolitical hegemonies. The libertarian processes use education as a favorite tool that articulates the knowledge that promotes democratic societies, since these are more just and equitable, in harmony with the inherent dignity of life". Pag. 295

The paradigm of complexity, which is a very recent model, currently being discussed by Edgar Morin in the academic field. He argues that the interest in knowledge is no longer so much fragmented, as had happened before, but that the interest in knowledge now seeks the relational integration of knowledge to explain the complex phenomena of reality. For the complexity paradigm, all the previous paradigms, mainly positivism, are part of a

dominant scientific tradition in the sciences, which he calls the simplifying paradigm and the complexity paradigm would be the answer to the current crisis of science. . from the approach of Edgar Morin. (Morin, 1992).

Current times reveal the emergence of another emerging paradigm that adopts two important approaches: complexity and trans disciplinarity. For E. Morin, the structural problems that the current planetary crisis warns of, put the preservation and existence of all forms of life at risk, he points out that the disciplinary dispersion has promoted the knowledge achieved in multiple directions, producing a kind of blindness that does not allow reaching holistic and systemic visions of the problems derived from a geological era that has man himself as the protagonist of self-destruction.

The current era, the Anthropocene, is a recent geological era that deserves a pause for epistemological reflection with the integrated participation of all the sciences and disciplines of scientific knowledge. For complexity, the essential thing is the reconnection of knowledge, for transdisciplinarity it is the search for the included third that is between and beyond the disciplines, and in this methodological way the context is not regulated by a fixed reality, but by multiple levels. of reality.

It is not a question of attacking the sciences, paradigms, approaches or disciplines, since each one of them will be essential to advance scientifically, thanks to them we have managed to overcome many problems in the course of history, what is dealt with in these. At times, it is necessary to reposition the academic debate bearing in mind that the main problem facing humanity today is the destruction of planet earth.

Climate change, the drying up of rivers, the emergence of pandemics with more aggressive faces, the melting of the poles, global deforestation, excessive concentration and urban paving, the presence of a science without conscience, the dehumanization of humanity, are Among other problems that are not resolved from the isolated territory of one or two disciplines, according to Morin, a change of path is urgently required that encourages the adoption of differentiating and emerging approaches, in the possibility of redirecting global agendas and bets.

3. Ontology of knowledge

For the positivist paradigm, reality is objective, it is a reality that exists insofar as it is tangible, insofar as it is given, insofar as it is independent of the existence of the human being's consciousness, and it is a tangible reality that can be touched. It is a convergent reality; it is the reality that has an independent existence. For the hermeneutic approach, on the other hand, reality is constructed, that is, we build reality from our experiences, from our beliefs, and this reality has a totalizing character, that is, the reality constructed for us is a world, a constellation of objects ordered according to our culture, according to our beliefs, our notions, etc.… For the critical social approach, it will also coincide with the hermeneutic approach that reality is constructed and is also holistic, it is the subjects who produce the structures social, we are the ones who are part of that constructed totality, but we must not detract from the fact that for Marxism there is also a certain degree of objectivity of the existence of matter as opposed to the idea. For complexity and transdisciplinarity, reality is perceived by levels, it is systematic, that is, it has an order and a disorder at the same time.

The reality is hologrammatic, this means that the whole is not only the meeting of the parts, but also the parts are present in the whole and it is retroactive, because it states that the effects that produce causes do not have a simple linear relationship. of cause and effect and there the story ends. Rather, the effects can again influence the causes and generate a kind of evolution and a much more complex phenomenon, a process of differentiation according to Edgar Morín. Finally, he states that reality is recursive, this means that reality is organized into systems. The human being is part of a system, which is part of another system, which is the social system, the social system is part of another system which is the ecological system, and this in turn of the planetary system, and so on until the infinite, which means that all of reality would be a complex superposition of systems in constant relationship. (Morin, 1999), a position that expands on Bertalanffy's thought by pointing out that from the atom to the galaxy we live in a world of systems.
Subject-object relationship

On the question of the subject-object relationship for positivism and the relationship between the subject and object must be independent, neutral and free of values, in reality, positivism lies in the idea that the researcher to know the object of study separates from it and generates a kind of distancing that allows it to approach the object based on the object's own laws and dynamics that make the researcher object have a complete objective reading of the reality it wants to study, this is harshly questioned by the hermeneutic tradition which posits that there is actually an interrelationship between the subject and the object.

Regarding language, the positivist paradigm of science expresses that the number of times that a certain value of a variable is repeated or its absolute frequency or its average as a sum is what determines knowing which is the number or symbol of greatest equivalence of a variable (Number of times the value is repeated in the study). While the hermeneutic paradigm uses a logical-mathematical language, fundamentally symbolic, however, this does not indicate that it cannot express feelings and emotions when it comes to human activities, on the contrary, the subjectivities of being come into play in its deepest interpretation of the phenomena or social facts.

For the sociocritical paradigm, language is purely a representation of the individual's social interactions. considers that, along with the Device for Language Acquisition (proposed by Chomsky and the Innate Theory), there is a kind of aid that facilitates language acquisition, which corresponds to the environment of the people who interact with that context. In this way, in this theory one can speak of scaffolding, Zones of Proximal Development and Mental Formats or deep structures of thought. That is, language is thought in cognitive and cultural function.

Research paradigms				
Paradigm	**Prevailing interest type**	**Ontology (Nature of reality)**	**Subject-object relationship**	**Purpose**
Analytical or positivist empirical approach to science	**Theoretical interest** (purely descriptive), describe, predict, control	Objective, given, singular, tangible, convergent	Independent, neutral, value free	Generalize knowledge context-free
Rationalist hermeneutic approach to science	**Practical interest** (technological or instrumental). Understand, explain through interpretation	Constructed, holistic, divergent, multiple	Interrelation between the subject and the object.	mathematical logical knowledge
Critical social or experiential approach to science	**Emancipatory interest** (oriented to transformation). Explain, criticize, transform.	Constructed, holistic, critically transformed, materialistic	Interrelation between the subjects by the commitment to change	Symbolic and evaluative knowledge
Complexity or emergent approach to science	**Integrative interest** (oriented to knowledge and action). Relational integration of knowledge	Systemic, hologrammatic, retroactive, recursive	Action and knowledge are inseparable	Systemic and relational knowledge

Adaptado de Soto-Molina, J. E. (2016)

On the other hand, for the supporters of the complexity paradigm, language is a symbolic system, a communication system that includes a vocabulary or lexicon of words (symbols), the basic elements, and a grammar (syntax) or set of rules to combine the words in subsystems that are articulated in the thought under some complexities that offer the interactions of the subjects. This complexity theory inscribes language within a social semiotics, understanding it as a system through which related meanings are created and exchanged.

3.1. Purposes of each paradigm

Regarding the purposes of the empirical-analytical research paradigm, it seeks to generalize knowledge, to produce context-free knowledge applicable in any circumstance. The case of the hermeneutic approach works with its purpose, that is, to generate working hypotheses in given contexts. The particularized knowledge that undoubtedly allows explaining the case in question. For the socio-critical or Marxist approach, the transformation of reality is the sole purpose of knowledge. Reality is only known to the extent that it is consciously transformed, in a contested manner by the researcher. While for the paradigm of complexity, the purpose is to generate multidimensional knowledge, dialogued knowledge between the different disciplines of knowledge, where extremely complex, multidisciplinary explanations can be achieved, which give answers from different fields of knowledge to what is being investigated.

Regarding the relationship of the paradigms with the following categories, the purpose of the explanation or the causality that recognizes the different types of paradigm, the role of values, that is, the axiology, the dimension of the paradigms and the foundations. For positivism, the explanation or causality is absolutely clear, positivism is a paradigm that seeks to establish causal relationships, that is, to search for connections between causes and certain effects. For this, it necessarily uses statistical research, varied and multivariate analysis in statistics. For the hermeneutic approach, on the other hand, we do not talk so much about the causal explanation, but about the interaction of factors, that is, the relationship that exists between factors that may have a certain degree of connection or association, but that are not necessarily testable in competitive terms. In the case of the socio-critical paradigm, there is indeed a much broader complexity than the simple causal relationship and varied and multivariate analysis that is known in positivism. For the socio-critical paradigm, reality is a synthesis of multiple determinations, which means that there is multicausality, multiple factors that are related to each other but that do have causal results. Therefore, they produce a synthesis, a certain product, a certain reality. In the case of complexity, the formation of structures, probably systemic arrangements, is recognized. Very rigidly organized systems, very structured, but the role of explanation has to do with locating uncertainty in those richly organized systems.

Concerning axiology, or the role of values in the formation of knowledge; For the analytical empirical approach or positivism, it can be said that there is a freedom of values, that is, positivism is free of values. The researcher must put aside his subjective assessment. This one must get rid of, get rid of his values now of knowing. On the other hand, in the hermeneutic paradigm there are values. These are given, they influence all research from the very moment in which the researcher defines studying a certain topic. From there he is already playing and activating the values. The researcher is playing a conditioning role in interests, in preferences, in what he observes: the researcher. In the case of the socio-critical paradigm, he also recognizes the existence of values. The values are given. But, nevertheless, what Marxism raises is the need to criticize ideology to generate knowledge that is not contaminated by systems of thought or beliefs that seek to legitimize and seek to naturalize certain orders, or regimes of power. In the case of the paradigm of complexity, the role that the responsibility of the researcher fulfills in always seeking knowledge that is democratic, that is participatory, and that obviously generates a climate of responsible citizenship, where there is absolute and Total freedom. (Osberg, D., & Biesta, G. 2010).

Regarding the dimensions of the paradigms, the positivist paradigm is hypothetical deductive because it starts from a theoretically established hypothesis and the entire process of knowledge is produced from deductions. In the case of the hermeneutic approach, it is a paradigm whose dimension is fundamentally interpretive. It focuses on recovering the point of view of others, of the people being investigated, naturalistic because it seeks to capture the phenomena in their full naturalness and therefore the use of qualitative methodologies is central. In the case of the socio-critical paradigm, the work dimension of paradigms and critics is basically the critique of knowledge, the critique of society. This critique is the key factor for knowledge to be an element or a factor of change, of transformation of social, economic, cultural structures, etc. etc. For the complexity paradigm, the dimension of separation is basically located in reflexivity, it is not a paradigm that poses the necessary relationship of knowledge.

Observing the fundamentals of paradigms. For the analytical empirical paradigm, the basic theoretical foundation is logical positivism. Which comes from authors such as Augusto Comte who proposed that it was possible to generate knowledge of society from the use of research methods that will be applied in the natural sciences. Let

us remember that Augusto Comte was an author located more or less in the 19th century. , a period in which the boom in the natural sciences had basically wiped out any possibility of knowledge that was not scientific and based on that scientific spirit of the time, Augusto Comte stated that the purpose of scientificity in the social or human sciences , the sciences of society. That is a positivist foundation of the sciences. Hence the approach to recover the methods of the natural sciences to study society. He was considered the first great current and scientific tendency. For others, extremely dominant, even until the middle of the 20th century, in the academy; Positivism has been a very dominant current within research. On the other hand, for the hermeneutic approach, which is a reaction to positivist approaches, the foundations have more to do with phenomenology. Approaches developed by authors such as Dilthey, Max Weber, Husserl, Gadamer, etc., who propose to study the phenomena that have to do with the qualitative, the spiritual, the cultural, that is, with the symbolic and therefore a completely different from what positivism proposes.

Research paradigms				
Paradigm	**Causality explanation**	**Axiology (the role of values)**	**Dimension (method)**	**Foundation**
Analytical or positivist empirical approach to science	Cause effect relationship	Free of values	Deductive hypothetical	Logical positivism
Rationalist hermeneutic approach to science	Interaction of factors	Values, and data influence all research	Interpretive, naturalistic, qualitative	Hermeneutics, interpretationist
Critical social or experiential approach to science	Synthesis of multiple determinations	Values, and data critical of ideology	Dialectical or sociocritical	Critical theory, marxism
Complexity or emergent approach to science	Uncertainty in richly organized systems	Phenomenology	Reflexibility	Systems theory, information, cybernetics, and communication

Adaptado de Soto-Molina, J. E. (2016)

In the case of the socio-critical paradigm, the approach is clear, it is based on critical theory and Marxism. This is a very dominant current of thought during the 20th century in the social sciences. Which states that any type of knowledge of reality always starts to know. Critical theory or Marxism as the foundation of the socio-critical paradigm suggests that reality can be known by focusing and concentrating on the material economic processes of a society that are the explanatory key to other cultural, ideological, political, legal phenomena, etc.… While for the paradigm of complexity, systems theory, theories of information, cybernetics, and communication are the basis of this paradigm. Actually, the latest developments in knowledge regarding cybernetics and on the subject of artificial intelligence, autonomous systems, the learning capacity of systems, at the same time systems theory, the generation of networks of information and communication are the theoretical foundations of the paradigm of complexity.

The last dimensions of analysis of the paradigms that we are going to analyze now have to do with the approach regarding the theory and practice of these four paradigms and the quality criteria that recognize the paradigms, the techniques, instruments and research strategies in terms of the data analysis in each of the paradigms.

Concerting to theory and practice, positivism states that both are dissociated. There is no doubt that the positivist paradigm will always state that in its investigations the central and fundamental role will be centered on theory. The idea of research is where there is a rigid structured theoretical framework, a well-defined theoretical framework from where the indicators come from, where the variables come from to carry out the measurements, based on the data collection that is positivist research. Therefore, there is a divorce or a dissociation between theory and practice.

In turn, in the hermeneutic approach, theory and practice are related, there is mutual feedback. In any case, for the hermeneutic approach, practice is the starting point to generate knowledge, that is, first we experience, live, know a reality and then we can only formulate or dare to propose explanatory theories of the reality that we are wanting to know. On the other hand, in positivism it is the other way around, it goes from theory to reality and in the hermeneutic approach, it starts from reality, but towards theory. In the case of the socio-critical paradigm, the approach is much more controversial because theory and practice are inseparable.

As the goal or purpose of the socio-critical paradigm is the transformation of reality. It is only possible to know reality as soon as it is transformed. Therefore, there are no theories without practice; in social terms there are no theories without revolutionary practice. This means that when someone wants to know a social phenomenon, they have to transform or endeavor to transform that social phenomenon, so that the phenomenon will react and reveal its contradictions, its laws, its relationships and will to be a moment in which from the change and conscious transformation of reality the individual will generate knowledge that can explain that reality. Otherwise, there is no way to know reality. for the socio-critical paradigm.

Regarding the paradigm of complexity, in the same way, there is no dissociation between theory and practice. For this paradigm, there is the systemic vision that anything that affects one part of the system will necessarily affect all the other components of the system. Therefore, the action of the person or individual of the researcher will always influence the system. An effect that can generate much more complex relationships within the field of research, for which reason complexity is the central component of the explanation of any of these dimensions of the research paradigms.

In relation to the quality criteria, in the empirical analytical paradigm, the desire for validity, the reliability of the data, and objectivity are the three criteria that give quality to positivism and support research from its paradigm. For the hermeneutic paradigm it really has to do with credibility, confirmation of information, and transferability. For the socio-critical paradigm, it has to do with intersubjectivity and the consensual validity of knowledge. For the paradigm of complexity, the quality criteria must do fundamentally with a continuous dialogue of knowledge between the different disciplines of scientific knowledge. It is Morin who raises the need for dialogical knowledge, knowledge that breaks the borders and disciplinary structures and rather allows the integration of knowledge so that reality is known in a multidimensional way.

Now, about research techniques and instruments, in the case of the analytical empirical approach, the techniques are quantitative, they are measurement-oriented, there are tests, questionnaires, measurement scales, observation, content analysis, etc. In the case of the hermeneutic approach, the research techniques are qualitative, they are descriptive and have more to do with narrative technologies, with technologies for obtaining narrative information, the interview, the field diary, the life stories, the focus group, etc. For the socio-critical paradigm, the research is based mainly on case studies, this can also occur in hermeneutical research, but the socio-critical approach makes extensive use of case studies, and the techniques are dialectical, that is, they are techniques that can interchangeably incorporate techniques. and quantitative and qualitative instruments, that is, a methodological articulation that does not rule out any possibility of using quantitative and qualitative techniques, but it should be recognized that it is the only level of methodologies in which there can be a combination or coordination of techniques and instruments. quantitative and qualitative, in the case of the socio-critical approach.

In complex research, it is possible to speak indistinctly of a professional use of quantitative techniques and qualitative techniques, in the same way. In the complexity paradigm there would be a kind of freedom or openness to methodological creativity. As long as it is consistent with the principles and starting points of the complexity paradigm that have to do with systematicity, recursion, complexity, etc. So, the complexity paradigm does state that quantitative or qualitative methods can be used. There are some authors who suggest that the paradigm of complexity would lean more towards qualitative techniques by using only qualitative procedures. But without a doubt, the methodological path and in terms of techniques is completely open.

Concerning the analysis of the data, in the analytical empirical approach it is basically statistical, descriptive, inferential. In the hermeneutic it is analytical, inductive and there is the necessary triangulation of the data. In the

critical partner, the analysis of the data is intersubjective, it is dialectical. The data is always interpreted in the light of the theory and of the central approaches of Marxism contained in the dialectical method. In the case of complexity theory, data analysis is open to much broader possibilities, but without always losing sight of the principles or presuppositions of complexity, which has to do with always recognizing the existence of systems, the hologrammatic principle, the principle of recursion, and the principle of feedback, that is, the reentry of the effects to act again on the causes and modify the phenomena into things that are much more complex for knowledge and understanding.

Research paradigms				
Approach	**Theory-practice**	**Quality criteria**	**Techniques, instruments, strategies, and procedures**	**Data analysis**
Analytical or positivist empirical approach to science	Dissociated	Validity, reliability, and objectivity	Quantitative, test measurement, questionnaire, observation	Statistical, descriptive, and inferential
Rationalist hermeneutic approach to science	Related, mutual feedback	Credibility, confirmation, and transferability	Qualitative, explanatory	Deductive, triangulation
Critical social or experiential approach to science	Inseparable, there is no theory without revolutionary practice	Intersubjectivity, consensual validity	Case studies, dialectical techniques	Intersubjective, and dialectical
Complexity or emergent approach to science	Action presupposes complexity and systematicity	Intersubjectivity, consensual validity	Qualitative, and quantitative; mixed investigations	imaginative and creative

Adaptado de Soto-Molina, J. E. (2016)

4. Synthesis

By way of synthesis. The procedures, techniques, and the philosophical, cultural, and informational bodies are determined by the type of research that also privileges a prototype of knowledge that originates from these paradigms of science analyzed above. Each paradigm reflects a worldview of the researcher who must be coherent in the use of procedures, techniques, and philosophical, cultural, and informational bodies that undoubtedly reflect his way of thinking as a researcher. This is what allows you to first access knowledge and then produce it in the context of a given investigation.

Systems thinking is a perspective that is applied in the context of social and human research to understand and address the complexity of the phenomena studied. It is based on analyzing systems as entities composed of interrelated and interdependent parts, recognizing that the whole is more than the sum of the individual parts (Morin, 1995).

This way of thinking seeks to understand the interactions between the parts of the system and how they influence each other. Rather than looking at each variable in isolation, the system is considered, recognizing that the parts affect each other and that understanding the system requires examining the interconnections.

In the field of social and human research, systemic thinking makes it possible to address the complexity of the phenomena studied and understand the relationships between the different aspects involved. The importance of analyzing the contexts, social interactions, beliefs, practices, and representations of the subjects is recognized, in addition to empirical data, to obtain a broader and deeper understanding of social phenomena (Martínez, & Londoño, 2012).

Systemic thinking also focuses on aspects such as organizational culture, problem solving, leadership oriented towards team building, staff capacity development, communication and information flow, as well as openness to change as an opportunity. It seeks to understand how these elements are intertwined and affect organizational learning and the ability to adapt in a context of permanent change (Dualde, 2021).

In summary, systems thinking in the context of social and human research refers to the perspective that considers systems as interrelated and interdependent entities. It seeks to understand the interactions between the parts of the system and how they influence each other, recognizing that the whole is more than the sum of the individual parts. This approach allows addressing the complexity of social phenomena and understanding the relationships between different aspects, including contexts, social interactions, beliefs and practices of the subjects.

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Characteristics of Student Entrepreneurs in State Universities in Indonesia

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Abstract

Entrepreneurship development is one of courses in Merdeka Belajar Kampus Merdeka (Freedom to Learn) program. The harmony of entrepreneurship program and student entrepreneurs' characteristics is one of keys to the successful program implementation. This research aims to explore the characteristics of student entrepreneurship and its compatibility to entrepreneurship program released by university and ministry. Basic questions posed in this research are what are the characteristics of student entrepreneurship today? Do they lean to the characteristics of Millennial generation or to that of Z Generation? Then, what are the entrepreneurship characteristics the students have today? The research method used was mixed method with sequential (quantitative-qualitative) approach. At quantitative stage, the author surveyed the characteristics of Millennial Social Entrepreneurial (MSE) on 3920 students in 75 state universities existing in Indonesia. At qualitative stage, the author held FGD and interview to explore the entrepreneurship characteristics the students have. The result shows the characteristics of student entrepreneurship as follows: (1) perseverance, proactive personality, (3) awareness of social issue, (4) life satisfaction, (5) self-efficacy, (6) digital literacy, (7) entrepreneur motivation, (8) critical attitude, (9) pragmatic characteristic, and (10) uncertainty orientation. The entrepreneurial characteristics are intersection between Millennial and Z generations' values. Pragmatic characteristic and uncertainty orientation are the characteristics beyond MSE. Considering these findings, the policy of developing digital-based start-up by prioritizing technical simplification and sustainable program reinforcement in long term for students should be endeavored by universities in the attempt of optimizing MBKM entrepreneurship program.

Keywords: Entrepreneurship, Millennial Generation, Z-Generation, Millennial Social Entrepreneurial

1. Introduction

The course contained in Freedom-to-Learn (Merdeka Belajar Kampus Merdeka, thereafter called MBKM) policy program is, among others, entrepreneurship program. The program requires universities to provide curriculum, syllabus, and assessment rubric to measure the successful achievement of learning, students' mentor, business incubation, and external cooperation with partner institution, and to compose technical guidelines of learning activity through entrepreneur (Buku Panduan Merdeka Belajar Kampus Merdeka [Guidebook of Freedom to Learn], 2020). Entrepreneurship program involves Indonesian Student Entrepreneurship Program (PKMI) consisting of Indonesian Student Entrepreneurship Activity [Kegiatan Berwirausaha Mahasiswa Indonesia or

KBMI), Acceleration of Indonesian Student Start-Up [Akselerasi start up Mahasiswa Indonesia or ASMI) and Indonesian Student Entrepreneurial Mentoring (Pendampingan Wirausaha Mahasiswa Indonesia or PWMI).

The challenge appearing in the implementation and optimization of MBKM entrepreneurship program in universities is, among others, the alignment of ministerial program and students' perspective on entrepreneurship. The alignment should be done because there is potential difference of opinion on entrepreneurship between student as the current generation and the stakeholders generally as baby boomer generation. Theoretically, every generation has distinctive perspective on a certain object due to social mood and turning point (Howe and Strauss, 2009). The problem arising in the use of generation difference concept is, among others, Indonesians' predisposition to use standard criteria and categorization of generation from the standard difference of birth year tending to originate from Westerners' parameter. This condition results in the potential gap between policy and implementation tending to be based on westerners' standard.

In this research context, students are categorized into millennial generation based on socio-constructivism perspective. This categorization is not absolute in nature and can be used only as a starting step in understanding the entrepreneurial characteristic of students. This categorization is not merely based on birth year but considering characteristics, social mood and turning point, constituting the manifestation of socio-constructivist (Purhonen, 2016) and contextual approaches (France and Roberts, 2015) in understanding the concept of generation. Millennial generation has some characteristics: being connected to social entrepreneurs, appreciating work-from-home, asking for financial help when needing it, and not worrying too much regular job and income (Howe and Strauss, 2009). From social mood and turning point aspects, the moment affecting the change of generation characteristics in Indonesia was massive social media and technology development occurring in 2012 (Gartner, 2013). In 2020, Indonesian millennial generation has reached 69.38 million people (25.87%). The data of Z generation shows 74.93 million people (27.94%) of total population number, 270.20 million people.

The figure can be viewed as demographic capital for economic competition at both regional and global levels. However, Luno's research on "The Future of Money" in collaboration with Dalia Research instead found that around 69% of millennial generation in Indonesia has no investment strategy. Meanwhile, considering the information released by BPS' Survey on National Workforce in 2020, the proportion of entrepreneurship in Indonesia reaches 3.47%. The proportion is in fact lower than that in other ASEAN states such as Thailand (4.26 %), Malaysia (4.74 %), and Singapore (8.76 %). Considering the problem, both entrepreneurial policy and program should be aligned for the students belonging to millennial generation or the generation after as it will help direct their entrepreneurial interest as they need.

The author thinks that the less optimum MBKM entrepreneurial program can be caused by the lack of alignment between program direction and students' perspective theoretically having specific opinion on entrepreneurship. Fleschner (2007) states millennial generation is lucky for always being cared for, protected, and fulfilled by their parents. Adigüzel (2014) explains that millennial prefer being guided by a mentor to give them input. Therefore, a design of advanced entrepreneurship program is required to be the early formulation of policy in developing the students' entrepreneurial interest.

The entrepreneurial characteristics of millennial generation have been studied widely by academicians. Zhang et al., (2021) explain the entrepreneurial characteristics of millennial generation as follows: perseverance, proactive personality, caring about social problem, fulfilling standard quality of life internally and having self-efficacy emphasizing social entrepreneurial. Social entrepreneurial is an entrepreneurial characteristic that is not only profit- but also social problem solving-oriented. Although many researches on social entrepreneurship have been conducted, in-depth and empirical study on this concept is still necessary to do recalling the effect of social mood and turning point leading to dynamic character in the categorization of generation. An empirical study on entrepreneurial concept of millennial generation should consider attitude and locality, meaning another model of generation characteristic.

Based on the background, this research aims to explore and to describe the entrepreneurial characteristics of students. Basic questions to be answered in this research are what are the entrepreneurial characteristics of students

today? Do they lean to that of Millennial or Z generation? This research used bottom up approach by putting the students to be the main subject of research entitled to engage in developing Indonesian education policy and program. The alignment of MBKM entrepreneurial program and student characteristic is the focus of current analysis to result in policy recommendation for the optimization of MBKM program, particularly entrepreneurship program.

In this context, universities obligatorily put students to be not only object but also subject that can give aspiration to the implementation of policy. Involving the students' participation, in giving input to the universities as the makers of entrepreneurship program policy, can encourage the realization of entrepreneurial program as the students need and want. In such condition, the end goal of the realization of students' entrepreneurial interest development can be achieved more easily.

2. Millennial Social Entrepreneurial (MSE)

Millennial Social Entrepreneurial is one of most adequate concepts in seeing the entrepreneurial characteristics of Indonesian young generation. As explained in introduction section, the author has emphasized that the categorization of generation cannot automatically used age or birth year criteria. In socio-constructivist perspective, the character of generation can be determined by social circumstance so that the categorization becomes more complex and flexible. Therefore, the author prefers putting students into Millennial Generation category and using MSE theory as the initial focus to analyze the entrepreneurial character of students today generally born in time interval of 1999-2003 and then analyze what characteristics do surpass MSE. Thus, instead using categorization and Z generation standard tending to be created in western tradition, this study attempts to investigate the entrepreneurial characteristics of Millennial Generation processually and then identify how far the characteristics have developed and been surpassed.

Millennial generation has characteristics different from the previous one does Strauss and Howe, 1992). Sociologically, according to Howe and Strauss (2009), millennial characteristics are connected to social entrepreneurs, appreciating work-from-home, asking for financial help when needing it, and not worrying too much the job with income accepted regularly compared with previous generation. In this case, Zahra (2009) delivers some definitions of social entrepreneurship and social entrepreneur by combining some common elements. Zahra (2009) suggests that social entrepreneurship is some innovation in business world to create and to optimize the opportunity resulting in solution to various social problems. A social entrepreneur can solve various social problems by maximizing resources and getting social and financial benefit with certain business model. It means that the alignment between Millennial Generation and entrepreneurial demand in the present occurs because they can adapt to time development and social environment.

Hulgard (2010) summarizes the definition of social entrepreneurship more comprehensively as the creation of social value by means of cooperating with others or mass organization involved in some social innovation usually implying an economic activity. Social entrepreneurship is a term deriving from entrepreneurship. This term consists of two words: social meaning societal and entrepreneurship meaning the ability and readiness to develop, to organize and to run a business enterprise, along with any of its uncertainties in order to make a profit. A social entrepreneur is simply defined as an individual who knows social problem and uses entrepreneurship skill to make social change, particularly involving welfare, education, and healthcare fields (Cukier, 2011). The indicators of social entrepreneurship, according to Zang (2021), can be viewed from Millennial Social Entrepreneurial (MSE) aspect. MSE, according to Zang (2021), consists of perseverance, proactive personality, care about social problem, life satisfaction, and self-efficacy indicators. Further description on the MSE indicators is as follows:

1. Perseverance
    Perseverance is the most important factor to support a successful entrepreneur. Perseverance contains some aspects: a) ability of concentrating on difficult task; b) proactivity, c) ability of dealing with difficulty.
2. Proactive personality
    Proactive personality is the factor supporting successful career, performance, charismatic leadership, and job seeking. Proactive personality is defined as the difference of characteristics concerning the extent to

which they take action to influence their environment. Proactive personality contains some abilities of: a) identifying opportunity and following it up; b) showing initiative; c) taking action and persisting until the change occurs.

3. Concern for social problem

    Care about social problem is the factor underlying the growth of social entrepreneurial interest. Care about social problem contains: (a) aligning the creation of economic and social values simultaneously; (b) appreciating others' outcome; (c) being committed to investing time and energy to help others even under demand and difficulty.

4. Life satisfaction

    Life satisfaction is the measure of an individual's satisfaction based on certain criteria selected. Life satisfaction consists of some aspects: a) satisfaction as the moderating effect of stressful event; b) life satisfaction as motivation and capacity to help others; c) life satisfaction as an attempt of dealing with stress related to starting and maintaining social enterprise.

5. Self-efficacy

    Self-efficacy is an individual's trust in his own ability of mobilizing motivation, cognitive resource, and necessary action to control the events occurring in their life. Self-efficacy is developed through a) experience with repeated achievement mastery experience; b) representative experience; c) observational experience of role model; and d) social persuasion by important people's judgment on their own physiological condition.

The indicators explained by Zang (2021) have not touched yet the important characteristics existing in millennial generation, the closeness to information, communication, technology, entrepreneurial motivation, and critical attitude. Lancaster & Stillman (2002) state that millennial generation is the one adhering to information, communication, and technology, as well as digital literacy. Digital literacy essentially involves four basic fields: information literacy, data, and media; digital creation, problem solving, and innovation. Meanwhile, entrepreneurial motivation is a condition that encourages, drives, and directs an individual's desire to do entrepreneurial activities independently and self-confidently, oriented to personal growth, job flexibility and pursuing passion (Chopra & Bhilare, 2020). Critical attitude leads to an individual's attitude encouraging the appearance of provocativeness and critical reaction to surrounding situation (Bencsik, Horváth-Csikós, & Juhász, 2016).

Considering the theoretical study, it can be concluded that the indicators of entrepreneurial characteristics are viewed from MSE theoretical framework and in this research include: (1) perseverance, (2) proactive personality, (3) awareness of social issues, (4) life satisfaction, (5) self-efficacy, (6) digital literacy, (7) entrepreneurial motivation, and (8) critical attitude. Eight MSE indicators become the author's initial focus to observe the students' entrepreneurial characteristics.

3. Method

3.1 Research Design

Quantitative and qualitative mixed method with sequential approach was used as the research design (Creswell, 2010). At quantitative stage, an online survey was conducted on *Millennial Social Entrepreneurial* (MSE) with graduate-level students in 75 state universities and institutes in Indonesia. The results of survey were then processed quantitatively to see the MSE score of students. The results of quantitative analysis were then used as the starting point in collecting qualitative data. Qualitative data were taken through *Focus Group Discussion* (FGD) and interview with narrative approach to the selected students indicating specific predisposition appearing in quantitative data and FGD. FGD and interview were conducted either offline or online through Zoom Cloud Meeting and Google Meet platforms. interview was conducted using narrative approach to see students' entrepreneurial perspective and characteristics in more depth. Interactive analysis was used to analyze qualitative data by focusing on exploring the entrepreneurial characteristics of students.

3.2 Respondents

The population of research was all students in 75 State Universities in Indonesia. 3949 respondents at graduate level in 75 state universities and institutes in Indonesia have completed the questionnaire. Majority (2561) respondents come from Social and Humanities group, and 1388 students come from Science and Technology group. 74% of respondents were female and 26% were male. The detailed profile of research respondents at qualitative data collection stage can be seen in Table 1.

Table 1: Profile of Respondents

Birth Year	No. of Respondents
1999	337
2000	717
2001	1287
2002	1161
2003	418
Total	**3920**

Source: Processed Primary Data (2021)

Table 1 shows five age categories in the research participants. By age category, the participants of research were born in 1999-2003. This category indicates age layer that can imply the MSE conjuncture and the compatibility of MSE to the students' entrepreneurial characteristics.

At FGD level, 114 students were involved as the participants selected based on the result of quantitative data analysis. FGD participants were students having side business and interestedness in entrepreneurship. FGD was conducted periodically using offline model among students domiciled in Solo Raya and hybrid model among students domiciled outside Java. Students come from some state universities: UNS, UNDIP, UNY, UPN Yogyakarta, UB, UI, ITB, IPB, ITS, UNNES, UNIB, UNRAM, UHO and UNDHIKSA. At interview stage, 12 students coming from six universities were involved as resource persons. The students were selected to be the resource persons at interview stage based on MSE score criteria and specific case finding at FGD stage. Interview was conducted online using narrative approach and aiming to deepen qualitative findings to explain and to confirm the quantitative collected before.

3.3 Research Instrument and Data Collection

Research instrument consisted of *Millennial Social Entrepreneurial* (MSE) questionnaire to collect quantitative data and FGD question guide and interview guide to collect qualitative data. MSE questionnaire consisted of 15 question items with Likert scale estimation (maximum score of 75) representing MSE indicators including perseverance, proactive personality, awareness of social issues, life satisfaction, self-efficacy, digital literacy, entrepreneurial motivation, and critical attitude. The question items in the questionnaire were evidently valid and reliable, as shown with Cronbach Alpha value of 0.7062 higher than an instrument's reliability margin (0.6). Considering the result of validity and reliability tests, MSE questionnaire were feasible to use to measure the MSE of respondents.

The instruments of collecting qualitative data used were FGD Guide and Interview Guide. FGD was conducted with a moderator as an informal leader to discuss the topic related to the entrepreneurial trends among participants. Interview was implemented in unstructured manner with narrative approach in which the author set only the outline of interview topic related to business experience, entrepreneurial perspective proactive personality, critical attitude, and entrepreneurial motivation. Unstructured interview with narrative approach is expected to give the author a room to explore entrepreneurial characteristics the students have.

3.4 Data Collection and Analysis

Quantitative data were collected using MSE questionnaire distributed to 75 state universities and institutes in Indonesia. The questionnaire was distributed using Google Form (https://forms.gle/HUe6WqWJLzUo453d8) in July 2021. The quantitative data were then analyzed using descriptive quantitative approach to see the trends in data score. Having obtained the result of MSE survey, the author analyzed the data to get categorization and characterization of research respondents using data tabulation analysis. Quantitative data analysis was carried out using Microsoft Excel program.

Qualitative data were collected through FGD and interview either online and offline. FGD was conducted in August 2021. FGD data analysis was carried out using content analysis approach considering the frequency of topic appearance in FGD. Meanwhile, the interviewing process was carried out online in October – November 2021 using Zoom Cloud Meeting. Qualitative data derived from FGD and interview were then analyzed interactively (Miles and Huberman, 2014) to formulate the entrepreneurial characteristics of students.

Sequentially, the qualitative data were used to confirm and to explain the result of analysis at quantitative analysis stage. On the contrary, qualitative finding can also be confirmed by the result of quantitative analysis. The entrepreneurial characteristics of students were then formulated by considering the methodological aspects.

4. Results

4.1 Millennial Social Entrepreneurial Score

The result of *Millennial Social Entrepreneurial* (MSE) survey shows that the total MSE score of 3920 respondents is 216149 with mean score of 55.14. In more detail, the MSE scores of respondents based on some criteria can be seen in Table 2:

Table 2: MSE Score of Respondents by Birth Year

Birth Year	N	Total MSE Score	Mean
1999	337	18719	55.54
2000	717	39652	55.3
2001	1287	70892	55.08
2002	1161	63993	55.12
2003	418	22893	54.76
Total	**3920**	**216149**	
Mean		**55,14**	**55.16**

Source: Processed Primary Data (2021)

Table 2 indicates no significant difference of MSE scores between respondents born in 1999 and those born in 2000, 2001, 2002, and 2003. The MSE score of respondents born in 2003 is lower (54.76) than that of respondents born in 1999 (55.54), 2000 (55.30), 2001 (55.08), and 2002 (55.12).

Table 3: MSE Scores by Sex and Birth Year

Birth Year	Sex	
	Male	**Female**
1999	55.69	55.49
2000	55.00	55.43
2001	54.95	55.13
2002	54.62	55.27
2003	53.13	55.24

Mean	**54.68**	**55.31**

Table 3 shows that by birth year and sex, there is no significant difference of MSE scores indicated between respondents born in 1999 and those born in 2003 in both male and female students. Table 3 shows the mean MSE score of 55.31 for female and 54.68 for male. The score indicates that generally both male and female students tend to have higher MSE characteristics in entrepreneurship.

Table 4: Score of Respondents by Department and Birth Year Group

	Department	
Birth Year	**Science and Tech.**	**Social and humanities**
1999	55.84	55.43
2000	55.37	55.27
2001	54.47	55.43
2002	54.02	55.76
2003	53.73	55.47
Mean	**54.67**	**55.48**

Table 4 shows that students in Social and Humanities department have higher total mean score than those in Science and Technology Department. Viewed from birth year, the mean score of Science and Technology students decrease, while that of Social and Humanities students tends to be fluctuating. But, overall the MSE interest and perception tend to be higher in Social and Humanities students.

Overall it can be stated that the MSE scores of respondents in various group are at the minimum threshold of high criteria with a maximum score of 75. The quantitative data show that respondents have MSE indicators at certain extent, but it cannot be concluded that it they have high score.

Analysis of score per MSE questionnaire item shows that perseverance is the item of MSE questionnaire with highest score (4.10) followed with awareness of social issues (3.85) and self-efficacy. The respondents tend to have lower score in life satisfaction (3.29), digital literacy (3.39), and proactive personality (3.42) than the maximum score of 5-scale. The detail of analysis per MSE questionnaire item can be seen in Table 3.

Table 3: Analysis per MSE questionnaire item

No	*MSE Indicator*	*Question Item*	*Mean score of item*
1	Perseverance	1 &14	4.10
2	Proactive personality	2 &9	3.42
3	Awareness of social issues	3 &13	3.85
4	Life satisfaction	4	3.29
5	Self-efficacy	5 & 12	3.85
6	Digital literacy	6	3.39
7	Entrepreneurial motivation	15,10 & 7	3.77
8	Critical attitude	7,8, &11	3.66

Considering the quantitative analysis, some findings are obtained:
1. MSE scores of respondents viewed from some criteria are at the threshold of higher category with mean score of 55.15 out of total score of 75 with MSE score tending to decrease.
2. Analysis of score per MSE questionnaire item shows lower score in life satisfaction, digital literacy, and proactive personality indicators.

The conclusion of quantitative analysis is the starting point of qualitative analysis. The MSE score at the minimum threshold of higher category indicates the same trend between generations meanwhile; the low MSE score indicates the surpassed MSE character among students. This surpassed aspect cannot be explained using quantitative data. Therefore, qualitative data were required in the form of FGD and interview.

4.2 Pragmatism and Uncertainty Orientation

FGD data shows that the participants tend to have creative ideas requiring realization. During FGD, the participants tend to present various opinions and business activities they have run. In the topic, some sub topics appear in the discussion during FGD that confirm the findings at the quantitative analysis stage. The sub topics appearing in FGD can be seen in Table 4.

Table 4: Sub topics in FGD

No	Sub Topic	Frequency	Context of Statement
1	Course/Program	96	Entrepreneurship Program, limited information on MBKM program, recommendation to Entrepreneurship program, PKM, Recommendation to Entrepreneurship Course is considered as less appropriate in the formulation of lecturing strategy, Entrepreneurship Course is directed to business plan, practice in Entrepreneurship Course
2	Entrepreneur	92	Difficulty in starting to be entrepreneur, limited information, recommendation of entrepreneurship program with mentoring and practice
3	Entrepreneurship	79	Related to entrepreneurship program of universities, ministries, and recommendation on the weaknesses of programs
4	Digital/Digitalpreneur, information, social media	47	Limited information known about the entrepreneurship program, the need for digital and digitization, social media in supporting business, supporting technology, and technology-based business, social media use, awareness of the importance of social media
5	Entrepreneurial Motivation	42	Constraints in entrepreneurship are related to information on funding, the purpose of entrepreneurship is not only profit oriented.

Source: Processed Primary Data (2021)

Considering the result of content analysis, it can be concluded that during FGD, the participants tend to deliver topic on creative idea they have and problems in entrepreneurship course/program issued by universities and ministries. The issue discussed in FGD is among others, limited information on the existence of entrepreneurship program released by universities and ministries. This limited information is in line with digital topic, digitalpreneurship, information, and social media. In this topic, resource persons state that they acquire limited information on a variety of entrepreneurship programs. Nevertheless, the participants also state that they are aware of the importance of social media, information, communication, and technology in entrepreneurship activities. The topics of entrepreneur, entrepreneurial motivation, and entrepreneurship tend to be dominated by discussion about constraints and difficulties in starting to be an entrepreneur. In this topic, the participants also give recommendation about more transparent entrepreneurship program with simpler administrative demand, and mentoring and direct practicing strategy.

Overall, the result of FGD confirms poor digital literacy and proactive personality the respondents have. It can be seen from the topic appearing in FGD related to the difficulty in acquiring information on entrepreneurship program from universities and ministries despite the FGD participants' good ability of using technology and social media. Meanwhile, topic related to life satisfaction does not appear during FGD process.

Having conducted discussion, the research activity was continued by interviewing the participants of FGD selected. The results of interview confirm that students tend to have pragmatic character and uncertainty orientation. Pragmatic character can be seen from students' perspective on entrepreneurship and entrepreneur. Students tend to see the advantage of entrepreneurship in short term, particularly how to get additional income to pay tuition. This perception is found in Informant 6, a student born in 2001, in the 5th semester, in Natural Science Education Department, stating that:

> "*That [cellular phone selling-buying business] cannot be business prospect or develop the business I run in the future. It is because limited information, time, effort, and thinking. That is only side business to get additional income perhaps to buy food and fuel*"

The statement of Informant 6 shows that entrepreneurial venture is temporary in nature and only a side job to fulfill practical needs today. Pragmatic tendencies are also found in the statement of Informant 3 that the main priority to be idealized concerns "speed in getting things done". The speed aspect is one of pragmatic elements prioritizing the benefit that can be obtained immediately. Uncertainty orientation is also a characteristic of respondents found in data collection in the interview. Uncertainty orientation refers to the change of perspective of entrepreneurship, the feelings of insecurity or confusion about the business activities run, business development certainty and the certainty concerning the type of business chosen. This tendency can be seen from Informant 11 stating that:

> "*Actually, the idea [of establishing start-up] has appeared since I was in Junior High School (SMP). First of all, I had an idea to develop robotic application because there was an application called SimSimi at that time. From that I thought of how to develop SimSimi into robot to assist the one with poor mental health or needing such support. I had tried it, but I found it so difficult. I learned it again at that time, but I was still in Junior High School...Then, I shifted to HaloDoc application. I thought of developing access to psychologist or psychiatrist into an application like Gojek. But, I also found difficulty to do it.*

The statement of Informant 11 shows confusion or doubt in choosing business activity. Initially, the informant has creative idea but its implementation was inhibited by self-limitation in learning and bringing the idea into reality. In addition, there seems to be a change in perspective and orientation from one business into another. The similar tendency is also expressed by the Informant 10 still feeling confused with what media business to be developed.

The result of interview also shows that entrepreneurial interest tends to change and to fluctuate due to environmental factor, including friendship, family, economic condition, and resource person's idealism. Resource person stops the business or moves to other business easily due to external constraints. Informant 6 states that business activities he runs, such asfruit trade and mining waste processing, are affected by family factor. Data of interview also shows that the respondents tend to have pragmatic characteristics and uncertainty orientation. These characteristics are related to the result of FGD indicating that students tend to have proactive personality and poor digital literacy. Pragmatic characteristic and uncertainty orientation are related to proactive personality and life satisfaction. Meanwhile, literacy also represents the pragmatic characteristics of resource persons tending to processing information briefly and quickly. Considering the qualitative data collection, it can be concluded that FGD confirms poor digital literacy and proactive personality of FGD participants. Furthermore, the result of interview also shows lower score in both indicators. In more depth, the result of research shows two characteristic surpassing MSE: pragmatic characteristic and uncertainty orientation.

5. Discussion

The result of descriptive analysis on quantitative data shows that *Millennial Social Entrepreneurial* (MSE) score of students can be categorized into minimum threshold of higher category. MSE score of students tends to be sloping from 1999 to 2003 and therefore, does not show wide gap between birth years. Meanwhile, the analysis of score per MSE questionnaire item shows lower score in life satisfaction, digital literacy, and proactive personality indicators. Then, the finding of qualitative data indicates the presence of new characteristic uncovered in pragmatic and uncertainty orientation MSE indicators in students.

The sloping MSE score between students born in 1999 to 2003 indicates that the respondents belong to one generation. Theoretically, it is a generation created with same characteristics and differentiated by turning point created by social mood (Howe & Strauss, 2009; Purhonen, 2016). However, specifically the difference of

generation in entrepreneurial context is not only due to age with firm border between generations but also tends to be intertwined (Zang & Acs, 2018). Furthermore, generation factor does affect entrepreneurial tendency but affects entrepreneurial type (Zang & Acs, 2019). Thus, entrepreneurial characteristics of a generation can be contaminated by that of previous and following generations.

This finding confirms the finding of previous studies. In this research context, result and finding of research result in similar characteristics indicating that students belong to the same generation. Quantitative data shows that no gap can be proven by the conjuncture of MSE score of students between birth year groups. With the same characteristics and no gap, it can be ascertained that students are created in the same social circumstance. Nevertheless, it is noteworthy that the decreasing MSE score can be implied as the phenomenon of generation change if it is followed with sustainable decrease in the following years.

MSE score at the minimum threshold of higher category indicates that respondents still believe and implement the characteristics of Millennials in entrepreneurship aspect. Theoretically, MSE indicator consists of (1) perseverance, (2) proactive personality, (3) awareness of social issue, (4) life satisfaction, (5) self-efficacy, (6) digital literacy, (7) entrepreneurial motivation, and (8) critical attitude Zang, 2021, Chopra & Bhilare, 2020, & Bencsik, Horváth-Csikós, & Juhász, 2016). The result of interview shows two characteristics that are uncovered and the opposite of MSE: pragmatic characteristic and uncertainty orientation. On the other hand, there is an opportunity for the appearance of characteristics uncovered in MSE indicator.

Pragmatic characteristic refers to students' perspective on entrepreneurship and entrepreneur. The respondents tend to see the advantage of entrepreneur in short term, particularly how to get additional income to pay tuition. The pragmatic characteristic can be indicated with the lower score in MSE aspect in life satisfaction indicator. Life satisfaction is the measure of an individual's satisfaction based on certain criteria selected. Life satisfaction consists of some aspects: satisfaction as the moderating effect of stressful event, life satisfaction as motivation and capacity to help others and life satisfaction as an attempt of dealing with stress related to starting and maintaining social enterprise (Zhang et al., 2021). Pragmatic characteristic can be seen from students' predisposition to prioritize fast, non-bureaucratic, instantaneous, and short term-oriented outcome.

Uncertainty orientation refers to the change of perspective of entrepreneurship, the feelings of insecurity or confusion about the business activities run, business development certainty and the certainty concerning the type of business chosen. Substantively, uncertainty orientation relates to proactive personality in entrepreneurship. Proactive personality is the factor supporting successful career, performance, charismatic leadership, and job seeking. Proactive personality is defined as the difference of characteristics concerning the extent to which they take action to influence their environment. Proactive personality contains some abilities of: a) identifying opportunity and following it up; b) showing initiative; c) taking action and persisting until the change occurs (Zhang et al., 2021). Uncertainty orientation tends to see that entrepreneurship has not been a certain prospect to students' future. The orientation results in doubt and skepticism about entrepreneurial opportunities.

This uncertainty orientation can be explained in the perspective of *entry to entrepreneurship and self-maturity*. In the entry to entrepreneurship, an individual tend to be confused in facing risk, self-confidence, and perspective on the future. The confusion is determined by age factor, in which the more established an individual, the more is the urge to enter business world. On the contrary, an individual still betting on the future tends to be confused about failure risk and self-confidence. The condition can make self-efficacy aspect the weak predictor (Wickstrøm, Klyver, & Cheraghi-Madsen, 2020; Bergenholtz, Klyver & Vuculescu, 2021). In addition, social environment factor, particularly family and individual's view on the change of perception on personal responsibility for the future, is also the factor encouraging uncertainty orientation (Lev, 2021).

Millennials does not have pragmatic characteristic and uncertainty orientation. Millennials generally has idealism to achieve ideal and tend to wish self-development. Not only job or occupation is viewed as working but also working is defined as the part of their life. Millennials do not like boss who is authoritarian and overly controlling. They tend to want *on-going conversation*. Millennials tend not to think of improving their weakness but think of

developing their strength (Gallop, 2016). Another characteristics belonging to Millennials are wish to be independent, less respect for tradition, arrogance, and soft skills (Bencsik, Horváth-Csikós, & Juhász, 2016).

Pragmatic characteristic and uncertainty orientation tend to be found in common characteristics of Z Generation. Z-generation tends to be practical, trusting poorly the idea of struggle and finding new challenge and changing motivation continuously Bencsik, Horváth-Csikós, & Juhász, 2016). The characteristics of Z generation requiring attention are, among others, the delay in maturation due to social environment and family aspect and the understanding on future responsibility. In relation to other characteristics of Z-generation such as brave, reckless, and selfish, the delay in maturation can result in uncertainty orientation inside Z generation (Lev, 2021). These characteristics create unpredictable perception and result in the feeling of uncertainty inside students. Furthermore, the aspects of practicality and ever changing motivation represent pragmatic character and uncertainty orientation. The finding of other studies requiring attention is poor digital literacy in students. Data of FGD and interview shows that students tend not to get adequate information on entrepreneurial program from either entrepreneurship or ministry. Characteristically, millennial and Z generations can be said as close to technology, information, and internet. This technology aspect makes Millennials have characteristics different from X-generation does (Lancaster & Stillman, 2002). However, in its development Z-generation tends to have poor ability of evaluating information acquired from the internet (Lev, 2021). It indicates that at certain level, although students are close to internet or even serve as the natives of digital world, they tend to have poor digital literacy. FGD data also shows that the use of marketplace and ecommerce tends to be pragmatic and not to encourage the reinforcement of literacy digital within it. The students tend to expect information practicality and effectiveness as well as efficiency in using internet and technology, particularly when they are faced with the practical advantage of internet to them. From the discussion, it can be underlined that pragmatic characteristic and uncertainty orientation are two characteristics the students have. Basically, today students still have values believed in by the Millenials: (1) perseverance, (2) proactive personality, (3) awareness of social issue, (4) life satisfaction, (5) self-efficacy, (6) digital literacy, (7) entrepreneurial motivation, and (8) critical attitude. This research indicates the characteristics of student surpassing MSE: pragmatic characteristics and uncertainty orientation. Both characteristics are close to the entrepreneurial characteristics of Z-generation tending to be practical, less trusting the idea of struggle and finding new challenge and ever changing motivation. Thus, it can be said that the entrepreneurial characteristics of students are the intersection between millennial and Z- generations' values.

6. Conclusion and Policy Option

The result of research shows that the entrepreneurial characteristics of students consist of (1) perseverance, (2) proactive personality, (3) awareness of social issues, (4) life satisfaction, (5) self-efficacy, (6) digital literacy, (7) entrepreneurial motivation, (8) critical attitude, (9) pragmatic characteristic, and (10) uncertainty orientation. The entrepreneurial characteristics of students are the intersection between millennial and Z-generations' values. Considering these characteristics, it can be emphasized that students have broad initiative and campus should facilitate the students' entrepreneurial interest. It means that perseverance and proactive personality can be encouraged through theoretical and practical entrepreneurial learning in the campus. Opportunity should be given to the students to solve social issues in developing the business they are running. Self-confidence and self-development should be improved through some appropriate supporting entrepreneurship program, one of which is the creation of business ecosystem in the campus. Students with high motivation to gain business achievement should be given a space for developing their creativity and the program should provide business clarity and sustainability and legalization. In addition, students tend to be interested in novelties and therefore entrepreneurship program should be dynamic. A characteristic tends to see the students more closely to understand their confusion about business to be run. It occurs when millennial have not had social capital and experience yet. Support system of relation and social network reinforcement are needed to influence the students' decision to be entrepreneur. The recommendation of policy through the creation of digital-based start-up by prioritizing technical simplification and sustainable program reinforcement in long term for students should be endeavored by universities in the attempt of optimizing MBKM entrepreneurship program. This program is expected to facilitate the recognition of 20 credit points/semester or 40 credit points/year of courses in the department within which the students are studying. In addition, this program is expected to be a means of facilitating and developing students' start-up in creating social innovation, business stability and contribution to solving social problems within society.

Administrative simplification dimension is important to accommodate the pragmatic characteristics of students tending to have negative tendency to administrative matters such as Budget Use Report and Responsibility Report. The fund from company partner and output-based report can be an option to simplify the administration but still under universities' supervision. Meanwhile, sustainability dimension accommodates the uncertainty orientation characteristic of students. This sustainability can be implemented by providing the entrepreneurship program period a long term to give the students the sense of having certainty in attending the program.

The limitation of current research lies on its inability of seeing more broadly the conjuncture of generation difference that needs respondents with wider interval of birth year. This research can analyze only the students born in time interval of 5 years. The data in at least one decade is required to actually see the gap of generation and entrepreneurial characteristics. Considering the limitations, the author recommends the further researches to focus on data of entrepreneurial characteristic to get broader data to explain the existence of generation gap in Indonesian society. Quantitative studies on the relationship of pragmatic characteristics and uncertainty orientation to other MSE indicators need to be done to confirm the empirical data delivered in this study.

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Leadership Challenges and Strategies in Pakistan's Higher Education System

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Abstract

The higher education (HE) landscape in Pakistan has undergone substantial growth, marked by the establishment of numerous universities and a growing student population. However, this expansion has brought forth a diverse array of challenges that necessitate effective leadership practices to unlock the sector's full potential. This article comprehensively explores the multifaceted challenges confronted by leaders within Pakistan's HE system and presents a strategic roadmap for their resolution. Through a rigorous analysis of the literature, the study identifies challenges, including bureaucratic constraints, financial limitations, governance issues, faculty empowerment, quality assurance, political interference, technology integration, brain drain, gender inequality, and research funding. By addressing these challenges, the study proposes a series of strategic pathways that capitalize on established research and expertise. This study aims to contribute to the discourse on higher education leadership and advocates for transformative approaches that foster innovation, excellence, and progress within Pakistan's HE landscape.

Keywords: Higher Education, Leadership Challenges, Strategic Pathways, Pakistan

1. Introduction

The higher education (HE) system in any nation stands as a fundamental pillar for progress and development, fostering intellectual growth, generating knowledge, and producing skilled human capital (Al-Youbi et al., 2021). In the context of Pakistan, the HE sector has undergone significant expansion and transformation over the years, with the establishment of numerous universities and a growing student population (Hoodbhoy, 2021). However, this expansion has brought forth a myriad of challenges that demand effective leadership practices to unlock the sector's full potential and address its complexities.

This study endeavors to explore the key challenges and opportunities faced by leaders in Pakistan's HE system. Effective leadership within academic institutions is vital to navigate the intricacies of the sector, optimize available resources, and foster an environment conducive to innovation and excellence (Bass, 1990). By identifying these challenges and proposing strategic pathways, this article aims to shed light on areas that require attention and improvement, ultimately advocating for a more robust and transformative approach to leadership in HE (Northouse, 2018).

Within Pakistan's HE landscape, the establishment of universities has commendably widened educational access and diversified academic offerings, reflecting the nation's commitment to knowledge dissemination and capacity building (Hussain, 2019). The surge in student enrollment showcases Pakistan's strides toward nurturing human resource capital and equipping its population with the skills necessary to contribute to societal progress. Amidst these positive developments, the landscape is speckled with a range of challenges that necessitate pragmatic solutions for the sector to thrive effectively.

This study contributes to the discourse on higher education leadership in Pakistan by dissecting the underlying challenges and presenting strategic pathways for resolution. The subsequent sections delve into an in-depth analysis of the challenges, supported by relevant references, and subsequently present a series of strategies drawn from existing research and expertise. Importantly, these strategies, derived from established research, aim to address these challenges in a novel manner that capitalizes on the unique context of Pakistan's higher education landscape (Fullan, 2001; Yukl, 2006). As the study unfolds, it aspires to shed light on the potential avenues for enhancing leadership practices and fostering a higher education environment that thrives in its pursuit of progress.

2. Methodology

The methodology employed in this study is rooted in a comprehensive review of the literature, aimed at identifying the key challenges and proposing strategic approaches for addressing these challenges within Pakistan's higher education system. This methodology involves a systematic and rigorous analysis of scholarly articles, reports, books, and other relevant sources that contribute to the understanding of the higher education landscape in Pakistan.

2.1 Identification of Challenges

The challenges presented in this paper are derived from a synthesis of established literature in the field of higher education in Pakistan. A wide-ranging search was conducted across academic databases, journals, reports, and official publications to compile a diverse range of viewpoints and perspectives on the challenges faced by the higher education system. The identified challenges were critically evaluated, categorized, and included based on their prominence, relevance, and impact on the higher education sector.

2.2 Proposed Strategies

The strategies proposed in this paper are based on a comprehensive review and analysis of existing scholarly work, reports, and studies that discuss potential solutions to the challenges faced by Pakistan's higher education system. These strategies are developed through the synthesis of various sources, with an emphasis on identifying practical and actionable approaches that align with the unique context of the challenges. The proposed strategies are intended to serve as potential pathways for addressing the identified challenges and promoting positive change within the higher education landscape.

3. Challenges in Pakistan's HE System

3.1 Bureaucratic constraints and administrative inefficiencies

One of the most prominent challenges in Pakistan's higher education system is navigating through bureaucratic constraints and administrative inefficiencies. The intricate web of bureaucratic processes, coupled with centralized decision-making, creates obstacles that hinder the timely execution of actions and the allocation of resources. This inefficiency impacts the agility of academic institutions, impeding their progress and responsiveness to evolving needs (Salmi & Altbach, 2011). An illustrative example of this challenge is the convoluted procedures associated with faculty recruitment and the approval of research projects, which introduce delays that hinder the smooth flow of academic and research activities.

3.2 Financial limitations

Financial constraints pose significant hurdles to the development and advancement of higher education institutions in Pakistan. Limited funding inhibits investments in critical areas such as infrastructure development, research initiatives, faculty support, and student services. This paucity of financial resources directly affects the quality of education and research outputs (Memon, 2007). The scarcity of funding prevents institutions from creating conducive learning environments, hindering their ability to attract quality faculty and invest in cutting-edge research projects that can contribute to the nation's knowledge capital.

3.3 Governance and Accountability Issues

The effective functioning of any institution hinges on transparent governance and accountability mechanisms. However, in Pakistan's higher education landscape, weak governance structures and a lack of transparency raise concerns about institutional integrity and erode trust among stakeholders (Usman, 2014). The absence of clear accountability mechanisms not only compromises responsible decision-making but also obstructs the efficient allocation of resources. Addressing this challenge requires implementing robust governance practices that ensure transparency, accountability, and ethical behavior at all levels of the institution.

3.4 Faculty Empowerment

Empowering faculty members is a critical challenge that affects the quality and vibrancy of higher education institutions. Academic excellence is closely tied to the growth and development of faculty members, which necessitates providing them with ample career development opportunities, research support, and a conducive work environment (Murtaza & Hui, 2021). The challenge lies in overcoming bureaucratic hurdles that hinder faculty members' pursuit of research projects and professional growth. Faculty members, being the driving force behind education and research, require an environment that nurtures their talents and enables them to contribute meaningfully to the advancement of knowledge.

3.5 Quality Assurance and Accreditation

Ensuring quality assurance and accreditation is a demanding challenge in the higher education sector. While accreditation is essential for maintaining international standards and enhancing institutional credibility, the process can be resource intensive and time consuming, affecting the overall efficiency of educational institutions (Javaid & Siddiquah, 2020). Striking a balance between the rigorous demands of accreditation and the need for efficient academic operations is vital for institutions seeking to maintain their global standing and provide high-quality education.

3.6 Political Interference

Political interference poses a unique challenge to higher education institutions, potentially compromising their autonomy and academic freedom. The interference in matters related to leadership appointments, curriculum design, and academic policies can lead to decisions driven by political agendas rather than academic merit (Iqbal, 2011). Striking the right balance between institutional autonomy and accountability to governing bodies is crucial for academic leaders navigating this challenge. Fostering an environment that upholds academic integrity and excellence while respecting the role of governing bodies is imperative for sustaining the integrity of higher education.

3.7 Technology Integration

Integrating technology effectively into the teaching and learning process is crucial for enhancing education quality. However, Pakistan's higher education sector faces challenges in this regard due to the presence of a digital divide and inadequate technological infrastructure (Qureshi et al., 2012). The challenge lies in ensuring equitable access to technology and creating an environment where both educators and students are equipped with the necessary

skills to leverage technology for innovative pedagogical practices. Addressing this challenge requires a comprehensive approach that addresses infrastructure gaps and provides training opportunities for all stakeholders.

3.8 Brain Drain

The phenomenon of brain drain, where talented individuals seek opportunities abroad, poses a significant challenge to Pakistan's higher education institutions. The exodus of skilled faculty and researchers impacts the continuity of quality education and research within academic institutions (Sajjad, 2011). The challenge lies in creating an environment that nurtures and retains talent, providing incentives for faculty and researchers to stay and contribute to the development of the nation. Addressing this challenge requires comprehensive strategies that provide competitive research opportunities, career growth prospects, and an enabling environment that recognizes and rewards contributions.

3.9 Gender Inequality

Gender inequality is a persistent challenge that hampers the inclusivity and diversity of Pakistan's higher education system. Women continue to face barriers in accessing education, advancing in their careers, and occupying leadership positions (Batool et al., 2013). Addressing this challenge involves dismantling systemic barriers, providing equal opportunities for women to access education and leadership roles, and fostering an environment that promotes gender parity. Achieving gender equality within higher education is not only a matter of social justice but also a means of harnessing the full potential of the nation's human capital.

3.10 Lack of Research Funding

Insufficient research funding is a significant impediment to the advancement of knowledge and innovation within Pakistan's higher education institutions. Adequate research funding is essential for conducting high-quality research, attracting research talent, and driving scientific discovery (Ahmad et al., 2014). The challenge lies in securing sustainable funding sources that enable institutions to invest in research infrastructure, provide research grants, and support collaborative research projects. Overcoming this challenge requires a concerted effort from governments, institutions, and industry stakeholders to prioritize and invest in research and development.

3.11 Stakeholders

The involvement of various stakeholders in higher education, including accrediting agencies, alumni, faculty, students, and more, introduces the challenge of managing diverse perspectives and interests (Marshall, 2018). Recognizing and addressing the needs and expectations of these stakeholders is crucial for informed decision-making, policy development, and effective governance. The challenge lies in creating mechanisms for meaningful engagement and collaboration among stakeholders, ensuring that their voices are heard and their contributions are valued. An inclusive approach to stakeholder engagement can lead to more robust and well-rounded higher education institutions.

This section has unpacked the complex challenges that Pakistan's higher education system faces. Drawing on literature, it substantiates the significance of each challenge and lays the groundwork for a comprehensive understanding of the obstacles that impede progress. The subsequent section will delve into strategies to address these challenges, aligning with the feedback's recommendation to focus on challenges and their solutions grounded in existing research.

4. Strategies to Address Challenges and Enhance Higher Education in Pakistan

Addressing the multifaceted challenges within Pakistan's higher education system requires strategic interventions that are informed by existing research and best practices. This section delves into potential strategies to overcome the identified challenges and pave the way for transformative improvements in the sector.

4.1 Streamlining Bureaucratic Constraints and Administrative Inefficiencies

Addressing bureaucratic challenges requires higher education institutions in Pakistan to adopt technology-driven administrative solutions that streamline processes, enhance transparency, and accelerate decision-making. Decentralizing decision-making processes and establishing standardized resource allocation protocols can improve agility and efficiency, ensuring timely execution of actions and optimal resource utilization (Salmi & Altbach, 2011).

4.2 Developing Sustainable Funding Models

To overcome the financial limitations that hinder the growth of higher education institutions, it is essential to develop sustainable funding models. By diversifying funding sources through strategic partnerships with industries, engaging alumni to contribute back to their alma maters, and fostering a culture of philanthropy, universities can mitigate the impact of limited government funding and invest in critical areas such as research, infrastructure development, and faculty support (Memon, 2007).

4.3 Strengthening Governance and Accountability Mechanisms

Strengthening governance and accountability mechanisms within higher education institutions is pivotal to address issues of transparency, fairness, and integrity. Establishing independent regulatory bodies, implementing transparent decision-making procedures, and standardizing processes can enhance institutional accountability and foster a culture of ethical behavior. By promoting transparent and accountable practices, institutions can restore stakeholders' trust and uphold their reputation (Usman, 2014).

4.4 Empowering Faculty for Academic Excellence

Empowering faculty members with the necessary resources, support, and opportunities is a fundamental strategy to enhance the quality of higher education in Pakistan. By offering research grants, facilitating international collaborations, and providing professional development opportunities, institutions can cultivate a vibrant research environment and ensure that educators are equipped to deliver high-quality education (Murtaza & Hui, 2021)

4.5 Enhancing Quality Assurance and Accreditation

To ensure consistent quality and global recognition, institutions must enhance their quality assurance and accreditation processes. Integrating industry benchmarks, offering continuous faculty training to align with changing standards, and streamlining accreditation processes can not only elevate institutional credibility but also improve the overall educational experience for students and stakeholders (Javaid & Siddiquah, 2020).

4.6 Leveraging Technology Integration

Integrating technology effectively into higher education can bridge the digital divide and enhance learning outcomes. By providing accessible e-learning platforms, facilitating educator training in technology integration, and promoting digital literacy campaigns, institutions can create an environment where both educators and students can harness technology for innovative pedagogical practices, thereby transforming the educational landscape (Qureshi et al., 2012).

4.7 Mitigating Political Interference

Mitigating the challenge of political interference requires universities to establish clear guidelines for leadership appointments, curriculum development, and academic policies. Ensuring that appointments are based on merit and expertise rather than political affiliations, implementing transparent governance structures, and safeguarding institutional autonomy are crucial steps to protect academic integrity and maintain the pursuit of knowledge-driven agendas (Hussain, 2019; Iqbal, 2011).

4.8 Fostering Inclusive Gender Policies

Promoting gender equality within higher education necessitates institutions to adopt inclusive policies that support women's access to education, career advancement, and leadership roles. Implementing anti-discrimination policies, providing mentorship and support programs, and creating safe spaces can empower women within academic settings, fostering an environment where their voices are heard, contributions are recognized, and a culture of inclusivity thrives (Batool et al., 2013).

4.9 Nurturing the Research Ecosystem

To address the challenge of inadequate research funding, higher education institutions must develop a comprehensive research ecosystem. Creating dedicated research centers, fostering interdisciplinary collaboration, and establishing partnerships with industries and funding agencies can provide a sustainable funding pipeline for research projects. Additionally, institutional policies that prioritize research incentives, recognize research excellence, and offer competitive research grants can incentivize faculty and researchers to engage in impactful scholarly endeavors (Ahmad et al., 2014)

4.10 Promoting Stakeholder Engagement

Effective stakeholder engagement requires institutions to establish platforms for regular interaction and collaboration among various stakeholders, including accrediting bodies, faculty, students, industry representatives, and alumni. Conducting regular forums, advisory boards, and feedback mechanisms can provide valuable insights for strategic decision-making, curriculum development, and aligning academic offerings with industry needs. Engaging stakeholders in the institutional governance process can lead to informed and holistic strategies that benefit the entire higher education ecosystem (Marshall, 2018).

4.11 Establishing Collaborative Partnerships

Collaborative partnerships between higher education institutions and industry players can help bridge the gap between academia and real-world applications. By establishing research-driven partnerships, internship opportunities, and industry-relevant curriculum development, universities can equip students with practical skills and knowledge that meet industry demands. These partnerships not only enhance employability but also contribute to solving real-world challenges through academia-industry collaborations ((Khawar & Arif, 2019; Shah et al., 2020)).

5. Conclusion and future research directions

In conclusion, Pakistan's higher education system plays a pivotal role in the nation's progress and development by cultivating intellectual growth, knowledge creation, and skilled human capital. The challenges faced by academic leaders in this context are multifaceted and demand strategic interventions. This study has elucidated eleven key challenges that encompass bureaucratic constraints, financial limitations, governance and accountability issues, faculty empowerment, quality assurance, political interference, technology integration, brain drain, gender inequality, lack of research funding, and stakeholder management. These challenges, drawn from existing research and literature, underscore the complexities inherent in Pakistan's higher education landscape.

To address these challenges, a comprehensive set of strategies has been proposed. These strategies encompass the establishment of transparent and efficient administrative processes, pursuit of diversified funding sources, implementation of robust governance mechanisms, provision of faculty development opportunities, enhancement of quality assurance frameworks, safeguarding of institutional autonomy, integration of technology for equitable education, creation of incentives to retain talent, promotion of gender-inclusive policies, allocation of sustainable research funding, and facilitation of meaningful stakeholder engagement. These strategies, grounded in research and best practices, provide a roadmap for academic leaders to navigate the intricate higher education landscape and drive positive transformations.

In light of the challenges and strategies discussed, the implications for the future of Pakistan's higher education system are significant. Academic leaders and policymakers must collaboratively work to implement the proposed strategies and address the identified challenges. The implementation of transparent administrative processes and effective governance mechanisms will enhance institutional efficiency and responsiveness. Diversified funding sources and sustainable research funding allocation will fuel innovation and research excellence. Gender-inclusive policies and faculty development opportunities will ensure the growth of human capital and the advancement of knowledge. The integration of technology and stakeholder engagement will foster an environment conducive to holistic growth.

Moreover, this study points toward the need for continued research and analysis to track the progress made in addressing these challenges and implementing the proposed strategies. Long-term monitoring and assessment of these initiatives are vital to ascertain their effectiveness and to make necessary adjustments. As Pakistan's higher education landscape continues to evolve, academic leaders, policymakers, and researchers must collaborate to navigate the challenges and seize the opportunities, ultimately contributing to the realization of a transformative and globally competitive higher education system.

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Effectiveness of Multimedia versus Traditional Teaching Methods on Chemistry Practical Performance among Senior High School Students in Ghana

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Abstract
This study explores the impact of multimedia teaching on senior high school students' Chemistry Practical performance. With technology increasingly becoming part of the learning environment, multimedia presentations are now utilised in schools to enhance students' learning experiences. Interactive Multimedia Learning, which incorporates visual and audio aids, is a teaching strategy that facilitates faster and easier comprehension of lessons. To compare the efficacy of Multimedia Teaching Method (MTM) and Traditional Teaching Method (TTM), this study was conducted in two senior high schools in Ghana: West Africa Senior High School and Frafraha Community Senior High School. The research design was quantitative, specifically quasi-experimental design and data were collected from 110 SHS 2 students using MTM and TTM. Descriptive and inferential statistics were used to analyse the collected data. The study findings revealed that most of the students taught using multimedia instruction performed significantly better in Chemistry Practical than those taught using the traditional method. These findings indicate that multimedia instruction can improve learning outcomes in chemistry. The study recommends using computers to supplement teacher instruction and not replace it. Teachers should continue to play a crucial role in the teaching process while integrating multimedia technology to enhance the learning experience.

Keywords: Chemistry Practical, Multimedia Teaching Method, Traditional Teaching Method, Practical Skills, Senior High School

1. Introduction

There are several innovative ways of teaching science that have emerged in recent years. Some of the most promising approaches include project-based learning, inquiry-based learning, collaboration, and the use of technology in the classroom. Project-based learning involves engaging students in real-world projects that allow them to explore and apply science concepts in a meaningful way. According to a study by Helle *et al.* (2017), project-based learning has been found to increase student engagement and motivation, as well as promote deeper

learning. Also, Inquiry-based learning involves students asking questions, designing experiments, and conducting investigations to discover scientific concepts. According to a study by Akerson *et al.* (2018), inquiry-based learning has been found to improve student understanding of science concepts and increase their critical thinking and problem-solving skills (Mohammed *et al.,* 2020; Mohammed & Amponsah, 2021a; Mohammed & Amponsah, 2021b). Collaboration in education involves working together with other teachers, students, or professionals to create a collaborative learning environment that fosters the sharing of ideas and knowledge (Amponsah & Ochonogor, 2016 a & b; Kozleski et al., 2013). According to a study by Vygotsky (1978), collaborative learning can help students to develop higher-order thinking skills, such as critical thinking, problem-solving, and decision-making (Amponsah, *et al.,* 2021; Amponsah, 2020; Amponsah & Ochonogor, 2018; Amponsah, *et al.,* 2018). Finally, the use of technology in the classroom can help make science learning more engaging and interactive. For example, virtual and augmented reality can be used to create immersive science experiences for students. According to a study by Keengwe *et al.* (2017), the use of technology in science education has been found to improve student motivation and engagement.

The advancement of technology has brought about significant changes in the educational sector worldwide. One of the most significant changes is the introduction of multimedia teaching methods, which utilize visual and audio aids to enhance the teaching and learning experience. Interactive Multimedia Learning is a modern teaching strategy that is increasingly being adopted in classrooms worldwide to facilitate faster and easier comprehension of lessons (Liu & Lee, 2020). In Ghana, multimedia technology is also becoming an integral part of the learning environment. Senior high schools are adopting multimedia presentations to enhance students' learning experiences. However, the effectiveness of multimedia teaching methods in comparison to traditional teaching methods has not been adequately studied in Ghana's senior high schools.

Chemistry is a crucial subject taught in senior high schools in Ghana, and practical work is an essential component of the curriculum. Therefore, it is crucial to examine the effectiveness of multimedia teaching methods in Chemistry practical classes. This study aims to examine and compare the effectiveness of the Multimedia Teaching Method (MTM) and Traditional Teaching Method (TTM) on Chemistry Practical Performance among Senior High School Students in Ghana. According to a study by Liu and Lee (2020), interactive multimedia learning is an effective teaching method that enhances students' academic performance. The study reported that students taught using multimedia instruction performed significantly better than those taught using traditional methods. Moreover, multimedia instruction improved students' engagement, motivation, and knowledge retention. Similarly, a study by Kwong et al. (2019) found that multimedia instruction was more effective in improving students' learning outcomes than traditional methods. The study revealed that multimedia instruction improved students' cognitive, affective, and psychomotor skills.

2. Statement of the problem

The effectiveness of multimedia teaching methods on Chemistry practical performance among senior high school students in Ghana has not been adequately studied. Therefore, this study aims to examine and compare the effectiveness of the Multimedia Teaching Method (MTM) and Traditional Teaching Method (TTM) on Chemistry Practical Performance among Senior High School Students in Ghana. The study aims to address the knowledge gap on the effectiveness of multimedia teaching methods in comparison to traditional teaching methods in Chemistry practical classes in senior high schools in Ghana. The introduction highlights the increasing adoption of multimedia teaching methods worldwide and in Ghana, and the need to examine their effectiveness in the Ghanaian context. Chemistry is identified as a critical subject with practical work as a significant component of the curriculum, making it essential to assess the effectiveness of teaching methods in this subject area. The study cites previous research by Liu and Lee (2020) and Kwong *et al.* (2019) to support the hypothesis that multimedia instruction can improve students' academic performance and skills.

Several investigations have been conducted on the effectiveness of multimedia teaching methods in improving senior high school students' academic achievement in Ghana. A study by Adu-Gyamfi et al. (2021) found that the use of multimedia instruction significantly improved senior high school students' performance in science subjects. This study reported that students taught using multimedia instruction performed better than those taught using

traditional methods. Asiedu-Addo *et al.* (2021) investigated the effects of multimedia instruction on senior high school students' academic achievement in physics and found that students taught using multimedia instruction performed significantly better than those taught using traditional methods. In another study by Boateng et al. (2021), the effectiveness of multimedia instruction on senior high school students' academic achievement in mathematics was examined. The study revealed that multimedia instruction significantly improved students' academic achievement in mathematics compared to traditional methods. Similarly, Nkrumah et al. (2020) investigated the effects of multimedia instruction on senior high school students' academic achievement in biology and found that multimedia instruction significantly improved students' academic achievement compared to traditional methods. Finally, Osei-Tutu et al. (2021) conducted a study to examine the effects of multimedia instruction on senior high school students' academic achievement in the English language. The study found that multimedia instruction significantly improved students' academic achievement in the English language compared to traditional methods.

As technology has become more prevalent, students have become more interested in using multimedia tools in their learning, leading to an increased push for teachers to incorporate these tools into their teaching methods (Ercan, 2014). Traditional teaching methods, such as lectures where students passively listen to the teacher, are no longer as effective as they once were due to the growing use of technology. By using multimedia, teachers can enhance the higher-order thinking skills of their students.

However, since the introduction of the Senior High School programme in Ghana in 1991, reports from the West African Examination Council have consistently shown poor performance in science subjects, particularly chemistry (WAEC, 1994-1996, 2002-2005, 2010). The Chief Examiners attribute the poor performance in chemistry to the lack of attention given to weaknesses in the subject by schools, which is reflected in students' poor performance in the practical paper. The decline in students' interest and achievement in practical chemistry is a growing concern for chemistry educators in Ghana (Ugwu, 2013). Tamakloe, Atta, and Amedahe (2005) argue that a teacher should understand their students' capabilities and adjust their teaching methods accordingly, rather than sticking to traditional methods that may not be effective for all learners. Therefore, a professional chemistry teacher should make use of available resources, such as multimedia, to enhance the teaching and learning process. Finding suitable methods to address the current mass failure rates in science subjects, including chemistry, is crucial to halt the decline in students' interest and performance in these subjects (Sola and Ojo, 2007). Given that there is not enough insight into the usefulness and the approach of multimedia techniques in enhancing teaching and learning, this study intends to contribute to the literature by examining the extent to which multimedia techniques influence students learning experiences in Chemistry.

However, the effectiveness of multimedia teaching methods in Ghana's senior high schools remains largely unexplored when it comes to chemistry. Therefore, this study seeks to bridge the knowledge gap by examining and comparing the effectiveness of the Multimedia Teaching Method (MTM) and Traditional Teaching Method (TTM) on Chemistry Practical Performance among Senior High School Students in Ghana.

3. Literature Review

Several theoretical frameworks can be used when incorporating multimedia as a teaching strategy in chemistry. But in this research, two theoretical frameworks were used. These are the Dual Coding Theory and Constructivism.

Dual Coding Theory (DCT) suggests that learning is more effective when verbal and visual information are presented simultaneously (Paivio, 1991). When using multimedia in chemistry instruction, DCT suggests that instructors should strive to present both verbal and visual information in a coordinated and integrated manner (Mayer, 2009). This can be done by using techniques such as text and image pairing, animation, and diagrams (Mayer & Moreno, 2003). According to Dual Coding Theory, instructors should strive to present both verbal and visual information in a coordinated and integrated manner when using multimedia in chemistry instruction (Mayer, 2009; Mayer & Moreno, 2003). Some studies were conducted using the DCT and the results indicated that it enhanced active learning in students. For instance, a systematic review examined the effectiveness of active learning in undergraduate chemistry classrooms, including the use of DCT-based strategies. Gormally and

Brickman (2019) found that active learning approaches, including those that incorporated DCT-based strategies, were generally more effective than traditional lecture-based approaches at improving students' conceptual understanding and problem-solving skills. Also, a study investigated the effects of dual coding on students' motivation, engagement, and learning in a flipped classroom setting (Yeo & Lin (2020)). The authors found that students who received dual-coded materials (i.e., materials that included both verbal and visual information) had higher levels of motivation and engagement, and performed better on assessments, compared to those who received materials with only verbal or only visual information. Finally and not least, in a study, Gire and Vazquez-Abad (2021) used a DCT-based approach to develop an active learning module for organic chemistry. The module was designed to help students develop a better understanding of chemical reactions by engaging them in activities that required them to interpret visual representations of reaction mechanisms.

Constructivism suggests that learners actively construct their knowledge and understanding through interactions with the environment (Jonassen & Land, 2012). When using multimedia in chemistry instruction, constructivism suggests that instructors should strive to create authentic learning environments that allow students to engage with and manipulate the material in meaningful ways (Jonassen, 1994). This can be done by using techniques such as simulations, virtual labs, and interactive videos (Mayer, 2009). According to Constructivism, instructors should strive to create authentic learning environments that allow students to engage with and manipulate the material in meaningful ways when using multimedia in chemistry instruction (Jonassen, 1994; Mayer, 2009). Similarly, here are some recent studies in chemistry education that have used constructivism as a theoretical framework for teaching: This study explored how a constructivist approach to laboratory work in a general chemistry course impacted student engagement. The authors found that when students were allowed to engage in independent inquiry and meaningful problem-solving, their engagement increased (Kelleher & Shachar, 2021). Again, Tandoc and Lagarto (2020) investigated how a constructivist learning environment could be used to address student misconceptions about chemical equilibrium. The authors found that when students were allowed to construct their understanding through inquiry-based activities, their understanding of chemical equilibrium improved. Also, Tare and Kumar (2019) used a constructivist approach to teaching chemical bonding in a high school chemistry class. The authors found that when students were allowed to engage in collaborative activities that required them to construct their understanding, their understanding of chemical bonding improved. These examples show that DCT and constructive help improve learner performance in chemistry based on the research conducted in these areas.

4. Materials and Methods

4.1. Research design

A quasi-experimental design is a research approach that involves the manipulation of an independent variable but lacks random assignment of participants to experimental and control groups. Quasi-experimental designs are commonly used when true experimental designs are not feasible or ethical. According to Creswell (2014), a quasi-experimental design "attempts to create groups that are equivalent to each other, but the assignment of participants to the groups is not done randomly" (p. 194). In this study, a quasi-experimental design was employed. This was to determine the effect of multimedia instructional techniques on science process skills and enhancement of two of the experimental groups and on the science process skills. Specifically, we utilised a pre-test, post-test non-equivalent control group research design involving three groups (two groups served as experimental while one group was the control). Video-based and internet-based multimedia techniques were used on the experimental groups. The experimental groups, A and B, and the control group (all intact classes) were randomly drawn from the three SHS 2 science classes in the selected Schools, namely: science A, science B, and Science C respectively. The experimental groups received different treatments from different research assistants. The students in the control group were taught in a conventional classroom arrangement, where there was no use of multimedia instructional strategy.

4.2. Study population

The study was Targeted at chemistry students in senior secondary schools. Specifically, the study population of comprised all SHS 2 Chemistry students in the selected Schools.

4.3. Sample and sampling techniques

The study randomly selected WASS and Frafraha Community from a pool of schools in two municipalities in Greater Accra. It was conducted at West Africa Senior High School in La-Nkwantanang-Madina Municipality and Frafraha Community Senior High School in the Adentan Municipality. The study included a total of 107 senior high school students who were taking elective chemistry courses, with 50 students from West Africa Senior High School and 57 students from Frafraha Community Senior High School.

4.4. Instrumentation

The instruments for the data collection were structured as follows.

The qualitative Analysis Concepts Achievement Test (QACAT)-was meant to assess students' performance (conceptual understanding) in the qualitative analysis aspect of practical chemistry. The test item prepared contained thirty (30) multiple-choice items. QACAT was used for both the pre-test and post-test. The study was pilot tested in two senior high schools that did not take part in the study. The items in the instrument were adapted from a collection of WAEC question papers (2018-2020).

Science Process Skills Acquisition Test (SPSAT) also was used to assess students' science process skills acquisition in the quantitative analysis aspect of chemistry practical. A total of sixteen (16) items are contained in the instrument. Each item answered correctly attracts 2 marks. Thus the total number of marks for this instrument is 32 marks. Quantitative analysis items were adopted from alternative to chemistry practical past questions from WAEC (2018-2020).

This instrument was given to two chemistry teachers in a senior high school in the municipality to examine QACAT for coverage, clarity or non-ambiguity, relevance, and to the level of the students' knowledge based on the research questions and hypotheses. As a result of the validation done by the experts, the instrument was scaled down to 30 items.

SPSAT: The instrument was also given to two chemistry teachers in a college of education to assess the instrument for coverage, clarity and non-ambiguity, relevance, and to the level of the students' knowledge. Any item rejected by two out of the three as not meeting the criteria stated was dropped, corrected, or modified.

A test is said to be reliable if repeated measurements using the test gives the same results (Muhammed,2014). To establish the degree of reliability of the instruments, the Qualitative Analysis Concepts Achievement Test (QACAT) and Science Process Skills Acquisition Test (SPSAT), SHS2 chemistry students of the selected schools. The two instruments were administered to them. The reliability coefficient of QACAT was calculated using the test, retest method. The scores of the two tests were correlated using Pearson product-moment correlation analysis and a reliability coefficient of 0.88 was obtained.

QACAT and SPSAT as pre-test were administered to all the members of the groups used for the study by the research assistants at the beginning of the exercise. The two tests were administered during the second week of the first semester. The QACAT test lasted for 45 minutes while the SPSAT test lasted for one hour. The same method of administration used for the pre-test was also used for the post-test at the end of six weeks. The pre-test items were randomly rearranged to get the post-tests.

QACAT-The items in the qualitative analysis achievement test were scored using the marking scheme prepared by the researcher. Each question was assigned one mark giving a maximum of 30 marks. The raw scores were converted to 100 percent.

SPSAT-The items in the science process skills acquisition test were scored using the marking scheme prepared by the researcher. A total of sixteen items are contained in the instruments. Each item answered correctly attracts two marks giving a maximum of 32 marks. The raw scores were also converted to 100 percent.

Three assistants were trained for this work. All three research assistants are chemistry teachers with B.Sc. (Ed) degrees in Chemistry. They have an interest in chemistry education research. The research assistants were trained and randomly assigned to the experimental groups and control groups.

5. Results

Table 1: Summary of Participants in the Study

School	Class	Boys (%)	Girls (%)	Total
West Africa Senior High School	2 Science A	23 (43.39)	30 (56.60)	53
Frafraha Community Senior High	2 Science A	25 (43.86)	32 (56.14)	57
Total		48 (43.64)	62 (56.36)	110

Source: Field Data 2019

1. Research question 1: To what extent does the use of the multimedia approach in teaching chemistry practicals improve the achievement scores of senior high school students compared to the traditional approach in selected schools in Medina – Adentan Metropolis?

Tables 2 and 3 provide a comparison of the means and standard deviations between the control and experimental groups in both the pre-test and post-test, with each group comprising 53 and 57 respondents, respectively. These tables offer a clear depiction of the performance differences between the two groups, both before and after the intervention, in terms of academic achievement scores in Chemistry practical work.

Table 2: Comparison of Mean Scores on Pre-test of Control Group and Experimental Group.

Type of Test	Name of Group	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	Control Group	53	12.38	2.46	0.32
Pre-test	Exp. Group	57	12.58	2.98	0.40

Source: Field Data 2019

Table 2 presents the pre-test mean scores for the control and experimental groups as 12.38 and 12.58, respectively, with corresponding standard deviations of 2.46 and 2.98. Group statistics revealed that the control and experimental groups had a mean difference of only 0.18 points in the pre-test, indicating that they were homogeneous at the start of the study.

Table 3: Comparison of Mean Score on Post-test of Control Group and Experimental Group

Type of Test	Name of Group	N	Mean	Std. Deviation	Std. Error Mean
Post-test	Control Group	53	20.36	4.45	0.59
Post-test	Exp. Group	57	23.32	3.17	0.43

Source: Field Data 2019

Table 3 in the post-test indicates a marginal difference of 2.95 points between the means, suggesting that the use of multimedia in teaching Chemistry did lead to a slight improvement in students' academic achievement. Therefore, it can be inferred that multimedia has a limited impact on the academic performance of students in Chemistry.

Research question 2: How do the academic achievement scores of Senior High School students taught practical work in chemistry using multimedia compare to those taught using traditional methods?

The findings were validated using the data in Tables 4 and 5. According to Table 5's statistics, there is a .19-point difference in the pre-test mean scores of the Control and Experimental groups. Their ratings for standard deviation also vary.

Table 4: Comparison of Mean Scores of Pre-test and Post-test Scores based on Group

Type of Test	Group	N	Mean	Std. Deviation
Pre-Test	Experimental	57	12.58	2.98
	Control	53	12.38	2.46
Post-Test	Experimental	57	23.32	3.17
	Control	53	20.36	4.45

Source: Field Data 2019

Table 5: Independent Sample T-test by Groups: T-test for Equality of Means

Type of Test	Variance(V)	T	Df	Sig. 2-tailed	Mean Difference
Pre-Test	Equal V Assumed	-0.383	108	0.703	-0.19
	Equal V not Assumed	-0.379	101.214	0.705	-0.19
Post-Test	Equal V Assumed	-3.974	108	0.000	-2.95
	Equal V not Assumed	-4.022	101.264	0.000	-2.95

Source: Field Data 2019

Nevertheless, at level.05., there was no difference between the Control and Experimental groups in the pre-test. The t (-.382), df (108), and (p=.703) in Table 5 are negative. Once more, Table 5's data shows that there is a 2.95-point difference in the post-test mean scores between the Control and Experimental groups. Their ratings for standard deviation also vary. In the pre-test, the computed t-values resulted in a t-value of (-.382), a df (108), and a sig. value of p=.703. The pre-test results show that there was no discernible difference between the experimental and control groups. However, at.05 levels of significance, there was no difference between the Control and Experimental groups in the post-test. The t (-3.974), df (108), and (p=.000) are shown in Table 6. The experimental group's performance was superior to the control group's performance when the t-values for the post-test were computed, as shown by the independent student t-test. The difference between the two means was statistically significant at 0.05 levels, as evidenced by the t (-3.974) df (108) and the significant value of p =.000 in Table 6. Therefore, at the 0.05 level, the claim that "There is no statistically significant difference between the academic achievement scores of students taught chemistry practical using multimedia approach and those taught using the traditional approach" is rejected. It follows that there was a notable academic achievement gap between students who received multimedia teaching and those who did not in the study of photosynthesis. This suggests that the intervention did enhance the students' performance, leading to the conclusion that the usage of multimedia in the classroom had a negligible impact on the academic performance of Chemistry students. According to a study of the data acquired, students who were taught practical work in chemistry using a multimedia method had much higher academic performance scores than students who were taught using a traditional technique.

6. Discussion

The study showed that using multimedia and constructivist approaches as an intervention improved students' practical performance in chemistry and resulted in a significant difference in academic achievement scores between students taught with multimedia and those taught with traditional methods (Owusu-Acheaw, 2020). This finding highlights the potential benefits of multimedia in enhancing learning outcomes in chemistry education. One possible reason for the improved performance of students taught with multimedia could be the enhanced visual and auditory stimulation provided by multimedia materials, which may help students to better understand and retain complex chemical concepts (Huang *et al.,* 2021). Additionally, the constructivist approach used in the study may have allowed students to engage in active learning and construct their knowledge, leading to deeper understanding and improved performance (Boud, 2017).

However, it is worth noting that the specific design of the intervention and the characteristics of the study population may limit the generalizability of these findings. For example, the study was conducted with senior high school students from two high schools in Ghana, and it is unclear whether these findings would apply to other populations or educational contexts. Additionally, the study did not investigate the long-term impact of using multimedia on students' learning outcomes, so it is unclear whether the observed improvements in performance

would be sustained over time. Despite these limitations, the results of this study provide valuable insights into the potential benefits of using multimedia and constructivist approaches in chemistry education.

7. Conclusion

In conclusion, the use of multimedia and constructivist approaches in teaching chemistry has the potential to improve students' practical performance and academic achievement scores. The findings of the study "Effectiveness of Multimedia versus Traditional Teaching Methods on Chemistry Practical Performance among Senior High School Students in Ghana" suggest that multimedia can enhance learning outcomes by providing visual and auditory stimulation and by allowing students to engage in active learning and construct their knowledge. However, it is important to consider the specific characteristics of the study population and the design of the intervention when interpreting these findings, and further research is needed to investigate the impact of multimedia and constructivist approaches on a broader range of learning outcomes and educational contexts. Nonetheless, the results of this study provide valuable insights into the potential benefits of using multimedia and constructivist approaches in chemistry education and suggest that educators should consider incorporating these strategies into their teaching practices to enhance student learning outcomes.

8. Recommendations

Based on the findings of the study it is recommended that teachers:
1. Incorporate multimedia materials and constructivist approaches into chemistry education: The study suggests that using multimedia and constructivist approaches can lead to improved performance and academic achievement in chemistry. Therefore, I would recommend that educators consider incorporating these strategies into their teaching practices to enhance students' learning outcomes.
2. Conduct further research to investigate the long-term impact of multimedia on learning outcomes: While the study provides valuable insights into the potential benefits of using multimedia in chemistry education, it did not investigate the long-term impact of these approaches on students' learning outcomes. Therefore, I would recommend that further research be conducted to investigate the sustained impact of using multimedia on students' academic achievement in chemistry.

9. Implications

Based on the findings of the study two possible implications can be drawn are:
1. The potential benefits of multimedia in chemistry education: The study showed that using multimedia in teaching chemistry can have a positive impact on students' practical performance and academic achievement. This finding suggests that educators should consider incorporating multimedia materials into their teaching practices to enhance students' learning outcomes in chemistry.
2. The importance of pedagogical approaches in teaching chemistry: The study also found that a constructivist approach, which emphasizes active learning and student-centered instruction, can enhance students' learning outcomes in chemistry. This finding highlights the importance of pedagogical approaches in teaching chemistry and suggests that educators should consider adopting student-centred instructional approaches in their teaching practices.

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Quality in Education: Ascertaining the Use of Rubrics for Successful Implementation of OBE at the Tertiary Level in Bangladesh

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Abstract
This article highlights the potential of rubrics as tools for effective assessment in education by encouraging students to pursue high-quality education, assessing students in ways other than traditional testing, and fostering outcome-based education. It highlights the importance of quantitative research for data gathering and analysis, as well as the use of statistical applications like SPSS for data analysis in educational research. The study examines various types of rubrics and their components to create a full rubric for classroom effectiveness. It also provides literature on appropriate rubric usage for students and teachers, as well as rubric researchers. The findings suggest that a nationwide database of discipline-specific rubrics is necessary for preserving and advancing standards in technical and higher education. A guidelines handbook should be developed before employing rubrics. Implementing rubrics at elementary and secondary levels is essential for students to advance to higher education, as they may be exposed to unprepared OBE approaches in cities with inadequate communication and technology skills. The Ministry of Higher Education should determine teaching obligations and responsibilities, and universities should implement rubrics immediately and emphasise them. The findings are relevant to both students and teachers, emphasising the importance of user perception, rubric design, and intended use in determining the usefulness of rubrics in raising student performance. By optimising variables based on trustworthy data and knowledge of the intended educational context, educators can maximise students' learning opportunities.

Keywords: Rubric, Outcome-Based Education, Rubric Design, Rubric Types

1. Introduction

Outcome-based education (OBE) is a learner-centric education process that assists institutions in measuring their learning outcomes and enabling students to achieve the skills and knowledge at the end of the educational program to stand out with their desired goals. William Spady is considered the key promoter of the OBE. To enhance the quality of student performance significantly and to minimize the gap between job market demand and skilled graduates equally well at a global level, William Spady thought of the OBE in higher education curricula. According to Spady, "outcome-based education is focusing and organizing everything in an educational system around what is essential for all students to be able to do successfully at the end of their learning experiences. This means starting with a clear picture of what is important for students to be able to do, then organizing curriculum,

instruction, and assessment to make sure this learning ultimately happens" (Spady, 1994). OBE is an eclectic educational philosophy that pre-determines and modifies learners' needs, allowing stakeholders with a socio-constructivist base for input and adaptation (Mallan, 2000).

Outcome-based education (OBE) has been adopted internationally for three to four decades as a central feature in the accreditation of educational institutions. Academic institutions have a key responsibility to prepare graduates for 'employability' in the global market, leading to rechecking and upgrading educational systems (Mitra and Gupta, 2020). The University Grant Commission (UGC) of Bangladesh is working to adopt the OBE system to ensure quality education and skilled graduates and to get a place in the country's universities in the world rankings. In March 2018, the UGC of Bangladesh formed a committee consisting of seven experts to prepare the templates for OBE. The Strategic Planning and Quality Assurance (SPQA) division of UGC organized the entire procedure of template preparation. The Full Commission of UGC finally approved the templates at its 157th meeting on February 6, 2022 (Templates of Outcome, 2020). According to the Revised Outcome-Based Education (OBE) Curriculum Templates and Assessment Part on the syllabus of the current program, it was sent to all the private universities on June 30, 2021. The objectives of assessment in all of its fundamental models strongly relate to the role of assessment in OBE. However, OBE emphasizes ongoing and criterion-referenced evaluation. OBE seeks to evaluate all of a learner's competencies (Mallan, 2020).

The successful execution of outcome-based education involves learner-centered classrooms, competent teachers, active students, and continuous assessments through effective assessment tools (Gupta, 2021). A rubric is an education tool used to set learning standards, develop self-motivation, assess progress, improve learning process, and make policy decisions in outcome based education (Gupta, 2021; Nkhoma, Nkhoma, Thomas, & Le, 2020). According to Shohidul, high-quality, shareable resources, tests, and rubrics are created for OBE to support learning objectives (Shahidul, 2020). Rubrics provide a transparent means by which students can identify what work looks like of the highest quality, promote consistency and build trust among students, and define what exemplary work looks like in the discipline or profession (Wolf† & Stevens, 2007). Accurately designed rubrics and their best assessment practices have extensive consequences for autonomous learning and individual students' assessment of the desired goal of OBE (Nsabayezu, lyamuremye & Nsengimana, 2022; Silva, 2014).

2. Objectives of the research

This study aims to facilitate and simplify outcome-based education at the tertiary level in Bangladesh by implementing rubrics as an authentic assessment instrument, considering individual students' self-directed learning, achieving expected learning outcomes, and getting consistency in assessment. More specifically, this study aims to:

1. Involve students in creating the criteria for a task that makes learning targets direct and clear, communicates their ideas effectively, and correlates with the program's learning outcome.
2. Enhance, be more careful, be well-judged, and be thoughtful judges of the quality and gradations of work from top-grade to low-grade.
3. Involve students in their performances with a tool for self-assessment and peer feedback.

3. Literature Review

3.1. Introduction to rubrics

The rubric is a set of scoring guidelines for identifying the essential criteria of a particular task or skill and giving feedback on students' performances. Rubrics as an influential assessment instrument in learning have been applied, along with standardising the assessment of students in higher education, for almost three decades around the world. Rubrics have been used as a tool to analyse writing since 1912, when Noyes first used rubrics to systematise the evaluation of student compositions (Brooks, 2012). Noyes first proposed uniform, definite, and fixed standards of measurement to avoid subjective judgments (Noyes, 1992). Rubrics have advanced rapidly from their earlier use within holistic evaluation processes (Grubb, 1981) to the present. According to Guskey, (2016) "interest in rubrics surged during the 1990s as educators turned their focus to documenting student achievement of specific learning

standards. Today, rubrics for describing and assessing student performance can be found at every level of education, from preschool and kindergarten to graduate and professional school." Rubrics are beneficial instructional tools that lead to standardisation and create connectivity between teachers and students (Turley & Gallagher, 2008). Almost six hundred articles in different disciplines have been published related to rubric design, application, and reliability for ensuring a high level of quality in recognised indexed journals (Elsevier, 2019; Katherina, 2020). Changes in evidence collecting are necessary because new teaching practises frequently raise learning expectations for students. Although it has its limitations, the multiple-choice exam, which is the standard evaluation method in college-level scientific courses, can give students feedback on their understanding. It is necessary to apply additional evaluation techniques, such as written assignments, oral presentations, debates, problem-solving exercises, and demonstrations. By creating concrete performance and attainment requirements for students, rubrics can address these problems (Wiggins, 1989; Luft, 1999; Porter, 2005; Lynd-Balta, 2006; Allen &Tanner, 2006). Rubrics are an invaluable tool in a variety of higher education environments, including Bangladesh, because they incorporate openness and justice into their design.

3.2. Advantages of using Rubrics in outcome-based education

A well-designed rubric establishes a clear framework for tasks, clarifying expectations and highlighting the significance of specific components. It is essential for teaching and learning since it motivates students to do honest self-evaluations. Rubrics offer consistent feedback during peer and self-review, which enhances students' metacognition and abilities to evaluate their work (Ragupathi & Lee, 2020; Allen &Tanner, 2006). Faster grading, more uniformity, and simple identification of weak areas are made possible by predetermined expectations. Rubrics can be used by teachers to find chances for teaching and give insightful criticism.
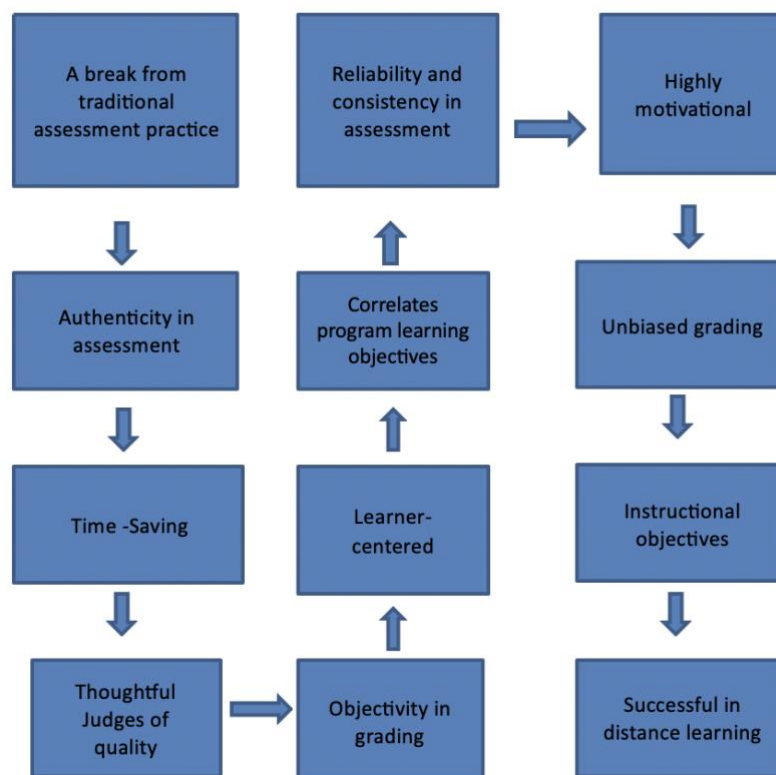

Figure 1: Advantages of Rubrics

A skillfully created rubric makes the educational goal clear. The evaluation process comes to be perfect, unbiased, and consistent (Wolf & Stevens, 2007). Well-designed and carefully designed rubrics help students become more rational judges of the quality of their work by identifying the essential criteria and targeting the goal and learning outcomes of the task. Rubrics are beneficial for teachers in assessment as they are time-consuming and fair in

grading, providing feedback, and giving more demanding work to students (Andrade, 2005; Gusky, 2016). According to Moskal (2000), an elaborate rubric entails rational objective scoring in the assessment so that one can avoid subjectivity in general impression marking. The attributes of rubrics, according to Johnson & Svingby (2007), include "increased consistency of scoring, the possibility to facilitate valid judgment of complex competencies, and promotion of learning." Rubrics play a vital role in the transition from traditional evaluation processes to competency and authentic assessment in higher education institutions (Dochy, Gijbels, & Segers, 2006). A well-structured rubric has many advantages as an appraisal tool for students. It helps us understand the strengths and weaknesses of the learners (Chowdhury, 2019; Suskie, 2018). Rubrics and standardized education philosophy meet the particular learning objectives and proficiency of the students (Guskey, 2016). Rubric highly facilitates or thoroughly assists the OBE process and provides certain specified criteria in terms of individual student learning outcomes that correlate with the standard of program learning objectives (Gupta, 2021). The modern digital rubric is a facilitator of educational technology. Rubric use makes online learning more interactive, optimizes the teaching-learning process, and meets the demand for universal goals for sustainable quality education (Menéndez-Varela and Gregori-Giralt, 2016; Moril, Ballester, and Martnez, 2012). Rubric use facilitates the teaching-learning process by avoiding time-consuming activities (Nkhoma, Nkhoma, Thomas, & Le, 2020). Rubrics enhance students' competency to communicate their ideas effectively. They become more autonomous in their performances and can develop or acquire the required skills at any time (Jaidev, 2011). Rubrics are proper instruments that give feedback through comprehensive and distinguishing exercises and provide fair grading to the students. Rubrics enhance students' ability to judge and give feedback on both their own and peer work. Thus, the rubrics direct a learner-centered approach and improve students' self-assessment learning (Ragupathi & Lee, 2020). By assisting students in identifying the critical cognitive abilities they must master to succeed in the assignment, rubrics raise students' sense of self-efficacy. When students have these skills defined, they may plan and evaluate their own work, making rubrics useful tools for promoting students' ability to control their learning (Jansen, Meier, &Trace, 2015). When utilized as teaching aids, rubrics not only make the instructor's expectations and subsequent grading explicit, but they can also help students understand what is expected of them and how to achieve it. When students lack experience with a particular task or mode of expression, the use of rubrics might be particularly crucial (Bresciani et al., 2004).

Finally, Rubrics promote reflective practice among teachers and students, encouraging reflection on expectations and classroom practices. Students can develop self-direction and gain insight into how they learn (Luft, 1999).

3.3. Types of Rubrics

Analytic Rubric:

Concepts: An analytic rubric is used for assessing the different necessary criteria individually and addressing them comprehensively. In the analytic rubric, each criterion is used to score on the different illustrative scales (Brookmart, 1999). Analytic rubrics divide the performance of a task into different categories and give feedback on areas of strength and weakness (Tedick, 2000). In this way of assessing, learning plans become more closely correlated with educational objectives (Truemper, 2004). Analytical rubrics are singularly useful for complex and problem-solving assignments, research papers, or longer projects as they list different categories of each component of the assessment individually.

Table 1: An analytic rubric with it's features

Rating Scale	The analytic rubric provides a detailed rating scale constituting performance or scores on each criterion separately.
When to Use	An analytical rubric distinctly uses a simple multiplier for each criterion separately to assess each skill of an assignment. An analytic rubric promotes consistency and reliability in scoring when several teachers assess students' performances (Suskie 2018). Teachers can apply analytic rubrics to bring out summative assessments at the end of an instructional unit or course.
Advantages	**Detailed feedback on students' performance:** Analytic rubrics create students' profiles with detailed feedback on strengths and weaknesses and specific skills to be improved (Suskie, 2018; Mertler, 2001). According to Suskie (2018), analytic

	rubrics are the "gold standard of rubrics because they document student performance." It is also similar to a diagnostic approach in that it facilitates teaching and learning by providing effective feedback on students' performances (Nasab 2015). **The analytical rubric encourages self- and peer-learning** and attaining a minimum level of competency as it assesses each skill and competency (Gupta, 2021). **Correlate learning outcomes:** In an analytic rubric, multiple criteria of a task can be correlated to their importance in achieving the learning outcomes (Hannagin & Hannafin, 2010; Rogers, 1983). **Consistency and fair grading:** Analytical rubrics provide more consistency and reliability in the grading of specific criteria for each performance level (Nkhoma, Nkhoma, Thomas, & Le, 2020). **Self-assessment and learner centered:** Analytical rubrics motivate self-assessments and a student-centered mindset that promote quality evaluation of education programs (Grundnitski, 1997; Wright, 2011; Crumly & Dietz, 2014).
Disadvantages	**Bias grading prospects:** The evaluation of small-skill proficiency can be biased as many criteria over-petition a task in the analytic rubric. (Jae and Cowling, 2009; Kahneman, 2003; Rosenzweig, 2014). May not be used consistently across raters, whereas reliability is a question. **Can be focused on lower-level skills:** Detailed criteria-based analytic rubrics can avoid the measurement of deeper understanding and knowledge. **Time-consuming:** The development of detailed scores and skill-based rubrics is time-consuming.

Holistic Rubric:

Concepts: A holistic rubric evaluates the multiple criteria of a task based on a single descriptive scale (Brookhart 1999). In the holistic rubric, the instructor doesn't score a task in parts, but all of the criteria are assessed together (Nikto, 2001).

Example: Holistic rubrics can be useful for a task with interrelated criteria or a single learning outcome. For example, works of art, creative writing, engineering design, projects, oral presentations, broad posts, portfolios, and projects. It will be efficient for large group scoring (Young, 2013), and the focus is on overall quality, proficiency, or understanding of specific content or skills (Mertler, 2001).

Table 2. Holistic Rubric and it's features

Rating Scale	A holistic rubric records the different levels of overall proficiency on a single and detailed rating scale comprising clarity, organization, and mechanics.
When to Use	**Simple, singular task or minor assessment:** It is adequate to use holistic rubrics in the case of minor assessments for simple and singular tasks (Brookhart, 2013). **Errors can be tolerated:** Holistic rubrics are generally used to identify errors that can be tolerated when the overall quality of the task is high (Chase, 1999). **The answer is not clear or definite in meaning:** It is more appropriate to use holistic rubrics. When students are asked to respond and the answer is not specific (Nikto, 2001). **Fast and general judgment:** Holistic rubrics can be very useful for fast and overall performance standards (Nkhoma, Nkhoma, Thomas, & Le, 2020). **Certain written tasks:** On some tasks, it is not easy to evaluate performance on one criterion independently of performance on another criterion. For example, many writing rubrics are holistic because it is not always easy to disentangle clarity from organization or content from presentation. So, some educators believe a holistic or global assessment of student performance better captures students' abilities on certain tasks (Nkhoma, Nkhoma, Thomas, & Le, 2020). In some cases of task assessments, the separate or individual criteria can't reflect coherence and lack cohesion. Holistic rubrics appropriately correlate and evaluate the process (Brookhart, 2013).

Advantages	**Increase reliability and validity**: Holistic rubrics reduce the number of decisions and can be used consistently by several raters, which increases reliability and validity in measurement (Nkhoma, Nkhoma, Thomas, & Le, 2020).
	Authentic assessments: Holistic rubrics evaluate the impact of the performance. Hence, this attitude allows holistic rubrics to assess authentically (Brookhart, 2013).
	Quick scoring and time-saving: Holistic rubrics save time by reducing the number of decisions (Nitko, 2001).
	Encourage organizational skills: The holistic rubric encourages students to be interconnected and organized, as it requires the integration of several parts to reach a planned goal.
Disadvantages	**Lack of detailed and specific feedback or limited feedback**: The holistic rubric doesn't provide specific feedback for certain areas of improvement.
	Overlap between criteria or ideas: In holistic rubric scoring, overlap results in certain criteria being weighted more than needed (Chase, 1999).
	Criteria cannot be weighted equally: As the holistic rubric evaluates all criteria simultaneously, it is difficult to weigh the different parts equally in the assessment (Nkhoma, Nkhoma, Thomas, & Le, 2020; Gulikers et al. 2004).

Generic Rubric:

Concepts: General rubrics are descriptions of similar criteria across tasks and can be used for different types of tasks with similar learning outcomes. Like analytic rubrics, general rubrics assess different criteria separately. The general rubrics can be helpful for self-assessment, peer review, teamwork, and individual contributions to group work and oral communication skills in different academic courses

Table 3: Generic Rubric and it's features

Rating Scale	General rubrics evaluate several criteria independently, just like analytical rubrics do.
When to Use	**Beginners' fundamental skills:** General rubrics are highly recommended for beginners who have difficulties with fundamental skills (Brookhart, 2013; CARLA, 2018).
	Teachers who have difficulties designing new rubrics: General rubrics assist teachers who may have difficulties communicating the behaviors of students.
	At the very beginning of a task: General rubrics can be provided at the very beginning of a task to promote students' self-regulatory processes and how they approach the task (Jönsson & Svingby, 2007).
Advantages	**Consistency in assessment:** Generic rubrics create greater assurance of consistency among students in the assessment of tasks of a similar nature.
	Encouraging and learner-centered: A well-built general rubric prioritizes students' knowledge and skills related to learning outcomes and motivates beginners with confidence to overcome any difficult situation. (Moreno, 2004; Bawden & Robinson, 2009).
	Successful learning targets: Encountering identical elements, students become competent in their learning targets for different tasks with a similar approach
	Mastery of general skills: Using a similar rubric of essential criteria for the 'skill to be measured' (Popham 1997; Oakleaf 2006), students learn the general qualities of good, easy writing, problem-solving, and so on (Brookhart 2013).
	A general rubric helps teachers monitor student progress over time and saves time.

Disadvantages	**Less inconvenient for a growth mindset:** The innate quality of general rubrics is less helpful for great accomplishments, challenging skills, and creativity.

Task-specific Rubric:

Concepts: A task-specific rubric assesses a specific task, and 'specific features of the elicited performance' (Brookhart, 2013) are assessed separately (Gupta, 2021). The detailed elements of task-specific rubrics require students to fulfill the elementary to a more specialized level of knowledge successfully.

Example: Task-specific rubrics are helpful for assessments that instruct specific performance criteria for a particular task of a final exam, a project, or a research proposal.

<center>Table 4: Task-specific Rubric and it's features</center>

Rating Scale	A task-specific rubric evaluates a single task, and specific aspects of the evoked performance' are evaluated individually.
When to Use	**In high-stakes testing**: Task-specific testing is useful in high-stakes testing with important consequences for test takers in a large-scale context, such as state-level accountability assessments at the local, state, or national level. (Arter & McTighe, 2001; Nkhoma, Nkhoma, Thomas, & Le, 2020). When you need to evaluate the skills of particular facts, equations, methods, or procedures, knowledge and consistency of scoring are important.
Advantages	**Quality assurance**: To fulfill quality requirements and improve rubric content validity, an advanced task-specific rubric is highly suggested (Taggart et al., 2001). **Reliability, validity, and consistency in assessment:** Task-specific rubrics are considered an attainable solution for easier and faster consistency in scoring and assessment reliability (Brookhart, 2013). According to Arter and McTighe (2001), task-specific scoring rubrics can transform a subjective and traditional evaluation process into clear, consistent, and valid strategies (Taggart et al., 2001). **Authentic assessment and visualization of learning targets:** A task-specific rubric with explicit descriptions of specific tasks stimulates authentic assessment and relates to achieving educational targets (Jönsson & Svingby, 2007; Gulikers et al. 2004). **Higher scorer and attain further achievements:** A task-specific rubric entails students scoring higher and reaching further achievement (Howell, 2011; Howell, 2014). **Cost-effective:** A qualified task-specific rubric for large-scale assessment including a large number of students can be found to be cost-effective.
Disadvantages	**Time-consuming**: A good-quality task-specific rubric is difficult to design and requires investment in terms of time and effort. **Limits skills:** When students are strictly outlined in the specific criteria, they get entangled in limitations. Assessors find it difficult to meet the specified criteria of rubrics when they come across open-ended tasks (Bawden & Robinson, 2009; Gulikers et al. 2004).

3.4. Elements of Rubric

Many educators looking for evaluation tools are drawn to the rubric's simplicity and design freedom. In particular, rubrics are becoming more and more common in educational settings as 21st century skills are developed because "rubrics are used as an instrument to support learning complex skills in schools" (Lowe, Booth, Stone, & Tagge, 2015).

Popham was the first to, in his article "What's Wrong and What's Right with Rubrics," think of rubric construction and point out three relevant components of a rubric.
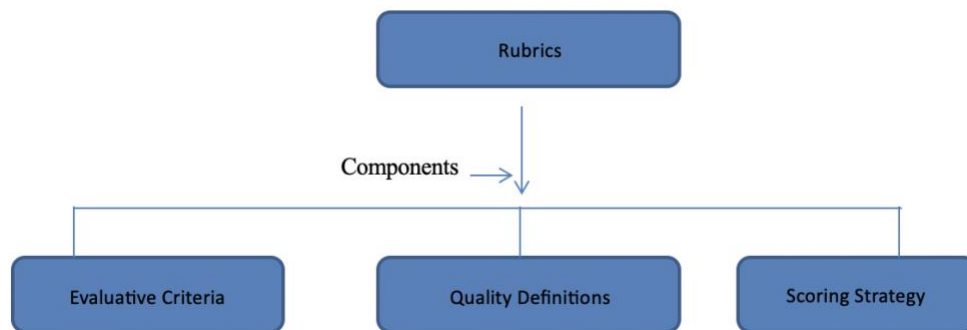
Figure 2: Elements of Rubric   *Source: Popham (1997)*

It's possible that the rubric design's matrix shape is not the most important element to comprehend: The provision of focused learning goals, criteria, and performance descriptions in whatever form may end up supporting learning and motivational outcomes for students rather than rubrics per se (i.e., rubrics as an assessment tool in a particular form) (Brookhart & Chen, 2015).

With this in mind, we wish to examine the guidelines that can be stated for the creation of evaluating criteria for rubrics and the construction of quality scales for rubrics based on the literature and our personal experiences.

Rubric Design Elements:
   1. **Performance criteria in row headings:**
Write a description of the tasks or criteria that will be evaluated.
Specify the skills, knowledge, and behavior that are intended to be assessed.
   2. **Rating scale in column headings:**
Identify the different levels of mastery or performance.
Specify different grading scales and numbers for each assignment type.
   3. **Performance level descriptors within each cell of the table:**
Write criteria descriptions for each level of performance using similar language across the scale.
Specify the degree of best to lowest categories through noticeable and assessable conduct.

3.5. Chief exercises of rubrics development

Though the rubric types vary, the exercises for designing each type of rubric share some common steps. A robust and reliable rubric comprises the following principles:

Table 5: Principles of robust and reliable rubric

Objectives of the task or assignment	The first stage of rubric development is to specify the goals of the learning task. When learning targets are identified, teachers can easily communicate with instructional approaches, and learners reach their expectations (Arter & McTigue, 2001; Stiggins, 2001). Stating the objectives of the learning tasks correlates with the course development process (Wiggins & McTighe, 2001).
Decide the rubric types	Identify the type of rubric that is appropriate to the assignment task. If there are any difficulties in creating the rubric, it can be helpful to at least have a standard set of widely used types of the rubric to start with.
Adopt and adapt phases	Crusan (2010) proposes two helpful phases for rubric development: adopt and adapt. In the adoption phase, a well-developed rubric can be used without any necessary changes to criteria and standards. In the second stage of the adaptation phase, performance-level descriptions require modification to meet teachers' expectations for grading skills.
Develop the rubric interactively with the target students	An effective way is to create a rubric interactively with students, discussing their weak and strong performances, and then draft the list of criteria resulting from their work. (Andrade, 2000; Huba & Freed, 2000). Engaging

	students with rubric development also helps them understand the use and benefits of grading skills.
Test and revise the rubric	Try it out on a sample of student work, both individual and peer assessment, and discover how effective it is. It gives teachers results for knowing students' comprehension of the rubric criteria and reviewing teaching strategies and learning outcomes.
Share the rubric	Sharing the rubric collaboratively with teachers to get rubric-attached feedback on students' performance will promote the validity of the rubric.
Check the progress	Keeping a continuous record of the extent to which "the scale was functioning and in which parts" (Jansen, Meier & Trace, 2015) will adequately determine whether the criteria have been working (Wiggins and Melishe 2005).
Language and format	A quality rubric consists of descriptive and comprehensive language that helps students improve their work and clearly understand their expectations. The rubric format needs to be simple and consistent throughout the entire process so students can communicate their information (Rubric Best Practices, Examples, and Templates).

4. Methodology

Quantitative research is used in this study to gather numerical data. Data gathering and analysis are swift and quick when quantitative research is used.

Figures and numbers are essential to the collecting and processing of data in quantitative research approaches, according to Bryman's (2012) reasoning. Connolly (2007) demonstrates how the statistical application SPSS (Statistical Package for Social Science) can be used by computers to perform data analysis in educational research. Unquestionably, these tools may provide researchers with technical assistance, allowing them to significantly reduce their time and effort.

4.1. Research methodology for the study

The researchers conducted a quantitative research study to ascertain teachers' and students' opinions on the use of rubrics to support outcome-based education models in their classrooms while collecting data using a Google Form in response to the research's concern about the continued use of traditional teaching and learning methods at the tertiary level in Bangladesh.

4.2. Intended population and sampling

Participants in the study of the quantitative method included teachers from Bangladesh's private universities. 120 students and 110 teachers made up the study's sample size. According to Chuan and Penyelidikan (2006), this sample size is appropriate for doing quantitative research and will allow the researcher to answer the research questions and objectives. The snowball sampling method was employed to obtain the quantitative data, and teachers from various private institutions were asked to forward and share the questionnaire with their other counterparts.

As a result, the researchers believed that this style of sampling technique was appropriate for gathering quantitative data.

4.3. Instrument and procedures

Questionnaires were the only instrument used in this study as its main resource. The researcher modified questions from Ortega and Cruz, 2016; Baguio, 2019; Loreto, 2018; and other sources for this quantitative section. Each quality element was given a score on a Likert scale of 1 to 5, with 5 being the highest quality element completion and 1 representing the lowest quality element completion.

4.4. Data Analysis techniques

The data in this study were assessed both statistically because it used quantitative research. Statistical Package for Social Sciences (SPSS 26.0) was used to analyse the data in order to produce the tabulations, graphs, charts, frequency distributions, and descriptive statistics for the quantitative method.

5. Findings and Results

The quantitative results of the current study are presented in the following sections. They were gathered via a questionnaire and evaluated using tabulation, frequencies, and descriptive statistics.

Look at Table 6, which contains the list of 8 questions used to evaluate teachers' explanations when evaluating students' knowledge and skills with or without any instructional standards.

Table 6: Teachers' explanations when evaluating students' knowledge and skills with or without any instructional standard

Items	Extremely High 5	High 4	Moderately High 3	Low 2	Very Low 1
1. I use my impressionistic grading system, which I believe to be quite trustworthy.	63 (57.2%)	17 (15.5%)	10 (9.0%)	13 (11.9%)	7 (6.7%)
2. provide written scoring guidelines for a task or assignment.	33 (30.0%)	16 (14.6%)	11 (10.0%)	12 (10.1%)	38 (34.6%)
3. I can evaluate or judge every criterion of a task without any instructional or written scoring guidelines.	16 (14.6%)	8 (7.2%)	13 (11.9%)	25 (22.8%)	48 (43.7%)
4. Whether or not they are using a tool for self-evaluation and peer criticism, I involve students in their performances.	46 (41.9%)	30 (27.2%)	15 (13.7%)	14 (12.8%)	5 (4.5%)
5. Regardless of the presence or absence of instructions or written scoring rules, I can assess or judge each task's criteria.	55 (50.0%)	38 (34.6%)	10 (9.0%)	6 (5.4%)	1 (0.9%)
6. In my opinion, using an impressionistic or generic scoring approach to assess the caliber of students' work and grades is insufficient.	68 (61.9%)	26 (23.7%)	14 (12.8%)	2 (1.9%)	0 (0%)
7. I am conscious of the fact that the absence of a trustworthy scoring procedure leads to unbalanced and inconsistent scoring, making it challenging to compare the various talents of students.	57 (51.9%)	29 (26.3%)	17 (15.4%)	6 (5.4%)	1 (0.9%)
8. I believe that by using a grading scheme or tool, more students will be able to create the requirements for a task.	54 (49.0%)	17 (15.4%)	15 (13.7%)	23 (20.9%)	1 (0.9%)
Total	**44.5%**	**20.5%**	**11.9%**	**11.4%**	**11.5%**

The results of Table 6 show that (44.5%) of respondents formulated extremely high, (20.5%) high, and (11.9%) moderately high in terms of teachers' explanation when evaluating students' knowledge and skills with or without any instructional standards. On the other hand, 11.4% of them are still in the low and very low (11.5%) levels of teachers' explanation when evaluating students' knowledge and skills with or without any instructional standards.

The attitudes of Bangladeshi higher education students toward OBE are evaluated in Table 7 based on their responses to 25 questions concerning their comprehension, thoughts, and feelings as well as their readiness to accept the new OBE technique and level of rubric adoption.

Table 7: Teachers' attitudes regarding knowledge, beliefs, readiness to accept OBE technique and level of Rubric adoption

Thoughts and Comprehension Items	Extremely High 5	High 4	Moderately High 3	Low 2	Very Low 1
1. In my opinion, rubrics will improve students' academic achievement.	75 (68.1%)	25 (22.8%)	8 (7.2%)	2 (1.9%)	0 (0%)
2. I believe that the rubric will offer me more freedom to employ OBE in my class.	68 (61.9%)	25 (22.8%)	11 (10.0%)	5 (4.5%)	1 (0.9%)
3. I think Rubric will give all of my students an equal opportunity to succeed academically.	60 (54.5%)	24 (21.9%)	13 (11.9%)	13 (11.9%)	0 (0%)
4. I think the use of rubrics demands more accountability from academics and instructors than traditional teaching methods do.	69 (62.8%)	25 (22.8%)	10 (9.0%)	6 (5.4%)	0 (0%)
5. Using the Rubric wouldn't, in my opinion, be a waste of time.	44 (40.0%)	38 (34.5%)	20 (18.1%)	6 (5.4%)	2 (1.9%)
6. In my opinion, learners do not always benefit from traditional paper-and-pencil testing that evaluates students' competencies.	66 (60.0%)	28 (25.4%)	13 (11.9%)	5 (4.5%)	0 (0%)
7. In my opinion, the assessment criteria in the rubric are the most helpful for the OBE implementation.	70 (63.7%)	30 (27.2%)	6 (5.4%)	2 (1.9%)	2 (1.9%)
8. I think the rubric helps me or the teacher give clear directions.	70 (63.7%)	18 (16.3%)	17 (15.4%)	5 (4.5%)	0 (0%)
9. I firmly believe in the rubric, and I recognize the importance of providing clear, targeted feedback that is centered on ways to enhance learning.	74 (67.2%)	20 (18.1%)	10 (9.0%)	3 (2.7%)	3 (2.7%)
10. I think using a rubric or instructional guideline will make scoring more consistent.	80 (72.8%)	17 (15.4%)	8 (7.2%)	3 (2.7%)	2 (1.9%)
11. I think the rubric makes grading more neutral.	75 (68.1%)	22 (20.0%)	7 (6.3%)	4 (3.6%)	2 (1.9%)
12. I agree with the rubric or I prefer a lesson plan that will reduce grading confusion and student complaints.	70 (63.7%)	24 (21.9%)	9 (8.1%)	4 (3.6%)	3 (2.7%)
13. I think the rubric can be employed to alter the OBE guidelines.	68 (61.9%)	20 (18.1%)	8 (7.2%)	13 (11.9%)	1 (0.9%)
14. A rubric, in my opinion, is an additional tool it takes considered a class's overall performance.	65 (59.0%)	28 (25.4%)	13 (11.9%)	4 (3.6%)	0 (0%)
Total	**62.0%**	**22.2%**	**9.9%**	**4.8%**	**1.0%**
Readiness to adopt Rubric Items	**Extremely High 5**	**High 4**	**Moderately High 3**	**Low 2**	**Very Low 1**
1. I'm ready to go from the conventional approach to the OBE strategy.	73 (66.3%)	23 (20.1%)	10 (9.0%)	3 (2.7%)	1 (0.9%)
2. I am sufficiently knowledgeable with OBE evaluation techniques.	33 (30.0%)	30 (27.2%)	25 (22.8%)	12 (10.1%)	10 (9.0%)

3.	I'm willing to arrange my schedule so that I have enough time to prepare for the OBE rubric.	48 (43.7%)	28 (25.4%)	12 (10.1%)	10 (9.0%)	12 (10.1%)
4.	I'm ready to offer my lesson using the rubric and any resources that are easily available.	61 (55.4%)	30 (27.2%)	16 (14.5%)	3 (2.7%)	0 (0%)
5.	I think that using rubrics in teaching and learning will benefit from my teaching experience.	66 (60.0%)	23 (20.1%)	19 (17.2%)	2 (1.9%)	0 (0%)
6.	I'm willing to learn more about the topic to broaden my knowledge and understanding of rubrics for better OBE.	80 (72.8%)	18 (16.3%)	12 (10.1%)	0 (0%)	0 (0%)
7.	I'm willing to design a rubric that adheres to the objectives of the course and the program.	77 (70.0%)	23 (20.1%)	10 (9.0%)	0 (0%)	0 (0%)
8.	I'm ready to provide the written rubric that has been developed for the tasks.	69 (62.8%)	20 (18.1%)	18 (16.3%)	2 (1.9%)	1 (0.9%)
9.	I'm interested in employing various rubrics to assess learners' development.	64 (58.1%)	21 (19.0%)	16 (14.5%)	9 (8.1%)	0 (0%)
10.	I am prepared to create a rubric by offering activities that are interactive, well-planned, and guided.	40 (36.3%)	33 (30.0%)	21 (19.0%)	11 (10%)	5 (4.5%)
11.	I'm open to participating in seminars and training sessions on creating and putting into practice the standards to support OBE in Bangladeshi universities.	86 (78.1%)	14 (12.8%)	10 (9.0%)	0 (0%)	0 (0%)
Total		**57.5%**	**21.4%**	**13.8%**	**4.2%**	**2.3%**

Table 7 displays the overall highness and lowness of all respondents' thoughts and comprehension levels in relation to the 14 questionnaire items that were given to them. It demonstrates that (62.0%) are extremely high, (22.2%) are high, and (9.9%) are moderately high. They are capable of comprehending the OBE methodology and level of rubric implementation. Nevertheless, it is nevertheless apparent that a significant portion of respondents (4.8%) have low and (10%) have low comprehension of OBE and the instructional guiding rubric.

There are 11 questions provided to the teachers regarding their readiness to accept the rubric. A significant portion of respondents (57.5%) rated the likelihood that they would accept the rubric as extremely high, high (21.4%), and moderately high (13.8%). Nevertheless, in terms of their readiness and desire to adopt the Rubric, (4.2%) were low and (2.3%) were very low.

Referring to Table 8 for identifying students' perceptions and knowledge of their strengths and weaknesses in their performance and evaluation processes, which are being measured by asking 5 questions.

Table 8: Students' perceptions and knowledge of their strengths and weaknesses in their performance and evaluation process

Items	Extremely High	High	Moderately High	Low	Very Low
1. I'm quite aware of my weaknesses and failings.	3 (2.5%)	8 (6.7%)	25 (20.8%)	62 (51.7%)	22 (18.3%)
2. I am able to interpret and comprehend the results.	10 (8.3%)	10 (8.3%)	30 (25.0%)	48 (40.0%)	22 (18.3%)
3. I can't comprehend the instructor's expectations of an assignment or any task.	30 (25.0%)	53 (44.1%)	22 (18.3%)	8 (6.7%)	7 (5.8%)
4. I'm always aware of the standards for excellent writing and performance that merit good grades.	9 (7.5%)	12 (10.0%)	17 (14.1%)	60 (50.0%)	22 (18.3%)

	Extremely High 5	High 4	Moderately High 3	Low 2	Very Low 1
5. Finding appropriate standards for a task or assignment is challenging for me.	65 (54.1%)	26 (21.7%)	16 (13.3%)	3 (2.5%)	10 (8.3%)
Total	**19.4%**	**18.1%**	**18.3%**	**30.1%**	**13.8%**

When evaluating student performance, the five questions listed in Table 8 are used to determine how well-informed the students are about their perceived strengths and weaknesses. It reveals that in their responses to their views and knowledge of their strengths and limitations in their performance and evaluation processes, (19.4%) are extremely high, (18.1%) are high, (18.3%) are moderately high, (30.1%) are low, and (13.8%) are very low.

Table 9 shows students' attitudes towards any instructional tool (Rubric), which is being measured by asking 11 questions in terms of their beliefs, readiness, and acceptance level.

Table 9: Students' attitudes towards the use of any instructional tool (Rubric)

Items	Extremely High 5	High 4	Moderately High 3	Low 2	Very Low 1
1. I want a tool or guideline to gain a better understanding of the course and assignments.	85 (70.9%)	25 (20.8%)	7 (5.8%)	3 (2.5%)	0
2. I feel an instructional guideline should clarify an instructor's expectations on an assignment.	90 (75.0%)	25 (20.8%)	4 (3.3%)	1 (0.8%)	0
3. I want to have a guideline. Understanding how the assignment aligns with the course objectives	85 (70.9%)	26 (21.7%)	6 (5.0%)	3 (2.5%)	0
4. I want a way to provide feedback that is both helpful and specific.	90 (75.0%)	20 (16.7%)	10 (8.3%)	0	0
5. I want a method that will improve performance.	95 (79.1%)	24 (20.0%)	1 (0.8%)	0	0
6. I'm looking for a technique that will boost productivity.	96 (80.0%)	23 (19.1%)	1 (0.8%)	0	0
7. I'm looking for a system for assessing one's own work.	84 (70.0%)	27 (22.5%)	4 (3.3%)	5 (4.1%)	0
8. I feel the scoring guidelines make the assessment flawless.	96 (80.0%)	24 (20.0%)	0	0	0
9. I want a tool that will close the gap between academic work and what employers are looking for.	98 (81.7%)	22 (17.3%)	0	0	0
10. I'm looking for an evaluation tool that can lessen the amount of prejudice in grading.	83 (69.1%)	26 (21.7%)	6 (5.0%)	5 (4.1%)	0
11. I need guidance so that I can easily recognize my shortcomings and flaws.	97 (80.3%)	22 (18.3%)	1 (0.8%)	0	0
Total	**75.6%**	**19.9%**	**3.0%**	**1.2%**	

Table 9 displays students' attitudes towards any educational tool (Rubric), as determined by 11 questions regarding the students' beliefs, level of awareness, and acceptance of the tool. The possibility that respondents (75.6%) would accept the rubric was assessed as extremely high, high (19.9%), or moderately high (3.0%). However, (1.2%) were low and (0%) were very low in terms of their readiness and motivation to implement the Rubric.

6. Discussion

The implementation of Rubrics in Bangladesh universities is still in its early phases, with the formulation of learning outcomes and alignment of learning outcomes to program and course outcomes at a lower level. The study also highlights the importance of understanding the philosophy of Rubrics to ensure the successful implementation of OBE.

6.1. Perceptions of teachers and learners at Bangladeshi universities towards rubrics

The study reveals that Bangladeshi teachers and students have positive attitudes towards the implementation of rubrics. The Bangladeshi teachers and learners have positive beliefs, feelings, readiness, and acceptance levels towards the implementation of the rubric to support OBE. However, almost half of the respondents still do not fully understand the instructional guideline Rubric philosophy, possibly due to not participating in any training workshops related to assessment policy and the OBE method.

The participants believe that Rubric is an effective and flexible approach for teaching and learning compared to traditional content-based approaches. They are willing to shift from traditional content-based teaching, learning, and assessment policies to this modern one. However, without organising enough training workshops, the practical implementation of rubrics and outcome-based education will not be as useful.

The participants in this quantitative results showed their knowledge and attitudes about rubric-related matters, indicating their willingness and readiness to implement it in their classrooms. However, they emphasise that the transition should take place gradually, focusing first on the mindset of students, teachers, and administrative staff to be mentally prepared for the change.

The successful implementation of OBE requires enough training workshops for faculty members to understand the philosophy and assessment procedures, as well as continuous monitoring through the proper use of Rubrics. Mogashoa (2013) also mentioned that a lack of enough training for teachers can lead to the process's failure. Therefore, despite the positive attitudes of the participants, it is still necessary for them to have been trained with enough knowledge and understanding in terms of both theoretical frameworks and practical implementation measures to ensure equal consideration and application of theory and practise.

6.2. The challenges of implementing Rubrics in the Bangladeshi context

The instructional tool Rubric faces several challenges in the Bangladesh context, including content-based rules and policies, traditional classroom procedures, and limited facilities. Teachers believe that the assessment policy is problematic if teachers are not fully trained to implement it in the classrooms. The content-based curriculum is designed based on traditional procedures, and teachers emphasize the development of statements, goals, and objects in the future.

Limited or no facilities in classrooms, such as medium-speed internet, electricity, projectors, and chairs, hinder teachers' readiness to plan and utilize OBE activities. Mogashoa (2013) emphasized the need for adequate resources to lead the model to its successful status.

Large classroom sizes, lack of infrastructure, and insufficient information structure are also significant obstacles to implementing the Rubric to get the OBE model most effective.

Additionally, many institutions have not developed course and learning outcomes based on POs, which are not included in course policies for aligning teaching and learning activities with assessment procedures. The adaptation from the traditional content-based system to the OBE system will impact the quality of education and help institutions produce capable graduates based on market and societal needs.

7. Contribution to the quality assurance in higher education

The typical strategy for ensuring quality in higher education is that an institution's course design processes are thoroughly examined using blended outcome-based education with rubrics, which take into account orientation, content, instructional design, use of technology, the student experience, and other areas pertinent to creating and delivering a blended learning course. Since it is expected that the core components of OBE and rubrics are similar, the creation of this tool will allow universities to guarantee that the caliber of the courses they make or utilise will be evaluated in a uniform and thorough manner. The rubric for higher education is focused on ascertaining quality

assurance at the course level. Institutional readiness for implementing this tool as an institutional quality assurance tool will help ensure quality education. The intended use of the rubric is to facilitate outcome-based education, and this tool should be utilised during all stages of course conceptualisation, design, implementation, monitoring, and revision.

The findings are pertinent to both students and teachers when looking at best practices when using rubrics. The study highlights that whether a rubric is effective at improving student performance depends on three crucial factors: user perception, rubric design, and intended use. Additionally, variables used to create rubrics should be optimised based on reliable data and an understanding of the desired educational context. Educators will be better able to maximise students' learning chances with this knowledge.

8. Conclusion

Rubric is an authentic assessment tool for Bangladeshi tertiary education, focusing on self-directed learning, learning objectives, and consistency. Rubrics should be promoted as reliable tools for transparent performance evaluation by institutions. Rubrics can save time and energy by assessing students, peers, and teaching assistants. As a learning and assessment standard, general rubrics for frequently utilised abilities might be produced and published on the state website. The findings of the research show how using rubrics can improve programmes and courses by encouraging students to pursue high-quality education, assessing students in ways other than traditional testing, and fostering outcome-based education. It simplifies outcome-based education, assists students in selecting successful learning strategies, and enhances assessment validity and reliability. Both practitioners and scholars can benefit from this study's comprehensive recognition of rubric design, its advantages, and its implementation in OBE.

9. Recommendations

Rubrics is clearly in its early stages in the Bangladeshi setting, but in order to get to its later implementation phases, there needs to be much more concentration and dedication at the governmental and corporate levels. The participants in this study offered the following recommendations to be taken into account in the Bangladeshi context throughout the policymaking process for OBE in order to ensure that the rubrics are implemented effectively:

1. Establishing a discipline-specific rubric bank should be done at the national level by a department or body that is in charge of sustaining and promoting standards for technical and higher education. Based on the outcomes of its use, the rubric has to be revised annually. There should be held national seminars for creating rubrics and exchanging knowledge. Resources ought to be developed nationally through standardised training and development initiatives. For institutions and universities that are geographically distributed, resource personnel should be accessible. Before developing and utilising rubrics in education, a guidelines manual should be written.

2. The use of rubrics should be used to achieve a variety of learning and assessment-related objectives, including metacognitive, reflective writing, research, issue analysis, interpersonal skill development, communication, presentation, safety, research, professional ethics, hygiene, and aesthetic abilities. The use of rubrics as trustworthy tools for transparently evaluating performance against established criteria should be encouraged by institutions when holding competitions, conferences, and seminars for students and teachers (Katawazai, 2021).

3. Rubrics can be used to assess students by themselves, their peers, and teaching assistants, saving specialists' time and energy. As a learning and assessment standard, general rubrics for frequently used abilities can be developed and publicised on the state website.

4. Programme, department, and institute level analysis of completed rubrics can enhance the curriculum, assessment standards, and support services. The use of rubrics, their analysis, and the production of reports for professors are tasks that can be assigned to teaching assistants. It is important to offer teachers and students enough time and resources to apply rubrics for a variety of objectives.

5. Implementing rubrics at elementary and secondary levels is crucial for students to progress to higher education. Cities with poor communication and technological abilities may expose college students to

OBE techniques they are not cognitively prepared for. Students should develop fundamental group work, communication skills, and fundamental technology knowledge before enrolling in tertiary school.

6. To reduce lecturer workloads, the Ministry of Higher Education should determine teaching obligations and responsibilities, specifying the number of classes each member should teach. Universities should implement Rubrics immediately and emphasise it, and the government should take initiatives for successful use of OBE in classes.

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The Key Connection Between the Elements of Self-Regulated Learning (SRL) and Mathematics Performance: Literature Review

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Abstract
This conceptual paper is based on the review of literature on Self-Regulated Learning (SRL), its elements and link to performance in Mathematics. Over the past decades, SRL has been studied extensively. According to empirical investigations, Self-efficacy, Motivation, and Metacognition have been linked to a student's achievement. In this paper, a conceptual review on the elements of SRL is offered. It also discusses whether there is a link between the elements of SRL such as Self-efficacy, Motivation, and Metacognition with the performance of Mathematics among secondary students. According to researchers and many educators, the capacity for SRL is essential for academic achievement. It is described as a multifaceted, dynamic process that combines cognitive, motivational, and emotional components. A growing amount of evidence supports the idea that cognitive self-regulation can be taught and that students who employ these abilities tend to do better in the subject area in which they are used. As a result, researchers have started to focus on understanding the elements of SRL. In this paper, the theories will first be highlighted. This will be followed by explanations on emotions and self-efficacy in SRL and then the motivation in SRL will be explicated. The study will address metacognition in SRL and then it will demonstrate on SRL and performance. Additionally, SRL will provide the information on the significance of the study after the discussion.

Keywords: Self-Regulated Learning, Self-Efficacy, Metacognition, Motivation, Performance

1. Introduction

According to many researchers and educators, Self-Regulated Learning (SRL) is essential for academic performance. Secondary-level students are adolescents, who need to master their SRL to develop intrinsic motivation which is significant in performing well in mathematics. Rendering to reports, the qualities needed to function in the 21st century include higher order thinking and problem-solving capabilities (Ansari et al, 2021). The primary goal of education is to promote learning. Students are educated and provided with a variety of abilities

via learning. One crucial subject to learn is mathematics, which teaches and accustoms pupils to be logical, critical, methodical, effective, and efficient in problem-solving (Rohman et al., 2020).

This conceptual paper aims to give a review on the elements of SRL. It also examines on whether or not there is a link between the elements of SRL such as self-efficacy, motivation, and metacognition with the performance of mathematics, especially among secondary students. Learning is considered a complex interactive process which includes both cognitive, motivation and emotions, which are also the key elements of SRL. Secondary students go through distinct stages of cognitive and mental development than elementary children since they have transitioned into adolescence and can already think critically and abstractly (Kesuma et al., 2021).

A growing amount of evidence supports the idea that cognitive self-regulation can be taught and that students who employ these abilities do better in the subject area in which they are used. As a result, researchers have started to focus on understanding the elements of SRL. In this paper, a conceptual review on the elements of SRL is offered. First, this paper will discuss the theories of SRL. Secondly, emotions and self-efficacy in SRL will be described. Third, the motivational element in SRL will be explicated. Following on, it will address the metacognition in SRL which is vital for secondary level mathematics. All these will demonstrate SRL and its relation to performance. This paper will then discuss the findings and present the significance of this study.

Student Centred Learning is an active form of learning with an atmosphere of high learning activities. One of the characteristics of student-centered learning is shown by the self-regulation of learning (Khairuddin et al., 2020). Self Regulated Learning (SRL) is one of the major factors determining students' achievements in mathematics (Rohman et al.). The practice of controlling one's thoughts, behaviours, and environment while learning or pursuing goals is known as SRL (Zimmerman as cited Cleary, 2020). The self-directed learning process, or SRL, is how a student transforms their mental faculties into academic information. Self-regulated learners control their behaviour toward goals of getting information, enhancing their expertise and self-improvement of their knowledge, set their learning goals and monitor their learning progress (Channer & Raza, 2021). Skills for problem solving, reasoning and comprehension of complicated concepts all depend on SRL (Gabriel et al., 2020).

The students' capacity to monitor and control their learning, particularly while studying and engaging with Science, Technology, Engineering, and Mathematics (STEM) subjects is significantly influenced by their emotions, motives, and metacognition (Gabriel et al., 2020). Some SRL models emphasise the function of metacognition more than others, even though the majority of SRL models claim that motivation, metacognition, and cognition are connected and promote SRL in an interactive way. As a result, SRL is viewed as a very steady competency with discrete components (Ulrich et al., 2021).

From empirical studies, experiments, training studies and meta-analysis, it has been demonstrated that SRL is favourably related to motivation, accomplishment, and learning behaviour. Despite evidence that SRL can improve performance, it is still unclear how instructors may improve SRL more effectively and what aspects of SRL are related to great performance and to what extent (Dignath and Veenman, 2021). To illustrate this, students who are motivated to study more and employ more adaptable learning strategies tend to attain higher levels of accomplishment. Motivation may be aided and enhanced more easily than intellect, which is frequently thought of as constant or unaffected by education (Callan et al., 2021).

2. Theories of SRL

According to theory, SRL is a process that involves learners actively setting their own objectives and using learning methods to control, assess and plan in terms of many factors, such as cognitive or metacognitive, motivational and behavioural, in order to achieve the desired outcomes. Bandura claimed that because SRL is self-directed, it partially depends on the accuracy, consistency, and temporal proximity of self-monitoring, which necessitates acting as a consistent driver (Lim & Yeo, 2021).

Developing responsibility and accountability for most students at this level, learning to take responsibility and participating in self-study is new and challenging. It may be claimed that pupils need to acquire self-regulated

behaviours. The theory of self-regulation, which is founded on social cognitive theory, contends that self-influence, which involves keeping an eye on one's own behaviour, its causes and its effects, regulates human behaviour. This necessitates the assessment of one's behaviour in connection to their goals and the environment and subsequent behaviour modification (Lyakhova et al., 2022).

3. Emotion and Self-efficacy in SRL

To help kids learn effectively, SRL techniques are employed. Rehearsal, organisation, time management, peer learning and effort restriction are some of these techniques. In order to achieve a goal, a person must be able to monitor, regulate, and manage their own behaviour, emotions and thoughts (Anthonysamy et al., 2021). When students are able to use self-regulation techniques, such as self-evaluation, organising and modifying instructional materials to enhance learning, goal-setting and planning, keeping track of progress, practicing and memorization, as well as asking for social help from peers, teachers, and adults, learning becomes more effective. While relying on adults may be inevitable, older students' rising self-efficacy is related with turning to peers for assistance rather than to instructors or parents (Lyakhova et al., 2021).

Self-efficacy is the belief in one's ability to execute specific activities at a particular degree of performance. This trait is acknowledged as a reliable mediator of relationships between environmental, motivational and achievement factors as well as is a powerful predictor of academic performance. Children who perceive their teachers as emotionally supportive and attentive to their needs are likely to exhibit more adaptive motivational beliefs in school, which include self-efficacy and curiosity, as well as higher levels of overall effort (Cleary et al., 2020). Additionally, when students feel strongly connected to their school, they are more likely to exhibit better levels of performance, engagement, positive feelings, and self-efficacy (Cleary et al., 2020). In a 9-week intervention with mathematics students in grade 4-6, it was found that there are positive effects from the use of rubrics in self-assessment and peer assessment on the students' self-efficacy and SRL behaviour (Granberg et al., 2021). Students who have strong levels of self-efficacy, self-attribution, and intrinsic task interest are motivated in SRL (Rohman et al., 2020).

Students' ability to effectively control their own learning and motivation both depend on their emotional state. While anxiety is linked to avoidance motivation and produces superficial learning tactics, unpleasant emotions like anxiety can give students the tools they need to manage their focus and dedication towards accomplishing their learning goals (Gabriel et al., 2020). Students must therefore be able to control their emotions if they are to remain focused on finding a solution, be persistent, and create the methods they need to succeed. Self-efficacy moderated the relationship between SRL and Math Anxiety, and it was found that less effective SRL decreased students' self-efficacy, and lead to increased levels of Math Anxiety (Gabriel et al., 2020).

4. Motivation in SRL

A student's motivation is what propels them to finish a task. Students require motivation to monitor their actions and accomplish learning objectives. Additionally, motivation serves as a psychological aid that contributes towards pupils' learning processes. Students who experience motivational issues may leave a learning environment more quickly (Anthonysamy et al., 2021). Self-regulated learners are able to control their behaviour while learning because they have the motivation and capacity to reflect on what, how, and why they are learning (Alten et al., 2020). Motivation is the mechanism through which people start and maintain behaviours including effort, persistence, and choice. Typical motivational beliefs include self-efficacy, goal-orientation, task values and attitude. These beliefs have an impact on one's behaviour (Cleary et al., 2020).

The use of technology-based approaches for self-efficacy, goal-orientation and task value belief are just a few examples of the motivational and emotional strategies that help students understand and meet their academic goals. With the use of these many strategies, students should be better able at shaping their learning from the perspectives of their personal functioning, academic performance, and the learning environment (Anthonysamy et al., 2021). The level of students' initial motivation may not be adequate to ensure that they follow through and successfully complete the learning assignment if they encounter a difficulty or a challenging environment that causes negative

feelings. Therefore, to remain focused on finding a solution, and continuing to create the strategies they need to succeed, students must be able to control their emotions (Gabriel et al., 2020). Moreover, perceived teacher support and degree of school connection are two crucial contextual factors associated with students' motivation and SRL skills (Cleary et al., 2020).

Learning performance and motivational belief techniques have been linked favourably in previous research. However, additional empirical data is still required to study motivating belief as a significant predictor of students' learning achievement (Anthonysamy et al., 2021). Higher levels of accomplishment are made possible by adaptive motivation because students put in more effort to learn and use adaptable learning techniques (Callan et al., 2021). All three factors of academic motivation; self-efficacy, theories of intelligence, and learning goals have emerged as positive predictors of academic achievement (Feraco et al., 2022).

5. Metacognition in SRL

Zimmerman asserts that the three essential components of SRL are metacognition, motivation, and active behaviour in their learning. Planning, goal-setting, organising, keeping track of oneself and self-evaluation at various stages throughout the acquisition process are all examples of SRL in the context of metacognitive processes. These procedures enable them to approach learning in a self-aware, informed, and aggressive manner (Rohman et al., 2020). Research demonstrates that students lack awareness of cognitive learning strategies, which limits the use of metacognition during self-study since students sometimes do not use the most effective study techniques (Alten et al., 2020).

In the 21st century, the industrial world requires Higher Order Thinking Skills (HOTS) which are required to succeed in mathematics as well. According to Zimmerman, in general, metacognition, motivation, and active behaviour in their learning are the three key components of SRL (Rohman et al., 2020). The SRL for metacognitive processes consists of planning, goal-setting, organising, monitoring, and self-reflection at various stages of the acquisition process. These processes provide individuals with the tools they need to approach learning in a self-aware, knowledgeable, and aggressive manner (Rohman et al., 2020). According to research, students frequently do not employ the best learning practices, which hinders metacognition during self-study (Alten et al., 2020).

 A study done in 2019 on Metacognitive Strategy in facilitating students' critical thinking revealed that, teacher-centered learning, plans and arranges learning, and evaluates learning as three processes in the metacognitive method. Additionally, by having pupils interact with the outside world, examining sources and synthesising ideas, the teacher supports their critical thinking development. From this study, the use of metacognitive strategies to promote critical thinking has received a positive response from students. The metacognitive technique can therefore be regarded as one of the more effective methods for promoting pupils' critical thinking (Rosyada, 2019).

Because younger children have less SRL skills, age may also be a factor in this. Additionally, this can be a problem for students using flipped learning since they might not have the necessary cognitive learning techniques and metacognitive abilities to make full use of the greater autonomy (Alten et al., 2020). A quasi-experimental study including 115 eighth-grade students found that SRL support has a favourable effect on learning outcomes, but it was unable to account for the variations in each student's SRL. The study came to the conclusion that SRL support helped pupils learn. However, it must be carefully planned to prevent student dissatisfaction, which might potentially negate any positive learning outcomes (Alten et al., 2020).

Some SRL models place more emphasis on the function of metacognition in the entire SRL process, despite the majority of models claiming that motivation, metacognition, and cognition are all engaged and promote SRL in an interactive way. Beyond theoretical reasoning, it is less obvious whether metacognition is directly related to achievement, and the results are not conclusive (Rivers et al., 2021). One theory discovered a substantial correlation between cognitive strategies and metacognitive processes and academic success. Another research study indicated that the direct correlation between metacognition and achievement is not significant and that the effect of general metacognition on achievement is totally mediated by problem-solving techniques (Rivers et al., 2021).

For maintaining self-awareness of one's own strengths or weaknesses and overall learning development, it is crucial to apply good metacognition skills and tactics including planning, monitoring, and evaluation (Cleary et al., 2020). Knowing what, how, and when to use a certain approach for a given task is known as metacognitive knowledge. Students that are knowledgeable about their own metacognition will be able to apply their knowledge and skills more efficiently during the learning process (Anthonysamy et al., 2021). It has been demonstrated that metacognition is a powerful predictor of academic success, particularly in mathematics (Gabriel et al., 2020). The SRL has practical objectives for themselves, plans their coursework, is knowledgeable about and employs study techniques, and metacognitively aware of the learning process (Feraco et al., 2022).

6. SRL and performance

The ability of a student to retain and transmit information over the long term is referred to as learning performance, which is assessed by means of non-academic outcomes (Anthonysamy et al., 2021). Self-regulated learning is one of the primary factors affecting students' achievement in mathematics (SRL). The effect of SRL on academic performance is favourable. Students with high SRL will also perform well in school (Rohman et al., 2020).

Students use self-regulated learning tools to track their own development, recognise the advantages of the techniques they are employing and become aware of any shortcomings that may exist. Because SRL techniques give students the ability to become aware of their cognitive processes and actively engage in their learning process across all study settings, the success of students' learning in online and mixed environments is vital to SRL approaches (Anthonysamy et al., 2021). It is thought that high achievers typically possess a greater arsenal of SRL techniques when compared with low achievers. Numerous studies present evidence that links the usage of SRL methods by students to academic success. Furthermore, correlational research has demonstrated that particular SRL techniques are followed by metacognition, help-seeking, and study/time management as being favourably associated to accomplishment and GPA. (Kesuma et al, 2021).

In the 21st century, the industrial world needs Higher Order thinking which is fundamental in secondary mathematics as well (Rivers et al., 2021). Higher-order thinking includes problem-solving, critical thinking, reasoning, and decision-making, all of which are essential skills for today's students to have. To prepare students for higher-order thinking, it is vital to develop their capacity for self-regulation as learners and to evaluate their problem-solving techniques (Ansari et al., 2021).

The ability to practice excellent self-regulation is a major difficulty for senior high school students who want to pursue the goal of studying independently for the rest of their lives. It has been demonstrated that self-regulated learning significantly affects high school students. Self-regulated learning and academic success are substantially connected among senior high school pupils. Thus, the ability to control one's learning process and the preparation for exams are related (Kesuma et al., 2021).

7. Discussion

In an era where both parents are occupied with work to earn and provide for the family, children are mainly left to the hands of tuition teachers or shadow education for their learning or to finish their homework. This is since, many parents believe that tuition is the only way to improve and strengthen the learning process of their children. Nevertheless, research shows that kids who depend on tuition do not see benefits in the long run. There are negative consequences of private tutoring such as to pass in an exam, lack of student's attention during classroom lessons, and extra financial burdens for parents (Subedi, 2018). Some other parents leave their children on their own for independent learning, which is basically self-regulated learning. Many researchers have found that SRL helps the kids to strive and succeed more. This is especially for adolescents or secondary level students who are going through significant mental, emotional and psychosocial changes during adolescent phase.

Additionally, secondary-level students need intrinsic motivation when dealing with questions in mathematics which includes logical and critical thinking. Usually, the extrinsic motivation does not help to continue the process

of learning when the external factor which motivated the child to learn comes to an end. Intrinsic motivation keeps the process of learning steady and focused which facilitates in positive performance. Motivation serves as a psychologically helpful tool in the learning process and is one of the SRL components. The motivational element of SRL helps students to think about how, what, why, and when they solve critical thinking-related questions in mathematics, which is mostly difficult for students who depend on others to solve it.

Another significant element of SRL, self-efficacy, is very important to implement among secondary-level students which will make them responsible enough to be aware when, where, how and with whom they must approach to solve issues related to learning. This is especially in mathematics, where students not only need guidance from teachers and parents, but also from their peers. Additionally, research demonstrates that when teachers provide students with emotional support and are attentive to their needs, kids are more likely to achieve at a higher level and have great self-efficacy (Cleary et al., 2020).

In addition, another significant element identified in SRL is metacognition which is vital for a self-regulated learner. As mathematics in secondary level is not only focusing on knowledge and comprehension level, but includes analysis and evaluation as well, metacognition is a very critical element which needs to be developed among adolescents since critical thinking skills are the basis of metacognitive skills too. According to research, metacognition and critical thinking are both related to higher-order thinking. Additionally, kids with SRL are more eager to attempt mathematical problems requiring higher-level thinking skills. However, research indicates that students lack cognitive learning strategy expertise, which hinders metacognition during self-study because students don't always employ the best learning strategies (Alten et al., 2020). Lastly, after studying through numerous researches and papers which is related to SRL and mathematics performance, it is found that there is positive relationship with those who follow SRL and mathematics performance. As SRL includes elements such as self-efficacy, motivation, and metacognition which are vital for secondary mathematics when students need to analyse and evaluate using logic and deep thinking. Students who are able to maintain their motivation continue to achieve high scores in mathematics.

8. Significance

A comprehensive understanding of SRL and its elements is not only important to academic performance of mathematics but to many aspects of learning and pedagogy. Self- regulated learning was stronger among students who took a course online than those attending face-face (Lyakhova et al., 2022). Additionally, it has been demonstrated in both primary and higher education that providing students with video-embedded SRL support during the learning activities prior to class is an effective way to improve students' SRL and learning results (Lyakhova et al., 2022). Although it was discovered that the support for SRL had a good result on learning outcomes, this effect could not be attributed to the SRL disparities amongst students. Although most students had positive opinions of the flipped classroom, some were obviously against SRL training (Alten et al., 2020).

There were differences between male and female students in their SRL in terms of math learning. Every SRL parameter, including metacognition, motivation, and active engagement in class activities, showed that female students did better than male students. One can draw the conclusion that female students perform better than male students on the SRL for learning mathematics (Rohman et al., 2020). According to studies, self-regulated learning and the motivational construct are favourably and strongly connected (Lim & Yeo, 2021). However, because of how important SRL and motivation are to students' academic success, less focus has been placed on how they may affect students' welfare. This influence may be confined to scholastic fulfilment rather than general satisfaction, which merits additional investigation (Feraco et al., 2022).

9. Conclusion

To improve performance, particularly in mathematics, SRL elements can be analysed thoroughly and the link with students' performance can be assessed. Students require self-regulatory knowledge and abilities in order to benefit from the potent affordances of active learning pedagogies (Rakovic et al., 2022). Because schools and teachers lack the time and cognitive resources to implement a comprehensive intervention programme, SRL components

can be incorporated into the current curricula and pedagogical practices instead (Callan et al., 2021). Even though this is a conceptual paper, it is hoped that the findings of the target study provide a gateway to how the elements of SRL impacts the performance in mathematics, especially among secondary students. This in turn provides a significant impact on the authorities and policy makers in education system.

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A Survey Study of a Catechism Course in Academic English Writing

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Abstract
This article conducted an investigation on the data associated with the academic English writing course offered through Massive Open Online Courses (MOOCs). This article was to gain initial insights into the development of the course. Employing a case study methodology. This article conducted a sample survey to evaluate students' perceptions of the course. Building upon these findings. This article undertook a comprehensive literature review and integrated the proposed teaching ideas of several experts to develop a MOOC teaching model for academic English writing. This article optimizes teaching strategies and enhances education and training programs across three key dimensions: universities, teachers and students, and the platform. By doing so, the overall quality of academic English writing instruction could be significantly improved.

Keywords: Catechism, Academic English Writing, MOOCs, Online Education

1. Introduction

Massive Open Online Courses (MOOCs) have revolutionized education by emphasizing the utilization of "micro-videos" or "micro-lessons" rather than traditional 45-minute online classrooms. In this format, each video is restricted to a maximum duration of 15 minutes. This approach facilitates focused attention from students and facilitates the breakdown of complex concepts, thereby enhancing learning effectiveness. With the reformation of the basic education curriculum, there has been a shift from passive "receptive learning" to more active and cooperative "inquiry-based learning." Supporters of "catechism" argue that this innovative teaching method promotes inquiry-based learning and represents a departure from the traditional classroom model. However, it is important to clarify that the "learning first" advocated by "catechism" does not align with the notion of "self-learning" in the context of the new curriculum reform. Rather, "learning first" entails students studying the textbook before receiving instruction from the teacher. This approach places significant emphasis on in-class self-study, followed by teacher-guided instructions based on students' individual progress. Current implementations of "catechism" involve a "listen first" approach, wherein students watch video lectures by teachers instead of studying the textbook at home or outside of class. The teacher breaks down key concepts and difficulties, providing specific analyses of texts and step-by-step solutions for example problems, while students engage in practice exercises.

Wang Qiuyue (2014) notes that this approach, although different from traditional receptive learning, remains essentially unchanged in terms of its core principles. In the past, students listened to teachers in the classroom, and now they listen to them at home, merely altering the time and location but not the fundamental nature of receptive learning. Furthermore, the inquiry-based learning promoted by the new curriculum reform seems to have regressed into receptive learning through the implementation of "catechism." It is crucial to recognize that "catechism" was originally designed as a means to assist absent students in catching up on missed classes, rather than as a preferred method of instruction for the majority of students. In developed countries, "catechism" is primarily employed in higher education for adult learners, rather than in basic education. The adoption of new technologies, such as "catechism," in primary and secondary education in Europe and the United States has been met with more caution than enthusiasm, reflecting a relatively conservative stance.

2. Literature Review

The landscape of MU education institutions comprises Coursera, edX, Udacity, Khan Academy, and Codecademy, which are primarily consortia or affiliated institutions of American universities. Among them, Coursera, edX, and Udacity are commonly referred to as the "troika" of catechism education. The emergence of these three major online education platforms has expanded the availability of systematic learning opportunities for diverse student populations. Although these "catechism" platforms operate on a non-profit basis, they have also embarked on some commercial endeavors. Leveraging the high-quality teaching resources of universities, they have created higher education courses, paving the way for a novel "learning at your fingertips" paradigm. Students not only gain unrestricted access to valuable resources but also have the ability to tailor their learning objectives using computer technologies, thereby enhancing the effectiveness of their educational pursuits (Zhang Kitesyuan, 2014).

Simultaneously, Chinese universities are establishing their own catechism platforms. Shanghai Jiao Tong University, in collaboration with Peking University, Tsinghua University, Fudan University, Zhejiang University, Nanjing University, University of Science and Technology of China, Harbin Institute of Technology, Xi'an Jiaotong University, and other esteemed C9 Chinese Ivy League universities, along with Tongji University, Dalian University of Technology, and Chongqing University, is building China's own "MU." According to President Zhang Jie of Shanghai Jiao Tong University, "The massive open online courses initiated in the United States have begun to fundamentally impact traditional higher education, leading to a restructuring of universities and ultimately shaping a new educational landscape" (Cao Jijun, 2013).

Gao's（2014） research on catechism teaching platforms reveals that over a dozen countries, including the United States, the United Kingdom, Japan, Australia, and China, are actively promoting the development of catechism, aspiring to expand their influence within the global education landscape. It is crucial to recognize that the impact of catechism extends beyond immediate changes in teaching methods; it also influences national development strategies concerning curricula, education, culture, and informationization. Therefore, it is imperative for governments, universities, and educators to acknowledge the profound influence of MU. The state should strengthen the top-level design of educational modernization from a strategic planning perspective, while educational institutions need to actively and effectively explore avenues to enhance the quality of talent development. Attention should be given to the following operational-level considerations to address the impact of catechism: (1) further promoting the concept of student-centered teaching, (2) establishing a robust teacher evaluation system based on scientific principles, and (3) enhancing the assessment system for teachers to ensure continuous improvement.

2.1 Researches on the development of catechism platforms

The concept of MOOCs was initially proposed by scholars at the University of Prince Edward Island and later gained recognition and adoption by esteemed American institutions such as Harvard University and Yale University. According to He Keqiang (2005), integrating traditional teacher-centered classroom teaching with student-centered online learning maximizes the advantages of both approaches, facilitating the attainment of educational objectives. In the context of China's higher education landscape, MOOCs possess the necessary conditions for teaching and learning, including courses designed by renowned scholars and the availability of

unrestricted access for students through online delivery formats. These factors effectively address some of the challenges faced by Chinese universities at the present stage of education.

2.2 Researches on academic English writing courses

The traditional academic English writing classroom heavily relies on in-person instruction. However, MU and MOOCs disrupt this conventional approach by providing an open, flexible, and cost-free learning environment, coupled with extensive learning resources. One key feature is the equitable distribution of teaching resources, which fosters efficient self-paced learning among students.

In contrast to the passive learning prevalent in Chinese compulsory education, MOOCs require and promote the development of students' goal-setting abilities, self-discipline, and timely completion of courses. This departure from and enhancement of traditional Chinese education not only exposes students to new knowledge but also cultivates essential learning skills (Xiaoling, 2023).

3. Data analysis of MOOC academic English writing courses

3.1 Analysis of the current situation of academic English writing courses offered on MOOC platforms

The availability of online learning resources in China dates back to the establishment of the Super Star online resource technology platform in 1993. However, with the introduction of the China University MOOC platform in 2014, the development of China's open online course platforms has experienced even greater growth and potential. Taking into consideration the data from the "Online Open Course Sharing Platform of Zhejiang Higher Education Institutions," it is evident that the platform has garnered significant attention. The platform currently boasts an impressive 3,416,261 online users, including 27,075 teachers. Collaborations with 633 universities have resulted in a total of 4,349 courses being offered, out of which 89 are classified as national quality courses, and 956 as provincial quality courses. Among the platform's course offerings, 89 are considered national-level boutique courses, while 956 are categorized as provincial-level boutique courses. The advent of MOOC platforms has transformed the landscape of education, expanding it beyond the confines of traditional face-to-face classroom interactions. Learners now have the opportunity to engage in flexible and self-paced learning experiences, accessible anytime and anywhere. Additionally, numerous universities, including esteemed institutions, have made their online course resources freely available, thus alleviating some of the financial burdens associated with education for students.

To explore the status of academic English writing courses across different MOOC platforms, the research team conducted an investigation and compiled the findings into a data graph (Figure 1). The graph indicates that academic English writing courses have witnessed widespread development on major MOOC platforms. Notably, "Youcuo," "China University MOOC," and the "Online Open Course Sharing Platform of Zhejiang Higher Education Institutions" offer a rich array of courses in this domain. These findings highlight the extensive growth of academic English writing courses on MOOC platforms.
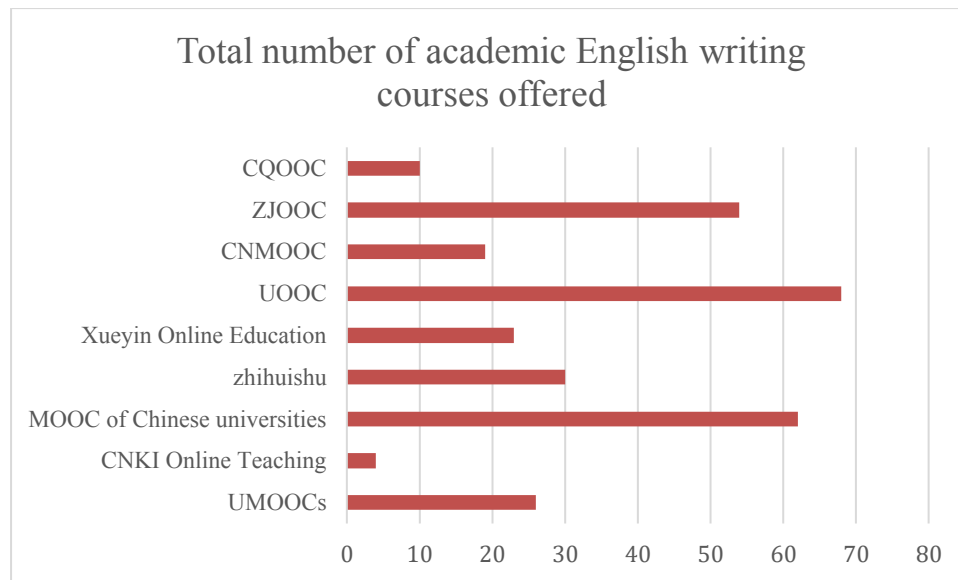
Figure 1: Total number of academic English writing courses offered

3.2 Case data analysis of academic English writing courses on MOOC platforms

As a platform for learning and exchange, MOOC platforms inherently possess teaching feedback mechanisms. The star ratings, number of ratings, and viewership statistics of teaching courses serve as valuable indicators of course effectiveness and utility. In this study, the project team selected five courses from different universities through the China University MOOC platform and compiled relevant data to assess course quality (refer to Table 1). Additionally, the team extracted a representative sample of high and low-rated reviews to gain a more comprehensive understanding of the strengths and limitations of university students' learning experiences in MOOC academic English writing courses.

The survey data presented in Table 1 revealed that the average number of viewers for the selected courses exceeded 2000, indicating a substantial interest and demand among university students for academic English writing courses offered on MOOC platforms. Among the five courses, Academic English Writing by Southeast University not only garnered a significant number of viewers but also received a considerable number of evaluations, suggesting a notable level of feedback capability for that particular course. Furthermore, the fluctuating rating stars around 4.6 (out of 5) for the various types of academic English writing courses indicated a certain level of divergence in evaluations, adding valuable insights for course assessment. These findings lay the groundwork for the project team to conduct further surveys to evaluate the courses in greater detail.

Table 1: Top 5 English writing course evaluation data

Course Name	English Writing	Advanced English Writing	Writing English for Academic Purposes	Writing English for Academic Purposes (2)	General Academic English Writing
Number of viewers	2391	1596	7999	3085	589
Number of course evaluations	98	48	1010	390	32
Course Evaluation Star Rating	4.9	4.6	4.6	4.7	4.5
Host school	Wuhan University of Technology	Xi'an International Studies University	Southeastern University	Beijing University of Technology	China University of Political Science and Law

4. Evaluation analysis of MOOC academic English writing courses

This research aims to investigate the teaching evaluations of students in MOOC academic English writing through a sample survey, as well as analyze the learning records of university students enrolled in the course. By examining these two aspects, we can identify the deficiencies raised in students' evaluations and the progress observed in their learning records. As the MOOC format has a global reach, it is imperative for instructors to enhance their academic qualifications to ensure a certain level of rigor. In light of this, Zhang Xiufang (2005) proposes an approach where teaching materials are divided into smaller modules, allowing for a logical sequencing of the teaching process. By organizing the modules in a logical progression from superficial to in-depth content, students can systematically accomplish the behavioral objectives associated with each module. As MOOCs are online and offer flexibility, teachers should strategically structure their courses, ensuring a logical flow from basic to advanced concepts while allocating an appropriate amount of instructional time.

4.1 A sample of student evaluations of MOOC academic English writing courses

To ensure the generalizability of our study, our research team selected four courses from different universities on the MOOC platform (refer to Table 1). We randomly sampled student comments from each course, which allowed us to collect the following feedback on teaching effectiveness:

Course 1: Writing English for Academic Purposes
Student Comments:
(1) The course content is concise and well-structured, with focused lessons that greatly enhance learning.
(2) Teacher Liu is excellent, delivering clear lectures and providing ample class time. Deserves five stars!
(3) The teacher is articulate and patiently addresses students' questions, imparting practical skills effectively.
(4) The organization is clear, and there is an abundance of examples.
(5) The course offers rich content, and the availability of materials in the online classroom allows for convenient access to valuable writing knowledge.

Course 2: Advanced Academic English Writing
Course Evaluation:
(1) The class is highly practical, but the teacher's emphasis on theories and concepts is excessive.
(2) The teacher's lectures were cut short.
(3) The teacher provided detailed explanations, leading to significant learning outcomes.
(4) The professor provided comprehensive analysis of English writing skills and strategies, covering various levels of detail.
(5) The balanced ratio of Chinese to English usage during the course was comfortable, and I acquired substantial knowledge.

Course 3: Writing English for Academic Purposes
Course Evaluation:
(1) I have gained valuable and practical knowledge that I can consistently apply in my future studies. The course is comprehensive, clear, and has made academic paper writing in English less daunting.
(2) Studying the academic writing course at Beijing University of Chemical Technology has been highly beneficial.
(4) Some of the Chinese translations are awkward and do not align with Chinese linguistic conventions. Some are outright incorrect, such as "eye and choppy" and "elevate vocabulary."

Course 4: General Academic English Writing
Course Evaluation:
(1) This course provides a refreshing departure from the dry and insubstantial writing courses on MOOCs. The content and structure are rewarding. However, the teaching style is somewhat "old-fashioned," resembling outdated videotape courses. The course's strong content is hindered by the lecture style.

(2) I believe this course has tremendous potential, offering direct assistance in writing rather than imposing rigid templates. Nevertheless, there are noticeable drawbacks. The approach feels perfunctory in many aspects, making it difficult to follow the PowerPoint examples due to the teacher's obstruction. The running water effect in the PPT and mechanical reading add to the challenge. Despite these issues, the course remains valuable, providing significant guidance. I hope the teacher invests more thought into its delivery.

The aforementioned courses were offered by Wuhan University of Technology, Xi'an University of Foreign Studies, Southeast University, and China University of Political Science and Law. Analyzing the students' course evaluations, it is evident that the overall assessment of MOOC courses by students is positive. They have acquired knowledge and skills related to academic writing through self-directed study.

Simultaneously, the evaluations reveal areas for improvement in the courses, highlighting the need to enhance teaching models and move away from traditional methods. Although the universities excel in delivering cutting-edge content, their teaching approaches have yet to evolve. This comment underscores the importance of transforming MOOC teaching in China, as the current delivery lacks rigor and obscures the instructional content.

These findings demonstrate that China possesses cutting-edge knowledge and ideas. However, specialized training in innovative teaching methods is necessary to adapt to the online learning environment and achieve better results in MOOC delivery. Moreover, MOOCs challenge students' learning abilities, necessitating the development of critical discernment rather than passive acceptance of all information.

4.2 A case study of English majors taking a MOOC academic English writing course on their own

In this study, the project team selected the MOOC platform to investigate academic English writing. Specifically, they focused on the Academic English Writing course offered by Liaoning University over a two-month period. Remarkably, the team had the opportunity to observe the course's progress in real-time as it coincided with their research investigation. They actively participated in the complete MU academic English writing course and documented their learning experience through weekly journals.

Regarding course content, the lectures covered various aspects, including the definition of research, distinctions between quantitative and qualitative approaches, conducting research in both domains, academic writing principles, essay completion, appropriate academic writing style, effective punctuation usage, and academic essay formatting. The curriculum provided comprehensive and structured guidance, covering each step of the academic writing process. The students participating in the academic course were first-year students who had limited exposure to academic English writing. However, upon completing the course, they expressed having gained a preliminary understanding of academic English writing.

The teaching methods employed in MOOC academic English writing courses demonstrate a cutting-edge and innovative approach compared to traditional offline courses. For instance, the initial lessons introduced novel concepts like the "wheel research method" and the "classification research method," offering fresh perspectives on documentation. Subsequent lessons progressively delved deeper into ESP teaching, providing foundational knowledge for academic purposes. Additionally, the fourth lesson introduced the outstanding CNKI data search website and emphasized adherence to APA and MLA guidelines. The teaching approach aimed to present English academic writing from an international standpoint, offering students content with cross-regional relevance.

It is worth noting that the benefits of academic writing instruction through MOOC extend beyond theoretical knowledge acquisition. Students also experience cognitive development, enhanced critical thinking skills, and rigorous mental exercises. MOOCs provide a platform for nurturing students' intellectual capacities in addition to imparting practical writing skills.

5. The construction of a "catechism teaching model" for academic English writing

5.1 The concept of "catechism teaching model"

The popularity of major MOOC platforms stems from their convenience, which serves as a cornerstone for their widespread adoption. However, the lack of student-teacher interaction on these platforms poses a significant challenge. Students require targeted tutorials and clear study guides to overcome this obstacle. Hence, when designing a "MOOC teaching model" for academic English writing, it is essential to prioritize course relevance, prevent teaching homogeneity, and foster course refinement. This can be achieved by strengthening the sense of participation among students and teachers, establishing robust connections between the university, teachers, students, and the platform, thereby promoting the integrated and parallel development of these components.

In the reviewed literature, Xie Ping (2020) highlights the supportive role of the "three-loop" blended English teaching method in facilitating students' independent learning. Chen Jing (2021) emphasizes the impact of students' emotional and cognitive engagement on blended academic English writing courses. Additionally, Shang Yunhe (2022) suggests that guided learning videos can alleviate difficulties faced by university students in the learning process. Therefore, constructing a "blended model" should take into account the emotions and engagement of the main stakeholders. Moreover, incorporating appropriate amounts of introductory videos can enhance the flexibility of writing courses. In the Internet+ era, digital information accessibility enables the online and offline delivery of writing courses to coexist and develop in tandem.

5.2 Building the foundations of the "catechism" model

The initial step towards achieving effective collaboration between universities and catechism platforms involves establishing a robust linkage. Universities are responsible for providing qualified teachers and students, while the catechism platform primarily offers an AI-driven intelligent writing revision system, a grading system, an extensive library of teaching videos, and an online live teaching system. Building upon this collaboration, the university engages English writing teachers to instruct platform operations through the online platform, while in-classroom instruction by teachers focuses on equipping students with essential platform usage skills. Once these foundational elements are in place, further optimization and development of the course can be pursued.

5.2.1 Technical requirements for the "catechism" model

The "I write" English writing teaching platform offers an exemplary illustration of how an AI-driven essay revision system can significantly enhance students' grammar and spelling accuracy. With this system, teachers can focus on analyzing and guiding the structure and ideas within students' essays, thereby saving considerable time. Consequently, the integration of intelligent essay revision processes plays a vital role in establishing an effective "catechism teaching model."

One of the most notable features of the MOOC platform is its resource exchange function, enabling students to access relevant video libraries and teaching aids. This provision empowers students to learn at their convenience, irrespective of time and location.

To align more seamlessly with university teaching programs, implementing a booking system for public courses proves to be a valuable strategy. Such an approach not only fills gaps in the university's extracurricular schedule but also helps prevent scheduling conflicts within the regular curriculum.

5.2.2 The "catechism" teaching format

The Catechism model represents a blended approach to teaching that combines offline and online components. Offline teaching aims to foster interaction between teachers and students while providing opportunities for face-to-face engagement, enabling students to fulfill their study requirements and participate in classroom team activities. The university establishes a connection with the catechism platform and utilizes it to develop teaching

plans for instructors and learning objectives for students. Teachers collaborate with the platform by following the step-by-step plans and offering feedback upon completion.

Throughout the course, teachers utilize software tools provided by the institution's platform to supplement students' learning experience. They leverage videos and relevant literature to augment theoretical knowledge acquisition. Additionally, the platform's convenience allows for the assignment of homework tasks and facilitates academic interaction. Students, on the other hand, leverage the platform's AI revision function to identify simple grammatical and lexical errors in their essays. This process not only advances the course but also enhances their ability to self-assess and refine their writing skills. Moreover, students access relevant knowledge through the platform's corpus system, allowing them to internalize and assimilate the writing styles of others, thereby supporting their development in academic English writing.
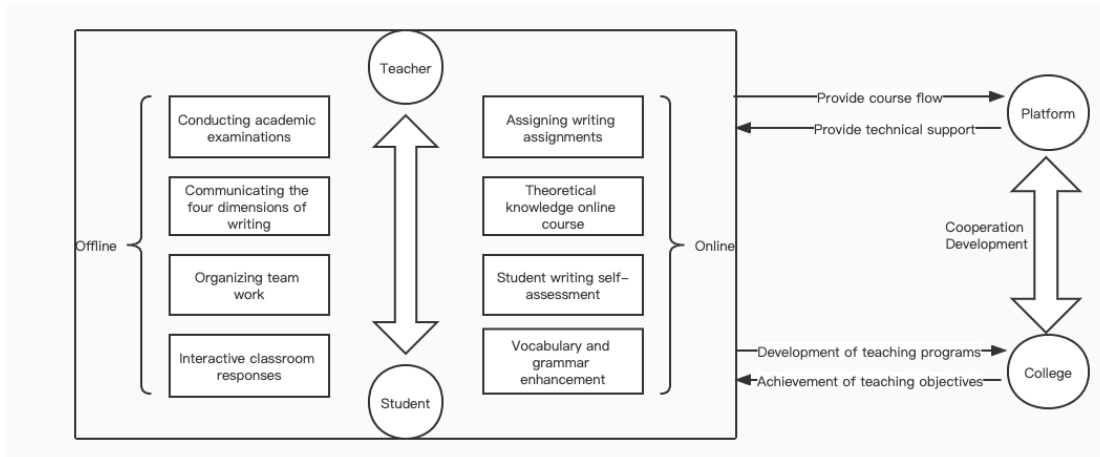

Figure 1: An attempt to run a "catechism model" for academic English writing

5.3 The need for various aspects of the "catechism model"

5.3.1 The role of the platform

The catechism platform serves as a primary medium for online teaching and holds a pivotal position in the "catechism teaching model." Once the project is successfully launched, the platform should collaborate with contracted universities to develop a series of English academic writing courses aligned with relevant English major training programs. Additionally, ensuring a secure online environment throughout the course is crucial to prevent external interference. Upon course completion, the university should be notified, and with proper permission and accreditation, video resources and related literature should be published in the resources section of the platform. This facilitates the exchange of online course resources among universities, fostering comprehensive improvement in students' academic English writing skills. Technical support provided by the platform is equally essential. This includes features such as the "essay self-test" and an extensive library of videos and literature, which are challenging to replicate in physics teaching. Furthermore, the systematic assessment of initial writing submissions on the platform is vital as it significantly reduces the time required for teachers to provide essay corrections.

5.3.2 The role of universities

Catechism platforms heavily rely on universities as their primary providers. Consequently, it becomes crucial for universities to establish coherent teaching plans and objectives within the framework of the "catechism teaching model." English academic writing, being just one facet of English language learning, represents only a portion of the curriculum for English language students. Thus, optimizing the course's efficiency becomes a paramount goal. To achieve this, course tasks should be thoughtfully designed as periodic assignments, aiming to enhance students' writing skills and foster cognitive flexibility. Furthermore, it is imperative to establish appropriate academic targets that can serve as a source of motivation for both teachers and students throughout the course.

During the development of a training program, emphasis should be placed on achieving "refinement" and "targeting" to cater to the diverse needs of academic English writing. For instance, specific directions can be explored, such as writing in business and economics or writing in translation. This approach ensures a well-rounded curriculum that addresses students' varied interests and goals, ultimately maximizing efficiency. Furthermore, the program design should prioritize creating a conducive learning environment that fosters emotional engagement among students and teachers alike, as this has been shown to contribute to overall effectiveness.

By focusing on optimizing efficiency and effectiveness, universities can enhance the quality of English academic writing courses within the catechism platform. This approach not only serves the larger objectives of English language learning but also aligns with the multifaceted nature of students' academic journeys.

5.3.3 The role of teachers and students

Teachers and students play pivotal roles in the development of the MU teaching model. It is crucial for teachers to undergo training and gain proficiency in the new online teaching platform to minimize errors in the planning phase. During the teaching process, teachers should prioritize offline instruction while incorporating online teaching methods. This approach not only complements the limited interaction between teachers and students in online courses but also adds dynamism to the classroom, fostering empathy and emotional engagement. As a contemporary educational tool, the MU platform should be fully embraced by both teachers and students. Teachers should strive to share their teaching resources on the MU platform, while students should proactively take charge of their own learning, utilizing the platform's resources to overcome challenging problems and engaging in mechanical tests and extended writing exercises to enhance their skills. This approach reduces the burden on teachers for essay corrections, allowing them to focus on guiding students in developing coherent writing structures and ideas.

6. The benefits of the MU model for academic English writing for all parties

6.1 For colleges and universities

The Catechism mode of teaching academic English writing is a unique teaching mode for universities, which can improve the diversity of teaching in universities. Secondly, the MU platform provides universities with a network of information technology to help them, to a certain extent, equipped with powerful hardware equipment, providing a corresponding online teaching platform, which makes up for the lack of resources in some universities, the problem of tight teaching courses. In the preparation of English students in colleges and universities, it provides a variety of training routes and improves the teaching and training system of colleges and universities.

6.2 For teachers

The "catechism model" is still a new way of teaching for most modern teachers, so in terms of teaching methods, teachers gain new ways of teaching. In addition, teachers can also integrate their own teaching experience with online teaching methods, which in turn will lead to more teaching models and ideas. "The Catechism model is a pioneering and innovative approach. In the course, the teacher will be very different from the single offline teaching mode of the past, in which the teacher only reads the theory of writing in class and issues writing assignments at the end of class, which take most of the teacher's time to correct. Under the MU teaching model, students will be able to complete most of this content on their own, and the extra time saved will enable teachers to understand each student's writing style and shortcomings, and to provide targeted writing guidance to students, thus optimising the teacher's teaching mode and improving the overall standard of teaching.

6.3 For students

For students, the MU teaching model is a new way of teaching and learning. Unlike the old paper-based education, this teaching model allows students to go beyond the resources at hand. Students can search the platform's library

of open teaching resources from different universities, so that they can learn from the ideas of different schools even if they are at different universities, thus crossing the gap between different regions and universities, raising the upper limit of students' English academic writing resources, and achieving a breakthrough in students' self-reflection. Much of what is involved in this model is about the students' own self-awareness and emotional commitment to academic English writing, and what the teacher and platform can do to help is to generate interest in academic English writing, the benefits of which are positive feedback. Students will improve their academic English writing skills and broaden their access to learning resources as a direct result of the teaching model.

6.4 Platform-oriented

The most immediate advantage of a successful 'catechism model' for a catechism platform is that it brings momentum and fresh blood to the platform. A platform cannot be sustained without real people using and accessing it, so the platform may work with a number of universities to facilitate the sharing of resources between them. In completing the cooperation with major universities, the value of the platform itself has been sublimated. As a transit point for sharing academic resources, the platform itself will receive stronger technical support and first-class recruitment of interns, and while ensuring the normal operation of the platform, the platform and the universities will receive positive feedback on their interests, and the platform will improve its own fame and reputation through the on-campus publicity and dissemination of major universities, so as to attract more companies or universities in the society to negotiate and exchange with the platform, and the influence of the platform will The platform's influence will grow further.

7. Summary and outlook

The MU teaching model for English academic writing represents an innovative approach aligned with the demands of the new era and the "Internet+" context. Its primary focus is on English undergraduate students seeking to enhance their skills in academic writing. The model aims to transfer essential course content to the classroom while utilizing the platform database for general theoretical information. This approach enhances course efficiency and provides students with comprehensive development opportunities across various domains. Furthermore, the applicability of the MU model extends beyond English academic writing to other English-related courses such as translation, listening, and speaking. Despite variations in course content, the effectiveness of the teaching model remains intact, warranting further investigation and exploration.

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Appendix

Table 2: Statistics

Platform Name	Total number of classes offered in English	Number of academic English writing courses offered	Total number of classes offered (university classes only)	Total number of platform users
UMOOCs	271	26	477	200000
CNKI Online Teaching	21	4	8910	
MOOC of Chinese universities	1320	62	9034	370000000
zhihuishu	475	30	10780	40000000
Xueyin Online Education	710	23	16800	47000000
UOOC	213	68	1377	500000
CNMOOC	49	19	3116	
ZJOOC	877	54	18658	3416261
CQOOC	110	10	522	

Evaluation of Demonstration Learning Models in Improving Vocational Student Learning Outcomes

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Abstract

Technology 4.0 is currently developing rapidly, which has been used in various fields. One of them is as a tool in the field of education. The use of technology in the 4.0 era in learning is a necessity, including digital simulation learning. The use of Technology 4.0 in the world of education, especially in learning, will have an impact on the teaching and learning process to become more creative and competitive. Of course, in its implementation, it is necessary to evaluate the achievement of the learning model that has been implemented before. So this study aims to evaluate the application of demonstration learning models to improve student learning outcomes. The method used in this research is the method of observation, interviews, documentation with data collection techniques using questionnaires and observations, with a type of quantitative research. The population and sampling used in this study were teachers and students of Computer Engineering and Vocational High School (SMK) Network Engineering classes in Bengkulu with a focus on digital communication simulation lessons. Sampling data using several schools from the total sampling, the pattern of determining the sample by taking a number of samples determined randomly from a number of populations studied. Based on this, data samples were taken randomly from a number of teachers and a number of students from several schools. As well as data analysis using quantitative descriptive using the t-test. So, it was found from the results of the t-test showing the value of the questionnaire instrument, verified for the demonstration method (post-test) the average value (mean) is in the range of values of 33.27 and the standard deviation value (Std. Deviation) is in the range of 2.195. While the student interviews using the demonstration method (post-test) are in the range of an average value (mean) of 7.73 and a standard deviation value (Std. Deviation) is in the value range of 1.214. This shows that there is an effectiveness of the demonstration method on student learning outcomes in vocational high schools.

Keywords: Effectiveness, Demonstration Method, Student Learning Outcomes

1. Introduction

The development of learning methods in schools continues to progress alongside the rapid advancement of Technology 4.0, which has been widely adopted in various fields, including education. One of these methods is demonstration learning, which involves modeling and direct observation. In this approach, teachers demonstrate how to apply concepts or skills, while students observe and try them out. Evaluating the effectiveness of this

learning method is crucial in improving student learning outcomes in Vocational High Schools (SMK), considering their unique learning context. SMKs focus on practical skills relevant to the world of work, making it important to assess the demonstration learning model's impact on students' readiness for employment and overall learning achievements. This concept aligns with Mesterjon's (2021) proposal in the book "Theory and Concept of 4.0 Learning Management," stating that integrating Technology 4.0 in education, particularly in learning, enhances the teaching and learning process, fostering creativity and competitiveness. Consequently, the integration of technology in the 4.0 era, including digital simulation learning, becomes imperative.

This research employs the demonstration learning model 4.0 in the context of digital simulation learning. As noted by Sahempa (2021), the demonstration learning model utilizes visual aids to enhance students' comprehension and illustrate the steps involved in each learning process. Digital simulation learning serves as an effective tool, especially in the current technological era. The learning process encompasses three competency domains: cognitive, psychomotor, and affective. Assessing students' competence is pivotal in teaching and learning activities, as it determines their mastery of the material taught. Enhancing student learning outcomes is crucial to gauge the effectiveness of learning methods. Evaluating the demonstration learning model helps measure students' increased understanding, skill mastery, and practical abilities after engaging in this method. The evaluation results provide valuable insights for teachers and educational institutions, enabling them to optimize the use of demonstration methods in vocational learning contexts.

In addition, the assessment serves as a reference to measure the level of success and effectiveness in learning. This is in line with the statement by (Supriyono 2016), which emphasizes that learning must be easy, fun, and aligned with the teacher's expectations. Although the teacher dominates the classroom environment, achieving learning effectiveness requires strategies that are appropriate to the students' conditions. The state of the students plays an important role in achieving optimal results; thus, the right strategy is needed to meet the learning objectives. Therefore, teachers must utilize appropriate learning methods and media to maximize the learning objectives. Learning methods serve as tactics for conveying subject matter in a way that promotes student understanding, knowledge acquisition, utilization, and mastery.

This research focuses on evaluating the demonstration learning model, which is an important part of the ongoing educational research. The researcher hopes that by evaluating the demonstration learning method, researchers and educational practitioners can contribute stronger empirical evidence about its effectiveness. This will assist in evidence-based decision-making to improve the quality of education and student learning outcomes in SMK.

Furthermore, this study aims to measure the effectiveness of learning and help schools evaluate the extent to which the model is effective in delivering learning material to students. This involves measuring student progress, understanding concepts, and applying skills taught through demonstration learning models. The results of this study can also be used to assist schools in identifying the strengths and weaknesses of the model, including assessing the efficiency and effectiveness of the learning model, as well as identifying areas where the model needs improvement or adaptation.

2. Method

This research employed the Classroom Action Learning method approach, and the data was collected through observations and the use of a questionnaire. The learning model under study is the demonstration method, as proposed by Syaipul (2016). The demonstration method involves presenting lessons by demonstrating a particular process, situation, or object to students, either in reality or through imitation, accompanied by oral explanations. Similarly, according to Muhibbin (2017), the demonstration method is a teaching approach that involves demonstrating items, events, rules, and sequences of activities directly or using relevant teaching media. Arikunto (2016) also supports this view, stating that the demonstration method delivers material by showcasing a process or activity. Based on the opinions of these experts, it can be interpreted that the demonstration method is a teaching approach that involves demonstrating or displaying a method using relevant learning media for the presented material.

During the observation of several sampled schools, particularly in digital communication simulation classes, the researchers noticed that the demonstration method was commonly used. In these classes, students observed the teacher directly demonstrating the operation of the equipment used for learning. The implemented learning system raised initial suspicions of increased student learning achievement, which necessitated evaluation based on actual results. This suspicion arose because only a few students in the sample schools were able to complete practical assignments on time, while others faced difficulties, resulting in incomplete assignments. Ideally, learning should stimulate student creativity, promote active engagement, effectively achieve learning goals, and take place in a pleasant environment. Achieving such ideal learning conditions is only possible with the support of an ideal teacher. According to Suyono (2017), an ideal teacher possesses enthusiasm, motivates students, ensures that the conveyed material covers all discussion units, provides clear explanations, employs diverse teaching methods, instills hope in students, fosters accountability, accepts various inputs, supports students, and possesses effective classroom management techniques.

Therefore, this study aimed to evaluate the learning methods employed by observing the systematic teaching practices of the teachers. One of the teacher's efforts, during the researcher's investigation, was to directly demonstrate and present the BENIME 2D application menu, which specifically describes the subject matter related to simulation and digital communication. This approach aimed to capture the students' interest and enhance their understanding of the material through visual and auditory means. Digital Communication Simulation subjects equip students with the ability to communicate ideas or concepts using digital media. In this learning process, students can communicate and bring to life ideas or concepts presented by others through digital media. The hypothesis regarding these matters can be seen in the following figure:

The use of demonstration learning methods for student learning outcomes aims to foster students' interest and enthusiasm in the learning process. Employing the appropriate learning method greatly increases the chances of achieving the learning objectives to their fullest extent. By utilizing video-based demonstration methods in digital simulation subjects, one can identify the factors that hinder the learning process, thereby maximizing the learning outcomes. This aligns with the opinion of Mesterjon (2023), who suggests that different media and methods should be employed based on the specific needs and audience. Therefore, researchers need to assess the effectiveness of the research hypothesis, which is a crucial aspect to address research problems, and it can be validated through the collected data. The hypotheses for this study are as follows: (1) There is a possibility that the demonstration learning method is effective for improving student learning outcomes in simulation lessons and digital communication based on a sample of schools. (2) There is a possibility that the demonstration learning method is ineffective for improving student learning outcomes in simulation lessons and digital communication based on a sample of schools. To collect data, various instruments were employed, including observation, questionnaires, and documentation. These indicators were measured using the t-test and observation sheets. This research was conducted in multiple schools, with students from each school being selected as participants. The data for this study were obtained through questionnaires and multiple-choice question sheets to gather information regarding student learning outcomes.

3. Results and Discussion

Based on the findings of the study, it can be concluded that the utilization of the demonstration method in teaching has resulted in positive changes and has shown a tendency to enhance student learning outcomes in simulation and digital communication subjects. This conclusion is supported by the analysis of the multiple-choice question instrument administered to a sample of students from various schools. The test results are as follows:

Table 1: Results of Tests of Normality

Normaliti	Kolmogorov- Smirnov^2			Shapiro-Wilk		
	Statistik	'df1	Sig	Statistik	'df2	Sig.
PreTest. Angket	0.172	Xxx	0.200	0.925	Xxx	0.358
PostTest Angket	0.122	Xxx	0.200	0.970	Xxx	0.891
PreTest Pilhan ganda	0.282	Xxx	0.014	0.882	Xxx	0.110

PostTest Pilhan ganda	0.234	Xxx	0.094	0.878	Xxx	0.097

The table above describes the results of the normality test conducted on student learning outcomes data (pre-test) and student learning outcomes data (post-test) using the Kolmogorov-Smirnov test. According to the table, the p-value (Sig.) for the observation questionnaire of student learning outcomes (pre-test) is 0.200, while the p-value (Sig.) for the multiple-choice questions of student learning outcomes (pre-test) is 0.014. Additionally, the p-value (Sig.) for the observation questionnaire of student learning outcomes (post-test) is 0.200, and the p-value (Sig.) for the multiple-choice questions of student learning outcomes (post-test) is 0.094.

Based on the distribution of the data, it can be observed that all the p-values are greater than 0.05. Therefore, it can be concluded that the data (pre-test and post-test) are normally distributed. This homogeneity test aims to determine whether the research data groups have the same variance or not, indicating whether the data sets have similar characteristics. The interpretation criteria for the homogeneity test using the SPSS program are as follows:
1.   If the p-value is greater than>0.05, it indicates that the data variation is homogeneous.
2.   If the p-value is less than>0.05, it suggests that the data variation is heterogeneous.

Table 2: Results of Tests of Homogeneity of Variances Questionnaire Instrument

Nilai	Levane Statistic	'df1	'df2	Sig.
Based on Mean	0.018	1	20	0.995
Based on Median	0.030	1	20	0.965
Based on Median and with adjusted df	0.030	1	19.943	0.965
Based on trimmed mean	0.014	1	20	0.907

The table above presents the results of the data homogeneity test conducted on the student learning outcomes questionnaire (pre-test) and the data on student learning outcomes during instruction (post-test). The data was analyzed using the Levene test (F test), yielding a p-value of 0.895. Since the p-value is greater than 0.05, it indicates that the data is homogeneously distributed.

Table 3: Results of Tests of Homogeneity of Variances of Multiple-Choice Questions

Nilai	Levane Statistic	'df1	'df2	Sig.
Based on Mean	0.032	1	20	0.859
Based on Median	0.000	1	20	1.000
Based on Median and with adjusted df	0.000	1	18.716	1.000
Based on trimmed mean	0.020	1	20	0.890

The data obtained from multiple choice questions was used to assess the learning outcomes of students before they were taught (pre-test), as well as the data on student learning outcomes after they were taught (post-test). The Levene test (F test) was conducted, resulting in a p-value of 0.859. Since both F tests yielded a p-value greater than 0.05, we can conclude that the data is statistically similar or homogeneous.

Table 4: Output results of the Paired Samples Statistics t-test

	Instrumen Angket	Mean	N	Std. Deviation	Std Error Mean
Pair 1	PreTest	20.18	Xxx	2.089	0.630
	Post Test	33.27	Xxx	2.195	0.662

Based on the table above, it confirms the mean and standard deviation values for student learning outcomes before being taught (pre-test) and after being taught (post-test). The table indicates that the observed questionnaire yielded an average value of 20.18 and a standard deviation of 2.089 for student learning outcomes before being taught,

while the average value was 33.27 and the standard deviation was 2.195 for student learning outcomes after being taught.

Table 5: Output results of the Paired Samples Statistics t-test

	Instrumen Angket	Mean	N	Std. Deviation	Std Error Mean
Pair 1	PreTest	2.55	Xxx	1.214	0.366
	Post Test	7.73	Xxx	1.105	0.333

According to the t-test table above, it can be observed that the multiple choice questions yielded an average value (mean) of 2.55 and a standard deviation (Std. Deviation) of 1.214 for student learning outcomes in the pre-test. In contrast, the average value (mean) for student learning outcomes in the post-test was 7.73, with a standard deviation (Std. Deviation) of 1.104.

Table 6: Results of Paired Samples Correlations

Instrumen Angket	N	Correlation	Significance	
			One-Sided p	Two-Sided p
Pre Test & Post Test	Xxx	0.948	< 001	< 001

The table above presents the results of the independent samples t-test, which examines the average difference between student learning outcomes (pre-test) and student learning outcomes (post-test). The independent samples t-test is appropriate for this analysis because the data for both the pre-test and post-test are normally distributed. Based on the table, it can be observed that the independent samples t-test (t) value for the data obtained from the questionnaire instrument is 0.948, with a corresponding p-value of 0,001.

Table 7: Results of Paired Samples Correlations

Instrumen pilihan ganda	N	Correlation	Significance	
			One-Sided p	Two-Sided p
Pre Test & Post Test	Xxx	0.943	< 001	< 001

In the table above, the data obtained from the multiple-choice questions shows a value of 0.943 with a p-value of 0.001. Since the p-value is less than 0.05, it indicates a significant difference between student learning outcomes (pre-test) and student learning outcomes (post-test), suggesting an average difference.

Table 8: Paired Samples Test Results

Data Instrumen Dw							Significance	
Mean	Std Deviation	Std Error Mean	Confidence Interval of the Difference		T	Df	One Sided p	Two Sided p
			Lower	Upper				
-14.092	0.701	0.211	13.562	12.620	61.965	10	< 001	< 001

The table above illustrates the results of the paired samples t-test conducted to compare student learning outcomes (pre-test) and student learning outcomes (post-test). According to the table, the standard deviation value (Std. Deviation) for the questionnaire instrument data is 0.701, and the corresponding p-value is 0.001.

Table 9: Paired Samples Test Results

Data Instrumen Dwj							Significance	
Mean	Std Deviation	Std Error Mean	Confidence Interval of the Difference		T	Df	One Sided p	Two Sided p
			Lower	Upper				
-6.293	0.406	0.22	0.3.454	0.4.910	42.485	10	< 001	< 001

Meanwhile, according to the table of multiplechoice questions, the standard deviation value (Std. Deviation) is 0.405, and the corresponding p-value is 0.001. Since both the questionnaire instrument data and multiplechoice questions have a p-value less than 0.05, it can be concluded that there is a significant average difference between student learning outcomes (pre-test) and (post-test).

Based on the research results and hypothesis testing, the discussion in this study can be described in more detail. The hypothesis suggests that there is an effectiveness between the use of demonstration methods to increase student learning outcomes. The results indicate an increase in learning completeness when using the demonstration method. This is supported by the average value of student learning outcomes (post-test) for the questionnaire instrument, which was 33.27, and the value of the multiple-choice questions, which was 7.73. In contrast, the average value for the broad-scale lecture method (pre-test) was 20.18 for the questionnaire instrument and 2.55 for the multiple-choice questions.

In the digital simulation subjects, the pre-test results using an observation questionnaire instrument showed that all students sampled from schools in the medium category had a percentage range of 42.5% - 57.5%. In the post-test, three students achieved the sufficient category, with a percentage range of 75% - 77.5%. Additionally, several student samples fell into the high category, with a percentage range of 80% - 92.5%. The data obtained using multiple-choice questions in the pre-test showed that some student samples fell into the very low category (0% - 10%), some into the low category (20% - 30%), some into the sufficient category (40% - 50%), and in the post-test, some sample students achieved the sufficient category (60% - 70%), while others reached the high category (80% - 90%). Furthermore, in the subsequent test (pre-test), both the questionnaire instrument and multiple-choice questions were given to the students. It was observed that students answered the questionnaire instrument and multiple-choice questions by guessing and to the best of their knowledge. Similarly, in the post-test using the demonstration method, students were once again given questionnaires and multiple-choice questions, which yielded better results compared to the previous method (pre-test). This can be attributed to the fact that the demonstration method allows students to directly observe and participate in the learning process. In line with Arikunto's statement (2016: 197), the demonstration method is an effective way of delivering material by demonstrating a process or activity. The data processing using SPSS aligns with the research conducted by Mesterjon (2022), who stated that the demonstration method applied to the experimental class significantly affects student learning outcomes.

4. Conclusion

Based on the research results, it can be concluded that the evaluation of the application of the demonstration learning model 4.0 to digital simulation learning in grade 10 students was conducted through sample trials. The results obtained from a number of student samples fell into the sufficient category, ranging from 60% to 70%, while a number of students achieved high scores, ranging from 80% to 90%. Therefore, it can be inferred that the application of the demonstration learning model 4.0 to digital simulation learning has a positive impact on student learning outcomes. The utilization of this model can assist schools and educators in enhancing student achievement and improving school accreditation.

Acknowledgment

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Enhancing Student Engagement in Legal and Criminological Modules: An Andragogical Approach in Higher Education

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Abstract
This research examines the application of andragogical learning and teaching methods in legal and criminological modules in higher education to enhance students' engagement. The study is an online survey that includes both students and lecturers at Hertfordshire Law School (HLS). The research identifies strengths and areas for improvement from both staff and students' insights. Some of the strengths include peer learning and group work, collaboration, problem-solving and critical thinking within HLS modules. In the same vein, areas for improvement include emphasis on individual problem-solving, learners' experience, self-directing scholarship, and guidance of students on research skills. Recommendations offered include balancing individual and group activities, incorporating visual aids, and aligning assessments with problem-solving skills and tactics. Foster-ing self-reflection and collaborative learning can empower students significantly. Implementing andragogical principles can enhance learning strategies and promote effective scholarship in legal and criminological studies.

Keywords: Andragogical, Criminological, Legal, Self-directing, Problem-Solving, Self-reflection, Student Engagement

1. Introduction

Legal and criminological modules in higher education are renowned for their rigidity, abstraction, and complexity, owing to diverse applications of legal and criminological jurisdictions across various justice systems (Kasper & Laurits, 2016). Consequently, engaging students in these modules becomes a paramount challenge for educators. To address this, our research explores implementation of andragogical learning and teaching methods within and across HLS modules, with a specific focus on enhancing students' engagement (Zepke & Leach, 2010), self-directing, problem-solving, and critical thinking throughout learning and teaching processes. Andragogy, as an art and science of adult learning, emphasises the significance of learners' experiences, self-directedness, and problem-solving abilities. Integrating andragogical principles in legal and criminological modules can empower both students and lecturers (Ekoto & Gaikwad, 2015). For students, it provides a learning environment that acknowledges students' prior knowledge, real-life experiences, and professional aspirations, fostering a sense of ownership over their education (Samson, 2015). Moreover, andragogical approaches encourage students to actively participate in the learning process, leading to deeper comprehension and long-lasting knowledge retention (Michael, 2006).

For lecturers, employing andragogical strategies enhance their instructional effectiveness (Wilson, 2009). It allows them to tailor their teaching methods to suit individual learners' needs, interests, and learning styles, thereby creating a dynamic and engaging classroom atmosphere. Andragogical principles also foster a collaborative learning environment, where lecturers become facilitators of knowledge, promoting student-centred discussions and exploration of complex legal and criminological concepts (Ekoto & Gaikwad, 2015).

The central aim of this research is to investigate how andragogical learning and teaching methods can enrich the learning experience of students in legal and criminological modules. We seek to identify the most effective strategies that encourage students' engagement through self-directing, problem-solving, and critical thinking while exploring both students and instructors' orienteering to practical application of legal and criminological concepts in real-life scenarios.

Based on the research outcomes, a series of evidence-based recommendations will be proposed to enhance the learning and teaching of legal and criminological modules in higher education. These recommendations will encompass practical strategies to encourage students' engagement, critical thinking, and active learning in these complex subject areas.

In essence, our endeavour is to shed light on the importance and application of andragogical principles in both students' learning experiences and lecturers' instructional practices in legal and criminological modules. By embracing andragogical methods, we envision creating a dynamic and stimulating learning environment that nurtures students' intellectual growth, equipping them with necessary skills and knowledge essential for their successful careers in legal and criminological domains.

To this end, the structure of this paper is organised as follows: Firstly, a comprehensive review of existing literature is conducted to explore the impact of employing andragogical learning and teaching methods, particularly in providing relevant applications in legal and criminological modules. The subsequent section elaborates on the research methodology adopted for this study, detailing data collection procedures, participant selection, and data analysis techniques.

2. Literature review

Andragogy is an approach applied to adult learning and teaching focusing on self-directing and problem solving at the core of higher education.[1] It is based on the idea that adults learn differently form children and that adults have different needs and motivations throughout their learning process (Bloch, 1982). It emphasises experiential learning and encourages adults to take an active role in the learning and teaching processes. Andragogy also emphasises the importance of contextual learning in the learners' experience (Schneider, 2021). Andragogy is an educational approach that emphasises self-determined learning (Blaschke & Hase, 2016). It is based on the idea that individuals are best able to learn when they take ownership of their own learning process, hence, learning must be self-directed in higher education, with adult learners taking responsibility of their own learning process as well as making informed decisions about their learning goals and activities. Andragogy encourages learners to develop own learning strategies and building upon own skills, knowledge, and experiences (Wilson, 2009).

Andragogy as a learning theory emphasises self-directed learning, where learners take an active role in their own learning, utilise their own experiences and application of both technology and problem-solving techniques in the learning process (Bloch, 1982). It is a critical space in which learning and teaching of legal and criminological concepts at higher education are scaffolded and developed (Glassman & Kang, 2016). It empowers neophytes to take ownership of learning and develop relevant skills and competencies for becoming lifelong learners (Huxley-Binns, 2016).

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[1] Andragogy is both a theory and practice of adult education focusing on unique characteristics, needs, and motivations of adult learners, for more: Knowles, M.S., 1970. The Modern Practice of Adult Education; Andragogy versus Pedagogy.

In the context of learning legal and criminological modules, andragogy is key in enabling neophytes to become self-propelling learners, equipped with necessary and adequate skills to conduct research, analyse data, and apply legal and criminological concepts to real-life situations (Maze, 2020). Through andragogical approach, students can learn to identify gaps in their own knowledge and develop strategies to fill such gaps, rather than relying solely on instructors for guidance (Glassman & Kang, 2016; Trigwell &Shale, 2004).

Moreover, andragogy emphasises the importance of critical thinking, problem-solving, and self-reflection, which are essential skills in both legal and criminological professions (Xusanovna, 2023). By engaging in self-directed learning students can develop these skills and become better prepared to navigate complex legal and criminological issues (Ferguson et. al., 2016; Jaakkola, 2015; Hirsch et. al., 2013; Canning & Callan, 2010). What's more, students can stay up to date with legal and criminological developments and adapt to changing circumstances, concomitant with ongoing professional success (Chrysidis et. al., 2020).

Incorporating andragogy in the learning and teaching of both legal and criminological concepts involve creating a learning environment that fosters collaboration, critical thinking, problem solving and self-reflection on unique learning experiences (Taylor, 2017). Instructors can use a variety of strategies, such as case studies, problem-based learning, learning-enhancing technologies (synchronously and asynchronously) and peer-to-peer learning opportunities to invoke sustainable engagement and active participation throughout the learning process (Blaschke, 2016). Learners would be encouraged to set their own learning goals, choose their own learning activities, and reflect on their own learning progress and regress (Canning, 2010).

One potential challenge in implementing andragogy in the learning and teaching of legal and criminological concepts is the need for instructors to shift their roles from that of knowledge-providers to that of facilitators of the learning process. Instructors should be willing to relinquish some control over the learning process and allow learners to take a more active role in their own learning process (Freire, 1996). This could be difficult for some instructors, particularly, those who are used to more traditional, lecture-based teaching methods (Taylor, 2017).

Another challenge is the need for learners to develop skills necessary to take control of their own learning process (Canning, 2010). Neophytes and veterans of law and criminology might be accustomed to more passive, instructor-led approaches of learning, and might require guidance and support in developing necessary learning skills (Daniel, 2021). Instructors might need to provide more explicit platforms (synchronous & asynchronous) as well as clear instructions and constructive feedbacks on students' development of learning skills of which critical thinking, problem-solving, and self-reflection are key on differentiated learning experiences (Takano & Tanno, 2009).

To sum up, incorporating andragogy in the learning and teaching of legal and criminological concepts is instrumental in contemporary learning and teaching, since it involves creating unique learner-centred platforms encouraging collaboration, critical thinking, problem solving and self-reflection. While there may be challenges in implementing andragogical learning principles in practice, the benefits of empowering learners to take control of their own learning process and developing lifelong learning skills are extremely significant.

3. Research Methodology

In this study, we examine the application of andragogical learning and teaching methods in the context of law and criminological modules at HLS. The participants, including both students and academic staff members from HLS, were surveyed anonymously using separate online questionnaires. The research gathered responses from a total of 48 participants, consisting of 22 staff members and 26 students. The analysis is based on open-ended responses collected from both students and lecturers, focusing on three key andragogical principles: self-directed learning, learning from previous experiences, and problem-solving. It is important to note that our initial target sample size for the study was intended to be much larger, comprising of 278 students randomly selected from the HLS law and criminology departments. Additionally, 90 staff/stakeholders were meant to complete randomly the online questionnaires. The original sample size calculations for both students and staff were determined using a random sampling formula, considering a 95% confidence level and a 5% margin of error. However, our final sample size for this research was 48, as certain factors affecting participant recruitment were beyond our scope.

Data pertaining to the three core andragogical principles (self-directed learning, brought-in-learning experiences, and problem-solving) were collected and analysed from two separate questionnaires for students and staff accordingly. The questionnaires included both closed and open-ended questions, aiming to capture the preceding andragogical principles. Prior to participation, respondents were informed about the research purpose, their rights, and given options to consent or not. Both anonymity and confidentiality of responses were ensured to protect participants' privacies.

Data (A.1-A.2 and B.1-B.5) from both students' and staff's questionnaires were analysed using NVIVO software to identify and collate emerging andragogical principles from both closed and open-ended responses. Moreover, for the analysis of open-ended questions, a structured approach using content and thematic analyses were collated using both closed and open-ended responses.

4. Presentation and Analysis of Key Findings

The presumption behind the research is that legal and criminological concepts are difficult or challenging to comprehend without additional students' input in terms of engagement, research, and collaboration, be it synchronously or asynchronously. Our research focus is based on investigating the extent to which andragogical learning and teaching principles are utilised within the learning and teaching of legal and criminological modules at HLS, deriving insights from both HLS learners and instructors. The collated responses on the three attributes of andragogy for HLS students (A.1-A.7) and instructors (B.1-B.5) are shown in the appendix section.

4.1. Analyses and Applications of Collated Responses from Students (see, Appendices A.1-A.7).

Initially, students were asked to provide a self-directed learning activity relevant to either legal or criminological modules (See, Appendix A.1). The students' responses indicate the following conspicuous positives: (i) Engaging in legal research allows for in-depth exploration of specific legal topics, relevant case law, and a comprehensive understanding of the subject matter (Carless, 2015). (ii) Reading books, scholarly articles, and online sources broadens students' knowledge base and exposes them to diverse learning perspectives (Candy, 1991). (iii) Regularly reviewing course materials, including Canvas notes and online resources, reinforces key concepts and enhances comprehension (Garrison & Kanuka, 2004). The following weaknesses, however, in applying the self-directing principle of andragogy is reflected in some students' responses: (i) Students should provide more specific descriptions of own self-directed learning activities showcasing own learning efforts effectively (Merriam & Bierema, 2014). It is essential for students to clearly articulate own specific tasks or actions engaging self-directed learning efforts honing own learning skills. (ii) Students should be encouraged to actively participate in interactive learning experiences like online discussions and group projects fostering self-directed learning, critical thinking, and knowledge sharing (Palloff & Pratt, 2013).

Considering the preceding findings, the following recommendations are proposed: (i) encourage students to provide detailed descriptions of their learning activities, specifying types of research and sources used. (ii) Students should foster active engagement in interactive learning experiences to promote self-directed learning and peer collaboration, which, in turn, pave a way for self-directing, critical thinking, problem solving, knowledge sharing, and peer-to-peer learning tactics (Palloff & Pratt, 2013).

(iii) It is also recommended that students should engage in learning activities using Talis Elevate as it has potential to promote: (i) reflective documentation, (ii) collaborative learning, and (iii) interactive learning opportunities in legal and criminological modules (McDonald & Boud, 2003; Wanner & Palmer, 2015). Through this digital platform, students can annotate course materials, fostering reflective practices and documenting own learning journey at their own suitable time and space. Enabled Talis Elevate collaborative notetaking (private or public) encourages peer-to-peer learning and diverse perspectives empowering students' learning autonomy. Interactive discussions and quizzes facilitated on Talis Elevate stimulate not only collaboration but also active participation and critical thinking both for introverts and extroverts (Luckin, 2018). Such examples may include annotating legal case studies and jointly analysing criminological theories collaboratively just to mention a few examples.

Therefore, implementing Talis Elevate can lead to enriched learning through self-directed principle of andragogy and could potentially improve students' engagement.

The second question of interest focused on students brought in learning experience (the second principle of andragogy) in legal and criminological modules. Students were specifically asked to provide an example of a course concept or topic that was particularly relevant to their personal or professional experience (See, Appendix A.2)

Looking at appendix A.2, there are strengths worth noting. These include the course contents' impact on students' understanding of relevant legal and criminological issues, practical applicability in future careers, and positive reinforcement of their prior knowledge (Davies et. al., 2013). Nevertheless, some responses lacked specificity, necessitating more detailed examples to demonstrate the depth of their own learning experiences. Additionally, the mix of perspectives regarding impact on students' understanding of prior knowledge suggests a need for further exploration of instructional strategies to ensure consistent and meaningful brought in learning experiences for all students (Ekoto & Gaikwad, 2015).

Considering the preceding strengths and points for improvement, the following recommendations are suggested to enhance students brought-in-learning-experiences in legal and criminological modules: (i) Encouraging students to engage in reflective practices relating course contents to their personal or professional experiences. (ii) Prompting learners to provide specific examples of how course contents are applied in real-life contexts. (iii) Incorporating practical exercises, case studies, moot court competitions or simulations to apply course contents to real-life legal and criminological issues, enhancing practical relevance and understanding (Brown et. at, 2014). (iv) Furthermore, Talis Elevate is recommended as a digital platform to facilitate students' reflection and application opportunities in legal and criminological modules through its annotation and collaborative capability features (McDonald & Boud, 2003; McMahon & Oliver, 2019). Students can engage in metacognitive processes, reflecting on case studies and applying theoretical knowledge to real-life scenarios collaboratively using Talis Elevate.

The third question which students were asked was pertains to how course contents provided them with problem solving opportunities in their learning and justifying their responses accordingly (See, Appendix A.3). The analysis of students' application of problem-solving tactics highlights strengths, weaknesses, and development interfaces in legal and criminological modules. Some of the students emphasised practical relevance of HLS courses in developing problem-solving principle of andragogy (Barron & McKeown, 2016), particularly in studying statutory laws related to financial crimes and white-collar crime. (iii) They also recognized the importance of participating in workshops and group discussions with realistic problem-based scenarios, as it hones problem-solving skills and encourages collective problem-solving discussions (Miller et. al., 2019). However, a few responses lacked specific examples or details on how course contents provided problem-solving opportunities to learning. More explicit explaining would enhance understanding and application of problem-solving tactics. (iii) Moreover, there were varying perceptions among students regarding the course contents' effectiveness in developing problem-solving of by which some students expressed uncertainty or indicated a lack of practical experience from their course contents, suggesting a potential gap in module design to consistently addressing problem-solving skills. To address the shortcomings highlighted here, several recommendations are proposed: (i) First, incorporating more problem-solving-based assignments and case studies requiring students to apply problem-solving skills to real-life situations (Barron & McKeown, 2016). Such an approach will provide concrete opportunities for students to develop and practice problem-solving tactics throughout their learning journey. Additionally, creating opportunities for practical experience through internships, moot court competitions, simulated scenarios, or experiential learning activities are of paramount significance (Miller et. al., 2019). Such hands-on experiences can bridge gap(s) between theoretical knowledge and practical problem-solving opportunities, thus enhancing students' overall learning outcomes in HLS modules.

In response to our fourth open-ended question, students were asked to provide an example of a problem-solving approach they engaged with in a legal or criminological module (See, Appendix A.4). Upon reviewing the students' responses shown in Appendix A.4, several strengths emerge so as weaknesses which are worth

mentioning. In terms of strengths: (i) Students recognise the value of legal and criminological research platforms as problem-solving approaches, enabling them to find relevant laws and precedents. (ii) Problem-solving approaches are applied in specific assignments and assessments, such as medical law and ethics assignments or advocacy assessments, demonstrating their practical application. However, there are notable instances for improving application of problem-solving opportunities such as: (i) Providing specific examples or detailing how problem-solving tactics were applied in specific module(s), necessitating more detailed explanations (Mitchell et. al., 1983). (ii) Focusing on legal research and specific aligning course materials to definitive module design (DMD) may limit the variety of problem-solving experiences in some HLS modules.

In light the strengths and weaknesses mentioned, the following recommendations are suggested: (i) Introducing a range of problem-solving opportunities beyond legal research, such as case analysis, moot court competition, simulations, or group discussions equipping students with diverse problem-solving tactics (Reno, 1999). (ii) Incorporating more case-based learning activities, requiring students to analyse and propose solutions to complex legal and criminological issues are pivotal in enhancing critical thinking and problem-solving skills. (iii) It is also prudent that students should be exposed to jigsaw classroom activities enhancing active engagement in interactive learning processes (Voyles et. al., 2015).

In a similar context, students were asked how problem-solving skills were relevant to their future careers (See, Appendix A.5). Drawing insights from appendix A.5, discernible strengths and weaknesses are apparent. In terms of strengths: (i) Students demonstrated an understanding of the importance of problem-solving skills in their future careers. (ii) Many responses acknowledged that problem-solving skills are a basic requirement in the fields of law and criminology and emphasised its relevance to becoming a capable legal professional (Liedtka, 2013). (iii) Some responses highlighted that problem-solving skills gained from the module(s) have given them confidence to speak up and express own opinions, even if they were unsure of the correct answer. (iv) Effective communication is also essential in problem-solving situations (Cottrell, 2017). It is also important to note the following weaknesses from the appendix A.5: (i) Some responses lacked specific examples or details on how problem-solving skills will be relevant to their future careers. Providing specific examples of legal or criminological scenarios where problem-solving tactics are crucial would strengthen learners' application of problem-solving skills in their future careers. (ii) The responses primarily focused on problem-solving skills within legal field without exploring potential transferability of such skills to future careers or other professional contexts.

Based on the preceding observations, the following recommendations seem imperative (i) Incorporating more practical application exercises that simulate real-life legal and criminological scenarios are deemed essential. This will enable students to develop problem-solving skills in diverse contexts and enhance their ability to transfer such skills to different career settings (Bouton, 2007). (ii) Encouraging students to reflect on how problem-solving skills could be applied to various future careers or professional situations beyond the legal and criminological fields remain essential. Such an endeavour will promote a deeper understanding of transferability skills and relevance of problem-solving skills in students' future careers (Cottrell, 2017).

As an extension to the preceding question, students were asked to respond about their learning experience(s) and development within HLS (appendix A.6). In terms of strengths, the following are noticeable: (i) Many students expressed overall positive thoughts about their learning experiences and development within HLS. They described it as 'good,' 'very good,' 'excellent,' and 'enlightening.' Thus, highlighting the high quality of education provided by HLS in general (Gibbs & Coffey, 2004). (ii) Students appreciated that HLS is providing a more student-focused-friendly environment as well as availability of necessary resources, hence, indicating a supportive and conducive learning environment (Ramsden, 2003). In the contrary, (i) some students mentioned a lack of engagement opportunities, such as internships or extracurricular activities. This suggests a potential weakness of HLS in providing practical experiences and opportunities for students to apply their learning experiences within and across HLS modules (Miflin, 2004). (ii) some responses did not extensively discuss innovative learning methods or the use of technology to enhance learning experiences, potentially indicating a need for further exploration and integration of such methods and techniques (Pask, 1976).

Considering the strengths and weaknesses luminating from the students' collated responses, the following recommendations seem inevitable: (i) Increasing opportunities for internships, work placements, or extracurricular activities that enable students to apply their knowledge and gain practical experiences in legal and criminological contexts are paramount (Yorke & Knight, 2006). (ii) Exploring and incorporating innovative learning methods, such as blended learning or technology-enhanced activities using talis elevate, jigsaw classroom/flipped classroom to promote active engagement, problem solving, critical thinking, and creativity among students (Salmon, 2013).

In line with the andragogical principle of learning experiences and development at HLS, students were asked to provide their overall thoughts and experiences about learning and developing andragogical principles within HLS (see, appendix A.6). The picture drawn by students' responses shown in Appendix A.6 include strengths and weaknesses. The following strengths are apparent: (i) Many students expressed positive thoughts about their learning experiences and development within HLS, using terms such as 'good,' 'very good,' and 'excellent'. This indicates that students perceive HLS as providing a satisfactory and conducive learning environment (Ramsden, 2003). (ii) Students mentioned that HLS offers an andragogically-student-focused-friendly environment with necessary learning resources. This suggests that HLS has created a conducive atmosphere for the learning of legal and criminological modules (Entwistle, 2017). In the contrary: (i) some students stated a lack of engagement opportunities, such as internships or extracurricular activities. This indicates a potential weakness in providing practical experiences and opportunities for students to apply acquired knowledge (Yorke & Knight, 2006). (ii) A limited number of students did not acknowledge andragogical learning and teaching principles in practice. Therefore, it is essential that andragogical learning and teaching methods are introduced and invigorated using both synchronic and asynchronic technology enhanced mechanisms such as Talis Elevate, Kahoot, Padlet and jigsaw classroom (Salmon, 2013).

Given the above analyses, some recommendations seem prevalent: (i) The HLS should consider providing more opportunities for internships, moot court competitions, voluntary work, or other germane extracurricular activities. These experiences can help students apply their knowledge, develop practical skills, and enhance their overall learning experiences within HLS (Miflin, 2004). (ii) The HLS should explore and incorporate digital and innovative mechanisms, such as blended learning, online resources, and technology-enhanced activities (e.g., Talis Elevate), to enhance students' engagement, self-directing, problem-solving, critical thinking, and creativity synchronously and asynchronously (Garrison & Vaughan, 2008).

Finally, students were asked to express how their learning experiences and development impacted their understanding of legal and criminological studies at HLS (see, Appendix A.7). In the light of the students' responses shown in Appendix A.7, the following strengths and weakness were luminated. The strengths are as follows: (i) Many students expressed that their learning experiences and development in legal and criminological studies at HLS have positively impacted their educational development and academic achievements by providing valuable knowledge and skills to HLS students (Biggs & Tang, 2022). (ii) a limited number of HLS students mentioned that understanding of potential law-related issues have widened and deepened through interactive learning experiences (be it synchronously or asynchronously). This indicates that HLS modules have effectively exposed students to various legal and criminological concepts implying application of andragogical learning and teaching principles to some extent (Maharg, 2016). Nevertheless, there are also limiting andragogical weaknesses apparent that cannot be assumed away: (i) A small number of students stated that legal and criminological modules were not highly relevant to their future careers. This potentially highlights a gap in aligning the legal and criminological DMD course contents with diverse cultural needs and interests of students (Entwistle,2017). (ii) A few students observed a need for more problem-solving learning experiences and research opportunities, suggesting that there may be challenges in providing equitable hands-on-learning experiences and opportunities for HLS students (Miflin, 2004).

Based on the above analysis, it is prudent to recommend: (i) The HLS should consider offering a range of elective modules or specialisation options within and across legal and criminological studies catering to the diverse students' interests and career aspirations. This could arguably enhance the relevance of HLS modules for all students (Yorke & Knight, 2006). (ii) Therefore, HLS should create more students' opportunities (be it

synchronous or asynchronous) to enable application of andragogical learning and teaching strategies (Garrison & Vaughan, 2008).

4.2. Presentation and Analyses of Lecturers' and Stakeholders' Collated Responses against Andragogical Principles (see, Appendices B.1-B.5)

Reiterating our presumption that legal and criminological concepts are difficult to teach, it was imperative to solicit instructors' insights on their teaching approaches to legal and criminological modules at HLS. In a similar context, exploring the extent to which andragogical learning and teaching principles are utilised was deemed necessary. Firstly, lecturers and stakeholders were asked to describe how they relate and create learning materials relevant to learners' experiences in their modules (see, appendix B.1). Sifting through the presented responses in Appendix B.1, there are conspicuous strengths and salient weaknesses worth drawing attention to. In terms of strengths, the following are noticeable: (i) Focusing on engaging learners and building learners' confidence in the classroom is magnified. This can contribute to a positive learning environment where students feel comfortable taking ownership of their learning materials. (ii) The combination of aligning problem-solving activities and tasks in relation to module learning materials is instrumental in promoting self-directed learning. (iii) Tailoring learning materials to problem-solving activities encourages independent inquiry, critical thinking, and application of legal and criminological knowledge to real-life situations (Biggs & Tang, 2022). (iv) Students' one-to-one conversations with staff and regular check-ins with learning materials (synchronously or asynchronously) provide conducive and personalised andragogical support required in higher education (Boud & Molloy, 2013). such andragogical and individualised approaches could facilitate meaningful engagement and learning. (v) Linking legal and criminological contents to real-life situations encourage broader and deeper reading and understanding of current legal and criminological issues (Zimmerman, 2002).

On the other hand, there are also indelible stressors worth paying attention to: (i) Challenges relating to problem solving due to poor intrinsic and extrinsic students' motivation, poor attendance, and lack of participation hindering andragogical learning tactics. These challenges may stem from various triggers such as waning or regressing interest in the subject matter or competing responsibilities undermining application of andragogical learning strategies or lack of appreciation of the importance of active engagement (Persada & Lutfi, 2020). (ii) Some students may be reluctant to working with others, speaking in class, or to actively participate in problem-solving tasks. This potentially limits the effectiveness of andragogical activities relying on collaboration and discussion. Reinvigorating andragogical learning and teaching strategies are prevalent in creating supportive learning environment. (iii) Students may struggle with self-directed learning tactics if they lack confidence or are not familiar with an interactive and structured teaching approach (e.g., jigsaw classroom). Some students may need additional guidance and support to develop necessary andragogical skills and overcome their apprehensions (Alam, 2021).

In view of both the strong and weak points, the following recommendations are proffered: (i) Clearly communicating the relevance and practical applications of the modules increase students' motivation (both intrinsic and extrinsic). Incorporating examples and case studies that demonstrate the real-life significance of the subject matter are paramount, hence, fostering intrinsic motivation engaging students in self-directed learning (Gharti, 2019). (ii) Creating activities and discussions encouraging active participation in-class and through online platforms become inevitable. It could be using diverse teaching methods and techniques such as group work, debates, role-plays, and problem-solving tasks that require collaboration and critical thinking (Moore, 2010). (iii) Setting clear expectations for self-directed learning and explaining the benefits of taking responsibility for one's own learning is primary (Knowles, 1980). Clarifying assessment criteria and learning objectives to help students understand boundaries and expectations of personalised assessments cannot be overstated. (iv) Gradually building students' confidence and autonomy through scaffolded learning activities is necessary. Providing structured guidance and supporting students at the beginning of the module (legal or criminological) and gradually reducing lecturers' assistance as students gain proficiency in the self-directed learning process (Kicken et. al., 2008). (v) Continuously offering individualised support through one-to-one conversations, regular check-ins, and personalised feedback is of vital significance. This would help students overcome challenges, as well as identifying areas for improvement, and developing strategies for effective self-directed learning (Darling-Hammond, 2020).

(vi) Incorporating reflective activities prompting students to critically evaluate their learning progress, strengths, and areas for development. (vii) Encouraging students to reflect on their learning journey, goals, and progress (Taylor & Kroth, 2009).

Secondly, lecturers and stakeholders were asked to use their teaching experiences to reflect on some of the biggest challenges of promoting self-directed learning in their modules (see, Appendix B.2). Several lecturers magnify the following challenges: (i) The use of peer learning and group work fostering collaboration, diverse perspectives, and active engagement amongst students. (ii) Engaging students in discussions and role-plays encouraging critical thinking and application of problem-solving skills (Carter, 2020). (iii) Additionally, linking problem-solving activities to real-life examples and practice-based scenarios may help students understand the value and relevance of problem-solving in decision-making processes. (iv) Furthermore, designing legal and criminological DMDs emphasising problem-solving endeavours students' engagement in the module (Jonassen, 2010).

In the contrary, there are also ingrained weaknesses to consider: (i) The emphasis on group work and peer learning may limit self-directing experiences and some students may benefit from opportunities to develop independent self-directed skills and commensurate strategies. (ii) Whilst a number of lecturers pinpoint discussions and role-plays as effective, however, incorporating visual aids, demonstrations, handouts, and interactive activities (synchronous or asynchronous) can enhance self-directed engagement and understanding. (iii) A number of lecturers think that assessments may not always align closely with self-directed skills and outcomes, however, evaluating students' ability to apply self-directed, problem-solving strategies and analyse complex life scenarios is essential in the teaching of legal and criminological modules.

Based on the strengths and weaknesses, several recommendations are suggested to enhance self-directed scholarship in legal and criminological modules: (i) Providing a combination of individual and group problem-solving activities to cater for different learning preferences and problem-solving skills are required (Chan, 2010). Individual tasks can foster independent thinking and decision-making, while group work promotes collaboration and idea generation (Tomczyk et. al., 2018). (ii) Incorporating visual aids, demonstrations, handouts, films, and interactive platforms enhance self-directed engagements and support students' understanding of complex legal and criminological concepts. (iii) Designing assessments that closely align to self-directed-problem-solving skills and outcomes allow students to demonstrate self-directed problem-solving abilities effectively (Brown, 1985). (iv) Including reflective activities and debates that encourage students to critically assess own self-propelled problem-solving approaches, as well as engaging in dialogue facilitated interfaces. These activities (synchronous and asynchronous) promote self-reflection, self-evaluation, and self-refinement of andragogical learning and teaching strategies.

Next Appendix B.3 in the Appendices section, shows collated responses to a question which lecturers and stakeholders were asked on how they ensure that problem-solving is effective for promoting self-directed learning in their modules. Looking at Appendix B.3 responses, there are strengths and weaknesses worth paying attention to. Amongst the strengths include: (i) The use of peer learning and group work enabling students to collaborate, share ideas, and collectively solve problems. Such an approach fosters active engagement, diverse perspectives, and knowledge exchange amongst students. (ii) Engaging students in discussions and role-plays encourage critical thinking and application of problem-solving tactics. These activities provide opportunities for students to explore different perspectives, analyse scenarios, and propose solutions (Jonassen, 2010). (iii) Linking problem-solving activities to real-world examples demonstrate the value and relevance of problem-solving skills in the teaching of legal and criminological modules at HLS. (iv) Incorporating practice-based experience helps students understand the effectiveness of problem-solving in decision-making processes. (v) Designing the DMDs to emphasise the central role of problem-solving in academic endeavour strengthens students' understanding of its importance. Hence, a well-structured-DMD guides students to explore and discover own solutions through varieties of learning activities (synchronous and asynchronous) (Chin & Chia, 2006).

However, there are also salient weaknesses worthy paying attention to considering B.3 responses: (i) The emphasis on group work and peer learning may limit individual problem-solving experiences. Some students may benefit from opportunities to develop independent problem-solving skills and strategies. (ii) While discussions and role-plays are effective andragogical learning platforms, the incorporation of visual aids, demonstrations, handouts,

and interactive resources can enhance students' problem-solving competencies. (iii) whilst assessments may not always align closely with problem-solving skills and outcomes, ensuring that assessments evaluate students' ability to apply problem-solving strategies and analyse complex scenarios is essential (Hmelo-Silver, 2004).

By considering both strengths and weaknesses indicated in the preceding paragraph the following recommendations are worth noting: (i) Provide a combination of individual and group problem-solving activities to cater for different learning preferences and skill building (Hidayat, 2018). (ii) Incorporating visual aids, demonstrations, handouts, films, and interactive platforms to enhance problem-solving engagement and can support students' understanding of complex legal and criminological issues. (iii) Ensuring that assessments are closely aligned to problem-solving activities and outcomes are key, this may imply promoting assessments requiring students to analyse and solve complex legal and criminological issues, to demonstrate their problem-solving abilities (Jonassen, 2010). (iv) Including reflective activities and debates that encourage students to critically assess their problem-solving approaches and engage in dialogue can also promote self-reflection, self-evaluation, and self-refinement necessary learning and teaching of legal and criminological modules (Zeidner et. al., 2000).

The responses shown in Appendix B.4 pertain to lecturers' views on strategies they find most effective in promoting self-directed learning in their modules. The responses articulated in appendix B.4 imply both strengths and weaknesses. In terms of strengths: (i) Prioritising work and indicating time required for completion helps students understand expectations and manage their time effectively (Kenner & Weinerman, 2011). (ii) Engaging students in peer-to-peer discussions fosters active participation and knowledge sharing. (iii) Optimising the level of personalisation in assessments and linking learning to employability and future work benefits students by making learning experiences more meaningful and applicable to students' career goals. (iv) Actively seeking students' opinions, encouraging engagement, and valuing their contributions empower students and promote a sense of ownership in their learning journey.

The observed lecturers' responses (appendix B.4) pose the following indelible weaknesses: (i) Insufficient writing opportunities and lack of confidence to write can hinder students' self-directed learning chances (Knowles, 1980). This may stem from a lack of emphasis on writing in assessments and a perpetuation of the problem through bad teaching approaches. (ii) While some strategies mentioned by a limited number of lecturers involve short research tasks, the more comprehensive focus on developing research skills would enhance self-directed learning opportunities. This may include providing structured guidance on sourcing and critically evaluating such sources. (iii) Varying levels of instructors' facilitation approach(es) may be effective for some students, but others may require consistent support and guidance to develop self-directed learning tactics (synchronously or asynchronously). However, striking a balance between autonomous and structured guidance remains essential (Merriam, 2001).

Considering the strong and weak points, the following recommendations are offered: (i) Designing and incorporating writing opportunities beyond formal seminars and assessments (Knowles, 1980). This encourages students to share own written work with others for feedback and creating a supportive environment that promotes confidence in writing skills (Long, 2022). (ii) Providing explicit guidance on research skills, including sourcing and evaluating sources (synchronously or asynchronously), synthesising information, and citing references correctly is key in promoting andragogy (Grace, 1996). (iii) Recognising that students may have varying needs in terms of autonomy and facilitation is also paramount, hence offering a flexible structure allowing for self-directed learning whilst providing support and guidance to students who require it cannot be overstated. (iv) Fostering self-reflection through reflective working practices encourage students to regularly reflect on their learning progress, strengths, and areas for improvement (McCallum & Milner, 2021). Providing opportunities for students to discuss and share their reflections promote andragogical learning environment in which group work and peer learning are instrumental in the process of knowledge sharing and feedback.

In a similar context the lecturers were asked on strategies they found to be most effective in the creation of learning materials relevant to learners' experiences, (see, Appendix B.5). Upon analysing the survey responses shown in Appendix B.5, several strengths and weaknesses pertaining to the creation of learning materials relevant to

learners' experiences are apparent. In terms of strengths, the following holds: (i) Designing and developing modules in accordance with the learning outcomes of the Definitive Module Design (DMD) ensures that the materials are directly relevant to the intended goals of the learning materials. (ii) The use of self-reflection, student-informed feedback, and a learner-centred approach in legal and criminological modules is important incorporating learners' experiences and putting perspectives into the design of students' learning materials (Wozniak, 2020). (iii) Relating substantive module contents to shared cultural phenomena helps establish relevance and connect abstract concepts to real-life examples. That is enhancing learners' understanding and engagement with the learning material (Hattie & Timperley, 2007). (iv) Sequential mastery and understanding using scaffolding assessments making use of interlinked questions allow learners to demonstrate a progressive mastery of subject knowledge in the round. That is, by expanding their mind mapping skills, critical analysis, and research over time, learners are encouraged to deepen their understanding (McNaught & Benson, 2015). (v) Offering a range of different types of resources, such as podcasts, lectures, and blogs which cater for diverse learning preferences, promoting engagement, and deepening understanding amongst students. (vi) The incorporation of self-reflection, peer input, guided assistance, and positive reinforcements through small tasks fosters a supportive and participatory learning environment, enhancing students' motivation and self-confidence (Hattie & Timperley, 2007). (vii) Contextualising lectures, utilising popular knowledge, and adapting examples from real-life scenarios help students connect theoretical concepts into practical applications, making the learning materials more relatable and meaningful (Wozniak, 2020). (viii) Incorporating practical assignments and activities help students understand the real-life application of the course content by enhancing the hands-on approach and their abilities to transfer theoretical knowledge into practice (McNaught & Benson, 2015).

Conversely, there are weaknesses identified in the Lecturers'/ stakeholders' responses worth noting: (i) Limited emphasis on intrinsic motivation, necessitating a focus on cultivating a love for learning beyond assessments (Pew, 2007). (ii) Lack of clarity on research-informed teaching, requiring more explicit integration of research-based examples (Hagen & Park, 2016). (iii) Limited responses connected to andragogy principles, suggest a need for explicit discussion on andragogical alignment by incorporating additional resources such as case studies, articles, or interactive multimedia enhancing learning materials to students' experiences. (v) Although some of the responses include description various effective teaching strategies, however, they do not explicitly mention the andragogical principles of under scrutiny (Gitterman, 2004). It would be beneficial to explicitly discuss andragogical principles aligned to students' learning materials and brought-in-experiences. (vi) While some active learning strategies are mentioned, such as group work, workshops, and moot courts, more emphasis on active learning approaches, such as problem-based learning, simulations, or debates, could further enhance students' engagement and critical thinking skills.

Based on the identified strengths and weaknesses, several recommendations are proposed: (i) Introduce learning experiences that stimulate curiosity and lifelong learning, complementing assessment-linked materials (Bolton, 2006). (ii) Enhance students' engagement through collaborative learning, problem-solving activities, and debates (synchronously or asynchronously) (Jonassen, 2010). (iii) Provide a clear articulation of research-informed teaching strategies, supported by specific studies and evidence in which research-based examples and case studies are emphasised. (iv) Ensure learning materials cater for diverse learning styles and abilities, incorporating inclusive practices, supporting neurodiverse learners, and addressing their potential barriers to engagement and comprehension (synchronously or asynchronously). (v) Regularly reviewing and updating DMDs based on students' feedback, emerging research, and changing societal needs is key. This also implies creating formative and summative evaluation mechanisms to gauge effectiveness of the learning materials and adjusting them to students' needs and their prospective career paths (Hattie & Timperley, 2007).

5. Conclusion

In this research, we have delved into the application of andragogical learning and teaching methods in legal and criminological modules at HLS, with a primary objective of enhancing students' engagement in these specialized fields of study. Our research hypothesis posits that these modules, due to their rigid, abstract, and complex nature, can greatly benefit from the integration of andragogical principles, such as self-directed learning, incorporation of students' real-life experiences, and problem-solving approaches. By analysing responses from both students and

lecturers (collated in sections A.1 - A.5 and B.1 - B.5, respectively), we have extrapolated and proffered recommendations based on perceived strengths and weaknesses from the collected data.

Key strengths identified in the research include the effective use of peer learning and group work to foster self-direction, collaboration, problem-solving, critical thinking, and knowledge sharing. These attributes align closely with andragogical learning and teaching strategies, proving their significance in our study. Furthermore, engaging students through discussions and role plays has been highlighted as a valuable method for promoting effective problem-solving within real-life contexts. On the other hand, the research also shed light on certain weaknesses, particularly regarding the limited emphasis on some essential andragogical principles, such as individual problem-solving and the integration of students' experiences into the teaching of legal and criminological modules. This suggests a need for more guided support in research and research skills development.

To address the research findings and implement the recommendations grounded in andragogical principles, we propose a redesign of instructional materials (DMDs) to foster synchronous and asynchronous engagement with diverse students. This could be achieved through flipped classrooms enabled by digital interfaces like Talis Elevate and jigsaw classroom, among others, which are central and crucial to both learning and teaching in legal and criminological modules at HLS. Additionally, incorporating visual aids, demonstrations, and interactive resources in both synchronous and asynchronous settings will play a vital role in enhancing problem-solving engagement and understanding among HLS students and lecturers. Moreover, aligning assessments more closely with andragogical learning and teaching strategies and outcomes will ensure that students' abilities to analyse and solve legal and criminological problems are effectively evaluated.

Furthermore, we suggest fostering andragogical learning and teaching strategies through self-reflection practices and promoting collaborative learning through group work and peer learning interfaces, both synchronously and asynchronously Empowering students to interact with legal and criminological lecturers more purposefully and meaningfully at HLS can be achieved through these approaches.

The research findings on learning and teaching legal and criminological modules at HLS clearly demonstrate that the integration of andragogical principles can have a profound impact on students' engagement and interaction with lecturers. This, in turn, creates a highly conducive and effective learning and teaching environment that is directly relevant to students' employability and career paths beyond their time in the classroom. Embracing andragogical principles in a comprehensive manner allows higher education institutions to develop policies that not only nurture self-directed scholarship but also cultivate a dynamic and enriching learning environment for students from diverse backgrounds pursuing legal and criminological studies.

By adopting the andragogical approach, students are empowered to take charge of their learning journey, enhancing their overall development and preparedness for their future professional endeavours beyond academia. This holistic implementation of andragogical principles fosters an educational environment that is both transformative and empowering, fostering a lifelong love for learning and a deeper understanding of the subject matter. Ultimately, this educational approach equips students with the necessary skills and knowledge to excel in their chosen careers, ensuring they make meaningful contributions to their respective fields and society.

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Appendices

Students' collated responses:

    (1) Appendix A.1 collated responses on the question: **Please provide an example of a self-directed learning activity that you engaged in your course.**

"Legal research, Relevant case laws, Legal research, Reading books, Reading other sources on internet and watching academic videos, Class activity, Reading and researching from Textbook and Internet, Canvas notes, Further reading, Reviewing canvas portal works regularly, Research and updating past gained knowledge, I focus on additional readings from other sources such as scholarly articles for gaining information regarding the course, By doing my course works and research myself, We use online library and other sources to find answers, Surfing internet for collecting information, Research."

    (2) Appendix A .2 collated responses on the question: **How has the course content impacted your understanding of the legal and criminological issues relevant to your personal or professional experience?**

"Too early to know this, Same as above, Not much, Its will be practically work in my career life, Yes, It has drawn together and built upon the foundations of my LLB, In day to day work I face how data protection regulations are effective to protect transparency, The course content has helped me to apply a wider knowledge in understanding the international laws and employment which can be effective in my future career, It has helped a lot to search on relevant case laws, The topics, contents and teaching method impacted me very positively, The course content has helped me to apply a wider knowledge in understanding the international law and employment law which can be effective in my future career, It has helped me in the aspect of knowing that's there are laws that protect the data subject if the data is gotten in a dubious way, It was very helpful, Research process and how avoid plagiarism, Now I feel more confident in my ability and it makes my skills more useful, Pro and cons arguments, Of course it improve personal and professional experience it improves understanding level to high."

    (3) Appendix A .3: collated responses on the question: **Do you feel that the course has provided you with opportunities to develop problem-solving approaches to learning? If you tick 'Yes', 'No', or 'Maybe', may you please explain why this is the case?**

"I am in the middle of my studies, The module gives you the ability to study statutory laws related to financial crimes, which is vital learning for aspiring lawyers within crime and especially white-collar crime, No practical experience imparted. Theoretically it is difficult to say. Just increased the horizon of knowledge, yes its100% true when i joint classes i feel it, tutoring in classes required problem solving skills to answer problem questions, Workshops often include realistic problem-based scenarios which we attempt alone or in small groups. We then discuss our answers collectively and ensure everyone is on the same page, because we got deep knowledge; For instance, better understanding of the legal issues has also helped me to develop an effective problem solving and critical thinking approach to study. Thus, I believe that this can help me to solve legal issues in the future, because it has developed a sense of research; Yes, it is, I learnt about different remedies and procedure, For instance, better understanding of the legal issues has also helped me to develop an effective problem solving and critical thinking approach to study. Thus, I believe that this can help me to solve legal issues in the future, It has helped to always ask my employer what they do with my data when collected, We have learned a lot from our course, Attention to detail, Depends on cases."

    (4) Appendix A.4 collated responses on the question: **Please provide an example of a problem-solving approach to learning that you have engaged in any module.**

"Legal research is my first priority when it comes to problem solving, Legal research, Nothing much, I used it in Course Medical law and ethics assignment, In the advocacy assessment we were provided with a set of facts and asked to make an application for bail, When using search engines always facing how protecting the data and transparency, I have engaged in a solution-centric approach to learning to solve recurring problems and deliver better results, Using relevant law cites, Redundancy procedure in employment matter was new for me, I have engaged in a solution -centric approach to learning to solve recurring problems and deliver better results, Data protection law has helped me know my employer cannot keep my data if I don't want. So in the office where I utilize my 20hours of work as a student, I made my colleagues aware of the fact that they can say no if they don't

want a particular data about them to be processed, We have done lots of class activities that are all problem solving, How to write a research paper.”

(5) Appendix A.5 collated responses on the question: **How do you think problem-solving skills will be relevant to your future career?**

“Basic requirement, As an aspiring criminal Bar obtaining a 1st class degree module score in white collar crime is extremely vital to my career aspirations, It is very much necessary to cope up in changing times, Yap its relevant when someone entered professional life then can realise, Yes, Strength of a practising as a good lawyer is always depends on the problem-solving skill, Problem-solving skills can help me to become a capable individual in the future, In law field its always well needed, It will open new door of opportunities for me, Problem- solving skills can help me to become a capable individual in the future, It has given me confidence to know I can speak to out even if my answer is wrong, Yes, Yes, As legal experts you always need solutions, of course it will be beneficial.”

(6) Appendix A.6 collated responses on the question: **What are your overall thoughts about learning experiences and development in this university?**

“Good, Excellent, The University consists of a student friendly environment along with all the resources necessary but it lacks engagement of students including no opportunities for internships or any other extra-curricular activities, Very good, Good, Overall Excellent, Excellent, It's an adequate opportunity which I facing, I believe the learning experience has been enlightening for me, It’s a great university helps the students to build up a professional research methodology, Quite different than my country because student can explore more and more things and ideas rather than limited with a book, I believe the learning experience has been enlightening for me, The lecturers do well in impacting knowledge to student and engage then in seminars, It was all good, Yes it was very effective course as well as its course design was fabulous, Had a great experience, I have a great experience and pleasure as student of this university”

(7) Appendix A.7 collated responses on the question: **How your learning experience and development have impacted your understanding of legal and criminological studies?**

“I am not studying criminology, It has given me great educational development through academic achievements, Not related, In my bachelor course i have no knowledge about this but now i have all the basic knowledge, In a big and positive way, It has given me a wider experience of potential law related issues and developed my critical thinking abilities, It has given me an understanding to understand the facts of the cases in parts and as a while as well, The study with Herts really open my mind towards new ways, It has given me a wider experience of potential law related issues and developed my critical thinking abilities, It made me see learning in a different way. I developed a skill of always reading before the seminar which the lecturers helped by providing materials to help the students realise before coming for the lecture.it makes understanding easy, Teacher’s effort was extremely good that has impacted in our learning and thinking style, Convenient for making research, By many different ways, It’s need practical theoretical it’s good.”

Lecturers’ and Stakeholders Collated responses:

(1) Appendix B.1 collated responses on the question: **Please describe how you relate and create learning materials relevant to learners' experiences in your module?**

“Ask questions; Through self-reflection, student informed feedback and results of modules; By relating substantive course content to shared cultural phenomena; test, Make the learning relevant to current issues; I usually follow scaffolding type assessments via two interlinked questions for assignments 1 and 2 and link them to the units along the same line, in order to demonstrate a mastery and understanding of knowledge gained in a sequential way and by expanding their mind mapping, critical analysis and research in time. To this end, I ask the students to undertake case study analysis, video presentation and/or problem questions in the assignments. I design and deliver the module content accordingly. I situate the learner within the wider context of their learning journey for this particular year, so they can start to manage expectations and their time more effectively. They are encouraged to reflect on L4 and L5 learning and how it will be different on this L6 module (Dissertation); Making them interactive by asking questions, giving them tasks or putting quizzes; Be looking at the jurisdictions they have

studied their first degrees in i try to build in practical assignments/ activities, which help students to understand the real-world application of the content they have learned. Provide a range of different types of resources e.g., podcasts, lectures, and blogs, I design and develop my modules in accordance with the learning outcomes of the Definitive Module Design (DMD), and update the teaching material, module content and assessment methods, I design and develop my modules in accordance with the learning outcomes of the DMD, and I update the teaching material, module content and assessment methods, Self-reflection is built into the module and peer input. staff encouraged to engage 1:1 at some point during the module and to offer feedback on formative assignments. strategy of guided assistance given which actively develops throughout the module. Lots of positivity and confidence building through small tasks done well built into the module; I make sure that the learning materials align closely with the assessment(s). The students need to have some incentive to learn and materials that feed into the assessment(s) offer just such incentive. Unfortunately, not everyone will enjoy learning for the sake of learning; I ensure there are a variety of activities that refer to lectures and seminars we do together. I also take ideas and context for activities from popular knowledge as much as I can, Discourse, adapt examples; I rely on research-informed teaching and relate and create learning materials based on my research. Also, my teaching and learning along with assessment strategies are based on research-informed teaching; Lectures are contextualised, and students are made to engage; I teach and lead an inter-disciplinary and comparative module, which examines the role law plays within society and corporate structures. To achieve the desired learning outcomes, we actively involve students in group work, peer presentations, workshops, and mooting."

    (2) **Appendix B.2** collated responses on the question: **In your experience, what are the biggest challenges of promoting self-directed learning in your module?**

 "Engaging learners and building learner confidence in the classroom; lack of awareness from students that higher education is about self-directed learning; Test; Student engagement is always low; When elements of personalisation in assessments are too extensive, students would not be able to grasp well the expectations and not limit themselves with proper boundaries against the learning outcomes of the module; Student being prone to procrastination and/or putting off work because they are anxious about how to start research assignments. Also managing the other responsibilities students have (paid work and family commitments), Student engagement. Some students do not get engaged with Canvas and material we provide for them there; Student discipline; the students having the self-motivation to direct their own learning - we as lecturers can provide the content and the opportunities but if students do not take these/engage with these it is a big challenge; Managing student's expectations; Low attendance at learning sessions including lectures and seminars; The students have no idea how to make the leap between being fed information and finding it themselves and/or applying critical thinking to deciding relevance or otherwise. Some of it is lack of confidence which is why a structured approach to L4 modules is crucial; Some students do not take responsibility for their own learning. The module is not always seen as intuitively interesting to students. Some students may fail to appreciate the importance of getting a good grade. This might remove some of the incentive to work hard and take responsibility for self-learning; Student motivation (given other challenges in their lives); Students are reluctant to work with others and to talk in class. So, it is difficult to create activities that build on participation in class. If participation is online or outside of the seminar it is difficult to gage their level of engagement; Parity between tutor; Often it is difficult to engage some students due to attendance, attention, work, or other related issues; Many students are not enthusiastic. They just want to have it the easy way and they know the system will always favour them; The challenges encountered include low student motivation, poor attendance, and a lack of willingness to actively participate in the seminar."

    (3) Appendix B (3) collated responses on the question: **How do you ensure that problem-solving is effective for promoting self-directed learning in your module?**

"*students interacting; assessment for authentic learning, with real-life problems; Through multiple mechanisms including pre class activity, reflective practice in the classroom and self-directed follow up activities; Making it sufficiently open ended so students can resolve problems in more self-determined ways.; Test; All seminar work is based on problem solving.; Different skills need to be improved on the part of the students. Assessment questions would need to be adjusted in view of the level of the students, the nature; and contours of the subject matter and the overall expectations from them.; One to one conversations w/ staff (supervisors) helps a lot to identify problems and allow students to come up with a plan to tackle them. Regular checking-in with students to monitor their*

learning progress.; By asking them hypothetical or actual questions and check their problem solving; Wider reading and understanding of current issues in the subject; when students are given an interesting topic / problem to solve, then these tend to be more effective in engaging students, even enthusing students to participate; By providing appropriate questions and allowing students time to engage with them,; By getting students to be more involved in developing individual knowledge through experience, reflection and action.; By encouraging students to be more involved in developing individual knowledge through experience, reflection and action.; Problem solving is still principal tool in the legal arena so it is vital that students develop these skills. A substantial amount of time goes into practising and deconstructing problems throughout the module.; Tutorials are designed to build on what the students have learnt in the lectures. In other words, the seminars do not function as a second lecture since that removes the need for students to study and learn before the tutorials; Set appropriate tasks in seminars; I usually ask them to work in group and ask them to recollect cases in their life that could connect to the issues discussed. For example, when we discuss leaseholds, I ask them to bring in their tenancy agreement if they have one; Range, To ensure that problem-solving is effective I generally run and include this type of activity within my learning and teaching as well as assessment; To enhance problem-solving skills, I employ group work and peer learning techniques, ensuring their effectiveness. Furthermore, I encourage students to individually submit their work as a means of fostering independent thinking and personal growth.

(4) Appendix B (4) collated responses on the question: **What strategies have you found to be most effective in promoting self-directed learning?**

"Research, clearly prioritising work and indicating time to take to complete. Supporting learners with techniques to speed up reading skills and concept of reading for a purpose. Clearly linking the purpose to the outcomes directly, including assessment strategy, encouraging students to investigate particular literature, test, Having engaged discussions in the classroom, Increasing the means of engagement of the students via peer-to-peer and/or group discussions. Inclusion of real-life examples and scenarios within in-class activities. Optimising the level of personalisation in the assessments, Linking to employability and graduate work, developing self-efficacy skills that will benefit them in the future, Asking for students' opinion often and encouraging them to engage and contribute, Accessible teaching of the basics in the subject, encouraging students to draw on current issues/ case studies that they have read about / watched on tv, to unpick and understand key theories/concepts, Encouraging students, Student-centred/focused approach; flexible and open learning outcomes; flexible structure, minimal facilitation, Student-centred/focused (b) Flexible and open learning outcomes (c) Flexible structure, minimal facilitation, analysing short excerpts from judgments reading and creating case notes playing with the online library in seminars and quizzing working in a pair and producing something which is then subject to constructive peer feedback. short structure dedicated exercises within the seminar set up. Games with words - connotation v denotation self-belief building through achievement building writing opportunities into seminars and then asking students to allow others to read what they have written. Our students do not write enough. They come to us not having the confidence to write and we perpetuate this problem by our approach to assessment, Making sure that the lecture material is highly relevant to the assessments. Making sure that the reading list and materials enables the students to build on the lecture and do well in the assessments, Tasks that require a small amount of research in seminars, group work on problem cases usually brings good results, also open ended discussions in class where students are encouraged to share their knowledge pre-course (so no judgement on their level of knowledge of the issues discussed in class), Discussion, one to one interactions, Running Seminar activities such as, debating, oral presentations, writing short pieces of research (e.g. using collaborative technology such as, Padlet), taking MCQs, reflective activities etc, Collaboration through group work, encourage knowledge sharing through peer learning, and cultivate self-reflection through reflective working practices."

(5) Appendix B (5) collated responses on the question: **What strategies have you found to be most effective in the creation of learning materials to learner's experiences?**

"Peer learning, discussions; using practice-based experience to demonstrate value of problem-solving and instrumentality in effectiveness in reaching a decision. Allowing students to work in groups and explore and rate different problem-solving approaches linked to different; creating the awareness through course design that problem-solving is central to the academic endeavour.; learner outcomes.; Group work in class.; Via a good design and delivery of the model, enabling the students to find the answers to the questions posed during classes.

Making them explore themselves and the best-fit solutions to the legal problems through a variety of in-class activities.; Like previous question; probably peer observation (learning from each other's practices); Showing the importance of the subject; giving a real-world example to students, to demonstrate how to apply their criminological knowledge to solve a problem / issue; Working through problems with students. Allowing them to works in groups and use; padlet to answer anonymously; (a) Encouraging the class to try and talk through issues, and get on sometimes individually, sometimes collectively, sometimes both to develop their original ideas and express themselves creatively; (b) Using role plays, case studies, and/or focus group discussions; and (c) Using class activities that involve the use of pictures, diagrams, demonstrations, displays, handouts, films, and flip-chart. Ensuring that the seminars are indeed structured as seminars as opposed to second lectures. Tasks the require problem solving in seminars; One to one interaction; Reflective activities, critical assessments and debating. Collaboration through group work, encourage knowledge sharing through peer. Learning, and cultivate self-reflection through reflective working practice."

Education Development Programming: Responsiveness and Adaptability of the Implementation of the Malawi National Reading Programme in Lungwena, Mangochi District

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Abstract
The study assessed the implementation of the Malawi nation reading Programme's theoretical grounding and its localisation based on context. The methodology included a standardised reading assessment that tested the ability of children to read and regressed contextual factors to examine how they contributed to the reading skills of pupils. Results showed that the programme was well grounded in theory but lacked awareness of the implementation context. Therefore, the study recommends a balance of effort and investment in the implementation of reading programmes for optimal and sustained reading skill gains by pupils.

Keywords: Reading, Planning, Education, Context

1. Introduction

The past two decades have seen a focus in education development programming on the teaching of reading. Reading has been rightly placed as a foundational skill required for learning (UNESCO, 2017). Like in many African countries, Malawi has had a fair share of experiences developing her reading programme that has fundamentals of the teaching of reading in design. The Malawi Reading Programme follows a phonics approach anchored by the 5 T's for effective reading instruction (Teaching, Time (Ministry of Education, 2016), Text (Anderson, R.C., Wilson, P.T., & Fielding, L.G.,, 1986), Tongue (Langer, 2010; Kachiwanda, 2010), Test). The phonics approach in Malawi has followed a transitional approach where students are taught to learn the letters, sound them, add them for syllables, use the syllables in familiar and non-familiar word reading, apply comprehension strategies, and qualify as readers above-set thresholds. The teaching instruction for respective grades is highly scripted and teachers implement it with fidelity across Primary Schools in Malawi.

Notwithstanding the insulated approach on the programming of the reading intervention in Malawi, its universalization, and other household factors found to influence the ability of children to read were not pre-

programmed to complement the approach stated above. It is unclear how policy decisions from the generated evidence inform collaborative learning and adaptability on the development and implementation of reading interventions.

Gaps in knowledge identified above were therefore examined in a reading assessment conducted in Mangochi District in Malawi that sought to understand the relationship between acquisition of reading skills and household factors that would further inform education development programming focus as it relates to the Malawi National Reading Programme and other programmes developed and implemented similarly in countries such as Ethiopia and Liberia (De Stefano, J., Slade, T., & Korda, M.,, 2013; Chiapetta, M., 2013; Piper B. , 2010).

2. The theoretical and empirical literature

Reading programme in Malawi has followed the universally proven efficient phonics approach (Roberts, 1994)**,** (Richards, J.C and Willy A. Renandya, 2002), and (USAID, 2016). This has been complemented by the basic elements that support the delivery of a phonics-based reading approach focusing on teaching, time, text, tongue, and test (Gentaz, E., Sprenger, L & Theure A.,, 2015) and (Piper B. , 2010). However, the deployment of the phonics approach left out key elements that support learning of reading at the household level. Therefore, one cannot conclusively attach the magnitude of reading gains to the phonics approach alone.

Studies that have been conducted on effects of household factors on learning have identified language used at home (Nagarajan, Gonzalez & Hur, 2017) and (Harrington & Sawyer, 1992; Dickinson & McCabe, 2002), meals taken by pupils (Howard, 2010), time a learner is read to at home (Roundy and Roundy, 2009; Pang, Muaka, Bernhardt and Kamil, 2010; Mastropieli, Leinart and Scruggs, 1999; Denton, Anthony, Parker, and Hasbrouck, 2004) as among other factors that predict the ability of pupils to learn reading. While literature points to the complementarity of these factors, reading programmes implemented in the past two decades have largely focused investments and attention on phonics instruction as key in the learning of reading predictors are considered as leverage to reading skill gains in pupils as an approach leaving out focus on complementing factors. This withstanding, programming for the reading interventions has been cast on the phonics enablers, leaving out complementary factors to the phonics-led reading approach. Nonetheless, the programming of reading interventions does not invest in preconditions that sustain reading gains and increase the achievement margins, regardless of well-researched theoretical underpinnings guiding the development of reading programmes.

As for Malawi, the national reading programme implementation has followed a similar trend described above. This is where, evidence is generated on household enablers of learning reading, but investment decisions do not change in line with evidence (Nagarajan, Gonzalez & Hur, 2017).

In the absence of a case study on a combined investment that has tackled the underpinning theoretical approach in reading programmes together with investments in the complementary factors mentioned above, assessments have stopped at pointing to what factors makes a difference e.g. parent education (Zambrana, K. A., Hart, K. C., Maharaj, A., Cheatham-Johnson, R. J., & Waguespack, A., (2019)), home reading environment (Elsje van Bergen Titia van Zuijen Dorothy Bishop Peter F. de Jong, 2016) and parental status (Kaluge, Kustiani & Indawati, 2019). The granular details on these broader factors would present an opportunity for more focused attention and inclusion in programming reading interventions that are specific to the context, optimizes value for money on itemized factors that are bankable, and compliments traditionally thought process exhibited in the development of reading interventions.

3. Experimental/Materials and methods

To understand the relationship of household factors on the ability of pupils to learn reading and how such relationships could influence the programming of reading interventions, a reading test was conducted in 17 schools and reached out to 230 pupils in Mangochi District, Malawi. The test targeted 11-12-year-olds, assessing their ability to acquire reading skills for an equivalent of two years. Test items that the students were tested on included: 1) letter naming, 2) letter sounds, 3) Oral reading fluency (ORF), 4) comprehension and 5) extended

comprehension. Further data was collected from the students on the household factors that may have influenced their ability to acquire reading skills apart from enrolling into a homogenous National Reading Programme that is standardized and well-controlled for implementation variations. The factors that pupils provided data on included the following 1) pre-school attendance, 2) meals each pupil took a day, 3) language spoken at home, 4) school attendance, 5) reading partners, 6) reading at home, 7) reading practice, 8) reading homework, 9) nutrition access intensity, 10) other sources of textbooks, 11) supplementary reading materials and 12) places where pupils read. The results from the reading tests were marked for each response item. There was a limited variance between the mean scores on the items in the test. However, the spread of the response variables in the test items was not normally distributed. Therefore, the response items were centered and standardized through the residuals for the mean score (*z-mscores*) to enable the attachment of predictors to an independent variable whose residuals were standardized for analysis. Therefore, the *z-mscores* indexed all test items from the reading test to a 0-101 percentage point range so that analysis of variances with each household is tested for influencing variance on how well pupils acquired reading skills. This was done to verify that differences in the reading ability of students are genuinely explained by these household factors and the reason behind the variation is not opportune. Document analysis was done on key recommendations related to household factors made on the Malawi National Reading Programme to assess whether the recommendations meant to add value to the design and implementation of the programme were incorporated.

4　Discussion of results

The results are discussed at three levels. 1) Predictors of reading based on the teaching of reading through phonics, 2) The analysis of variance and definition of key variables that significantly explain variation in the reading ability of the pupils assessed and 3) secondary data analysis on decisions made on the Malawi Reading Intervention based on evidence generated from assessments on reading predictors other than the theory-based posits that fundamentally informs the architecture of the reading programme.

4.1　Association of pre-reading skills to reading fluency

The study examined the association between pupils' mastery of pre-reading skills and reading fluency. The purpose of the study was to determine whether pupils who had mastered the phonics-based reading instruction were better readers than those who had difficulties learning to read through the phonics-based instruction. The test was conducted through an analysis of variance from the reading scores in the pre-reading sub-tasks in the reading test and their association with oral reading fluency. The hypothesis tested to determine such an association was phrased as below:
H0 = Pre-reading skills do not predict the acquisition of reading skills and the ability to read early in life, and
H1 = Pre-reading skills predict the acquisition of reading skills and the ability to read early in life; H0 is the null hypothesis, and H1 is the alternate hypothesis.

The dependent variable in the hypothesis testing described above was the oral reading fluency as measured by the number of correct words read per minute. In contrast, the pre-reading skills scores of the pupils were the observable variables. The pre-reading skills or sub tasks in the reading test included letter knowledge, syllable reading, and familiar word reading. The analysis of variance showed that the statistical Fisher test was highly significant and the regression coefficients of the predictors were not equal to zero, indicating that there is sufficient evidence to reject the null hypothesis and that the study provides a rationale for doing so. This finding validated the alternate hypothesis that pre-reading skills predict the acquisition of reading fluency, hence mastery of phonics-based instruction had a positive effect on the ability of study participants to acquire reading skills. The results of the test are presented in Table 15 below.

Table 1: Phonics reading instruction hypothesis test results.

	Number of Observations	310		R-squared	0.9638
	Root MSE (Explain)	11.34		Adj-squared	0.9133
Source	Partial SS	df	MS	f	Prob>F

Model	443103.79	180	2461.688	19.09	0***
Familiar Word Read	81801.923	53	1543.432	11.97	0***
Syllable reading	27210.096	65	418.6169	3.25	0***
Letter Knowledge	19454.778	62	313.7867	2.43	0***

The results presented in Table 1 above led to the conclusion that familiar word reading knowledge, syllable reading, and letter knowledge accurately predicts oral reading fluency. Pupils with stronger pre-reading abilities read more words from a given paragraph than pupils with weaker pre-reading abilities. This finding is further supported by the F-Statistic (p=0) and the observed R-squared (0.9638), implying that the findings are reliable and not a false result of peculiarities in the data set. This finding confirms the importance of pre-reading skills in teaching reading through phonics instruction and predicts the fluency of pupils as noted by reading instruction theorists (Graaff et al., 2009; Torgerson et al., 2019 & Woore, 2022).

The aforementioned results confirm that the phonics teaching approach is methodical and effective for pupils with stronger pre-reading skills. Furthermore, the study validated the practices and showed that the delivery of reading instruction to the pupils in the study followed the evidence of reading theory as postulated by other theorists on reading through phonics instruction (Palmer et al., 1985). This finding, therefore, confirms positions advocated by scholars on behavioural reading theories, which assume that reading is learned procedurally. Further, they indicate that learning to read works well with reinforcing and scaffolding routines in the learners by the reading instructors; and that decoding letters, letter blends, and syllable blending leads to early success in the acquisition of reading skills (Freeman, 2004; & Ertmer, 2013).

The pupils who participated in the research were from comparable linguistic, cultural, and geographical backgrounds. Therefore, the pupils had a probable similar schema in these respects. In this case, the cognitive theorists' assumptions that schema aids the acquisition of reading skills (Clark, 2018; Guney & Al, 2012) would have held true and decreased the variance in the reading fluency scores for the pupils under the study. However, this was not the case, as there was marked variation and differentiation in the reading fluency scores. Similar assumptions raised by transactional reading theorists, namely that pupils learn to read through interaction with text and prior experiences (Foster & Rosenblatt, 1998) would have reduced the variance in fluency scores. However, this was also not the case. Therefore, without disputing the usefulness of cognitive and transactional reading theorists, the results indicate that acquiring reading skills at this early stage requires behavioural routines as a basis for learning to read. Once pupils internalise the patterns, they are able to decode words, including nonsense words. Notwithstanding other theories of reading, such as cognitivism and constructivism, which emphasise comprehension, this finding is relevant and useful for comprehension-related reading sub-tasks (Carlson, 1999; Clark, 2018; & Lowenthal & Muth, 2008). Therefore, the behavioural aspect in phonics instruction needs complementing and blending with other reading theories for pupils to master reading and comprehend what they read. This phenomenon is despite the understanding herein that, firstly, phonics require that a pupil can read the word before meaning-making and comprehension processes. This finding explains why those who were able to name the letters, sound the letters, read syllables, and blend syllables into words had an easier time reading words in the paragraphs.

Regardless of the success in reading the words, comprehension remained low on average for fluent students since the test only allowed those who could read the paragraphs to proceed to the reading comprehension test. This finding suggests that the behaviourist phonics reading approach was significantly effective in teaching letter decoding and word reading. However, it is limited in inculcating reading comprehension skills at this level, thus necessitating the application of other advanced reading theories such as constructivism and transactional theories of reading in integrating comprehension skills in the teaching of reading. It further enables the pupils to use prior knowledge, extend the text to non-textbooks and bring more titles to transact with the text in different contexts and make their meanings so that they can apply such strategies in reading comprehension tests. The initial finding supports the earlier position in the literature review that no singular reading theory should dominate a reading approach that informs a reading curriculum (Gourlay, 2003). Instead, strategies and assumptions that are levelled

to the pupils and the independence of teachers and the pupils in instruction and meaning-making should direct applicable theories, not merely targeting fluency as was the case in this study.

In spite of the foregoing, it is evident from the findings of this study that the application of the phonics approach is not the only factor upon which a reading curriculum should be based. Other factors contribute to reading programmes having more sustainable outcomes. For instance, the analysis of variance and further review of the square root of the variance of the residuals (RMSE) was high at 11.4. These results suggest that much as the pre-reading skills explain better oral reading fluency, other factors help pupils learn to read. The pre-reading skills cannot fully explain variation in scores on a test performed in oral reading fluency, thus agreeing with the literature, which shows that other factors such as pupil environment (Afoakwah & Koomson, 2021; Beluska-Turkan, 2019); household factors (Aram, et.al., 2013), and school resource availability (Adamba, 2018; Aas & Brandmo, 2016; Aina 2011; Akech, 2017) have been proven to affect pupils' learning abilities in addition to the reading instruction. These factors earned ground for inclusion in this study to examine further those factors that affect the ability of pupils to learn to read in addition to reading instruction.

4.2. Household factor analysis and respective effects on reading skills acquisition

The analysis of variance (ANOVA) for *z-msore* as a response variable to independent predictors mentioned above and available in Table 2, shows that the model is significant ($p = 0$, and $< p = 0.05$). The root MSE (RMSE) is large (0.894951), rightly so, as several factors contribute to the ability of pupils to learn reading, such as pupil and school factors that are not included in this analysis of variance since the primary focus is to nail down factors within the household that explain variation in pupil's abilities to learn reading.

Table 2: ANOVA output on household effect pupil ability to learn reading.

Number of observations = 293			R-squared = 0.2902		
Root MSE = 0.894951			Adj R- squared = 0.1872		
Source	Partial SS	df	MS	F	Prob>F
Model	83.505047	37	2.22568932	2.82	0.000000
Nursery attendance	1.0669522	2	0.53347609	0.67	0.5146
Meals taken per day	6.1171066	4	1.5292766	1.91	0.1093
language spoken at home	1.760985	2	0.88049249	1.1	0.3347
School attendance	10.753957	5	2.1507915	2.69	0.0219
Reading partners	7.0525126	5	1.4105025	1.76	0.1213
Reading at home	4.8678304	5	0.97356608	1.22	0.3022
Reading practice	6.1752254	1	6.1752254	7.71	0.0059
Reading homework	0.1318358	1	0.13183584	0.16	0.6853
Nutrition intensity	5.0982016	3	1.6994005	2.12	0.0979
Other sources of textbooks	3.4335552	3	1.1445184	1.43	0.2348
Supplementary reading materials	7.5312004	3	2.5104001	3.13	0.0261
Reading places	1.1140395	3	0.37134648	0.46	0.7079
Residual	204.23881	225	0.80093652		
Total	287.74386	292	0.98542418		

The following factors were found statistically significant at 95% confidence interval and explained the variance in the respondent variable: 1) supplementary reading materials (*F-statistic =3.13, p = 0.0261),* 2) nutrition intensity was marginally significant (*F-statistic =2.12 and p= 0.079),* 3) reading practice was very significant factor on ability of students to learn reading *(F-statistic = 7.71, p = 0.0059)*, 4) times a student attends school was also very significant *(F-statistic = 2.69, p= 0.0129)*, and 5) who the pupil read to at home was marginally significant (*F-*

statistic = 1.76, p= 0.12), similarly, for the meals a pupil take in a day *(F-statistic = 1.91, p=0.1093)*. This implies that they influence the performance of pupils in the acquisition of reading skills. Therefore, required integration in the reading intervention development and increased level of effort and investment during implementation.

From the assessment, language spoken at home, who the children practiced reading with, whether schools provide reading homework or not, other sources of textbooks, places where a pupil practices reading, and whether one attended nursery or not were found not to predict the performance of students assessed in their acquisition of reading skills. This was largely due to homogeneity in responses than theoretical underpinnings behind these factors, therefore subject to further analysis, perhaps through qualitative inquiry into how these factors may have affected the variation in the ability of pupils assessed to learn reading or level of recorded reading ability.

4.3. Document review on programming decisions made on the Malawi reading intervention based on evidence from household predicting factors

Notably, due to the findings above and from similar studies (Koch, Bobronnikov, Price, Hausdorffk & Prenovitz, 2019)**,** recommendations to focus on the household factors in reading intervention programming have been put forward to change development designs of reading programmes. However, the reading intervention has remained focused on teaching instruction based on the enhanced phonics approach. The investments have followed a similar trend for Malawi and other countries in Africa, such as Ethiopia and Liberia indicating consistent belief in the programming theory aside from evidence that the reading interventions cannot achieve as great on their own, thus require complementary investments in predictors that contribute to the acquisition of reading skills for pupils.

5. Conclusion

It is apparent that the theoretical underpinning of reading interventions in the case of Malawi is solid and follows standardized protocols informing teaching of reading in most countries that are implementing a phonics-based reading approach. However, the investments and level of effort on the reading interventions are not flexible to include other predictors of reading as noted from household assessments conducted herein and previous assessments. While household factors influence reading outcomes for pupils, failure to include investments in these factors in the design and implementation of the reading interventions prevents the sustenance of reading gains and reduces the margin of improvements in the acquisition of reading skills. This study does not place the onus on investments in the complimentary factors within the reading programmes, however calls for the education developers to undertake a systemic investment analysis that allows for simultaneous investments in the household predictors to complement gains achievable for pupils subjected to reading interventions.

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Has the Experience of Online Study under COVID-19 Improved Outcomes of Study in Universities?

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Abstract
This article examines the learning outcomes of after COVID-19 in universities. Now, almost all students experienced online learning instead of face-to-face during the pandemic period. The students surveyed after COVID-19 are now taking face-to-face classes after a year or two of online-based learning experience. This study compares their learning outcomes to those of students who previously only had face-to-face classes. Owing to the statistical analyses, some points are clear. Final results after COVID-19 clearly show that student outcomes dropped. Attendance and quiz scores also drop slightly and lead to reduced scores in the final results. It can be inferred that students have lost their attitude to take on challenges without giving up as a whole. Moreover, report scores dropped significantly. The rate of decline is larger than attendance and quiz scores. The reports in the surveyed classes do not rely on a shallow understanding or investigation, so the decreasing may be serious. Losing opportunities to attend and participate in classes reduce self-management ability and opportunities for communication. Online classes do not provide sufficient opportunities to be exposed to different ideas, objectively reexamine their own ideas, and create new ideas of their own. These skills may have suffered serious decline. Ultimately, it all comes down to encouraging students to be spontaneous. Even if the results are not so good, teaching too much should not be a hindrance to voluntary learning. One way to solve this seems to be a flipped classroom.

Keywords: COVID-19, Face-to-Face, Flipped Classroom, Online, Outcome

1. Introduction

COVID-19 has impacted education all over the world and higher education such as universities and colleges are not exceptions. In schools, including most higher education, students had to learn online instead of face-to-face. Nearly three years had passed from the onset of COVID-19, however, "normal classes" that are conducted with the same methods employed before COVID-19 have restarted. This study examines the learning outcomes of classes to determine whether they have improved or not compared to the pre-pandemic period.

Many studies focusing on online learning instead of face-to-face have been presented after the onset of COVID-19, and almost all of them indicate that learning outcomes have not changed significantly, while some show the

outcomes have improved. Surely, However, it would be doubtful in some cases that online learning would promote learning outcomes without any exceptions.

Surely, some studies indicate that there is no difference in the results when comparing online and face-to-face classes. Many schools and teachers have made sincere efforts not to degrade the quality of education, and there is little doubt that their efforts have yielded fruitful results. There are probably many cases in which learning among students and communication between students and teachers were not impaired through the skillful usage of ICT (Information, Communication, and Technology). It has also been pointed out that the one-sided class with a large number of students is no longer one-sided due to the usage of online functions. However, if the one-way class format was originally undesirable, it seems that a two-way class format should have been introduced at that stage. Certainly, when comparing face-to-face classes, which were one-way classes from teachers to students, and online classes that involve interaction between teachers and students, or between students, it is conceivable that the latter class will be more effective. In that sense, the role played by online classes may be significant. However, this issue has not been resolved because all the classes surveyed in this article have been conducted two-way.

Moreover, in the classes that this article references, flipped classes have been performed with the exception of cases from the era of COVID-19. What is a flipped classroom? In a traditional class, students learn the basic contents in class and then review or study further after class. However, it may not be possible to achieve independent and subjective learning. In the flipped classroom, on the other hand, students learn the basics in advance through videos and textbooks, and then learn more by problem-solving learning, discussion or debates in class with other students. In this classroom, teachers can be thought of as instructors instead of teachers and students can be thought of as learners instead of students (see, Kurihara, 2018, for example).

Flipped classroom is usually related to active learning. In classes where active learning is employed, paired work, group work, and cooperative student activities are utilized; however, the classroom includes activities such as brainstorming, cooperative learning, case-based instruction, role-playing, program/project-based learning, and peer teaching. Teaching others is sometimes an effective method to learn deeply. Davenport (2018) showed that flipped classrooms increase critical thinking skills. However, there are some pros and cons. For example, in flipped classrooms, mandated study is emphasized over spontaneous study so it seems risky to rely heavily on a flipped classroom.

Although the number of people who are infected with COVID-19 has not decreased significantly, the rate of severe cases have deceased, and many universities have resumed normal face-to-face classes. The classes this study references are resumed flipped classrooms that are the same as before the onset of COVID-19.

It can be possible to compare my classes before COVID-19 with the classes after COVID-19 because both of the classes were (are) conducted as flipped classes. This study examines whether learning outcomes have improved or not after COVID-19 disaster.

This study is structured as follows. Section 2 reviews related studies. Section 3 indicates empirical methods to verify whether learning outcomes have empirically improved or not. Section 4 shows the empirical results and analysis. Finally, a summary is presented.

2. Previous research related to online learning

The coronavirus has forced universities to conduct classes online. However, regardless of their first experiences, each university seems to have succeeded in conducting classes smoothly. It seems that the efforts of each university, teachers, and stuff should be evaluated highly.

Rather, students tended to welcome online learning rather than face-to-face. Of course, there is also the merit of not having to physically go to their universities, but one of the reasons was that there was not so much difference between face-to-face and online. Boca (2021) provided that students think online education is beneficial. Iqbal et

al. (2022) suggested that most students would not like online, however, most students had welcomed online because they didn't need to physically go to universities.

Some students seemed to have doubts about the evaluations. Hasan (2022) showed that students had doubts about measurement, evaluation, and teacher assessment in the pandemic era. On the other hand, we cannot deny the possibility that the grade evaluation has become lenient.

Online learning should be considered to have achieved certain results, but there are also disadvantages. Assunção et al. (2022) indicated that individual self-regulation and socio-emotional competences are essential for online learning. Budur, et al. (2021) stated that there is a lack of study for promoting online class.

In conclusion, we need a new education strategy that incorporates the advantages of both online and face-to-face education. Stoian et al. (2022) indicated an adjustment between face-to-face and online to result in a sustainable education. However, after the Covid-19 pandemic, there are sufficient research results to compare pre-corona and post-corona, what kind of skills students have gained, and what kind of skills they have lost. This study focuses on these points.

3. Empirical methods

Taking into account the above section, one of my classes is performed as follows according to the following syllabus:

Subject: Monetary and Financial Economics (2 units)
Theme: Monetary and Financial Economics: Theory and Reality
General explanation: Finance has become an integral part of our lives. The need to utilize accurate financial knowledge is increasing. In this class, we will cover the role of finance, financial markets, financial institutions, financial products, and monetary policy. It should also be useful for understanding recent trends in the Japanese economy and the world economy. Some will work for financial institutions.
Goal: Understanding basic theories of monetary and financial economics and the real conditions of financial markets

Method of class: Blended class that uses a flipped classroom and lectures. Lectures include peer review, group work, practice by doing group discussion and demonstration, and teaching others. Class will become the place to solve problems, advance concepts, and engage in collaborative learning. Of course, you have to ask and answer many questions in this class every time. Traditional lectures are provided using Socratic discussion.

Content and schedule:
1. Currencies, Interest Rates, Crypto Assets
2. Financial Markets
3. Financial Institutions (1) Central Banks, Banks
4. Financial Institutions (2) Banks and Credit Creation Functions, Prudence Policy
5. Financial Institutions (3) Securities companies, insurance companies, other financial institutions
6. Financial Instruments (1) Financial Instruments Included in Indirect Financing (Bank Deposits, etc.)
7. Financial Instruments (2) Financial Instruments Included in Direct Financing (Bonds, Stocks, Investment Trusts, etc.)
8. Financial Instruments (3) Bonds
9. Financial Instruments (4) Stocks, Derivatives
10. Quiz, quiz commentary, review so far, topics related to the financial industry
11. Monetary Policy and Fiscal Policy (1) Monetary Policy and Fiscal Policy Measures
12. Monetary Policy and Fiscal Policy (2) Explanation of IS/LM Analysis and Report Issues
13. Monetary Policy and Fiscal Policy (3) Effects of Monetary Policy and Fiscal Policy Using IS/LM Analysis
14. Exchange rate (online; conducted on demand)
15. Test and commentary, report assignment commentary, reflection of the whole class

Pre-study and after study: Pre-study is to watch the video and read textbooks. After study is to study materials presented during the class.
Evaluation: Examination: 65%; Quiz: 15%; Report: 10%; Class activity: 10%.
To students: If you are not good at communication skills with each other, don't mind it too much. Such skills are not linked directly with evaluation. Class activity (10%) is not equal to the number of attendance. It is evaluated by the Rubric. The standards of evaluation are explained in the class.

The sample data of before COVID-19 and after COVID-19 are used for estimations. The numbers of the samples are 112 and 78 respectively. Four universities in Japan provided data that was used for estimations.

The equation is following.

Final result = α + βAttendance + γQuiz + ε

Final result is scored from 0 to 100. Attendance and Quiz are scored from 0 to 15 respectively. Ordinary Least Squares (OLS) is used for estimations and also Robust estimation is employed. In this method, M-estimation is used. M-estimation is a robust estimation method utilized in the field of econometrics/statistics. There is an error between the sample data and the estimated value. The ordinary least squares (OLS) treat all errors with the same weight, so a large exception data will have a large impact on the estimations. On the other hand, in M-estimation, the errors are calculated to result in a small impact.

4. Empirical results

Before conducting regression analyses, descriptive statistics are shown in Table 1 and Table 2. Table 1 is the case of before COVID-19 and Table 2 is the case of after.

Table 1: Descriptive Statistics for the case of before COVID-19

	Final result (0-100)	Present (0-15)	Report (0-10)	Small test (0-15)	Exam at the end of the semester (0-65)
Mean	80.75	13.93	8.81	9.12	53.75
Median	83.00	15.00	9.00	10.00	57.50
Maximum	100.00	15.00	14.00	15.00	64.00
Minimum	7.00	12.00	7.00	4.00	25.00
Std.Dev.	17.87	1.43	1.32	3.50	14.92
Skewness	-0.67	-0.58	0.53	-0.16	-0.69
Kurtosis	2.41	1.40	1.55	1.49	2.40
Jarque-Bera	1.45	2.61	2.14	1.59	1.50
Probability	0.48	0.27	0.34	0.45	0.47

Table 2: Descriptive Statistics of after COVID-19

	Final result (0-100)	Present (0-15)	Report (0-10)	Small test (0-15)	Exam at the end of the semester (0-65)
Mean	77.31	13.30	7.25	8.35	48.76
Median	75.00	14.50	7.00	9.00	48.00
Maximum	100.00	15.00	10.00	15.00	65.00
Minimum	38.00	7.00	2.00	2.00	20.00
Std.Dev.	14.18	2.20	-0.12	2.02	2.02
Skewness	-0.02	-0.21	-0.12	-0.19	-0.19
Kurtosis	2.32	2.64	2.80	2.29	2.29
Jarque-Bera	1.55	1.00	14.08	2.13	2.13
Probability	0.46	0.61	0.00	0.34	0.34

A precise comparison between before COVID-19 and after is difficult or impossible because the content of the course and the questions on the exam are slightly different. However, some points are clear. One is that final result score decreases after COVID-19. Attendance and quiz scores also dropped. The content of the quiz is for comprehension checks of class material, and includes questions that do not require deep thinking so much as they are conducted for ensuring understanding and promoting face-to-face class activities. Therefore, it can be inferred that students have lost their tenacity and will to take on challenges without giving up.

The most shocking and serious thing is the drop in report scores. They exhibited a significant decrease. The report is targeting content that cannot be passed by memorization or shallow understanding of the subject material, so the decrease may be serious.

Table 3 and Table 4 are regression results listed in the previous section. Final result is regressed by attendance and quiz.

Table 3: Regression analysis of before COVID-19

Method	LS	Robust squared estimation	LS	Robust squared estimation
C	-19.993 (-0.488)	-28.714 (-0.601	-29.198 (-1.011)	-29.322 (-0.845)
Present	6.997** (2.24)	7.628** (2.095)	6.378*** (2.807)	6.430*** (2.555)
Small test	-	-	1.751** (2.195)	1.800* (1.878)
Adj.2/adj.Rw2	0.260	0.445	0.590	0.704
F-statistic/Rn-squared statistic	3.462	5.826	8.214	17.285
Pob(F-statistic/ Rn-squared statistic)	0.064	0.054	0.003	0.0006
D.W.	1.220	-	1.467	-

Note. Parentheses are t-value (LS) and z-value (robust squared estimation). ***, **, * denotes significant at 1%, 5%, 10% respectively.

Table 4: Regression analysis of after COVID-19

Method	LS	Robust squared estimation	LS	Robust squared estimation
C	48.041***	46.761***	30.081***	23.377**
	(5.200)	(4.867)	(2.930)	(2.354)
Present	2.201***	2.333***	1.823***	2.056***
	(3.211)	(3.274)	(2.754)	(3.240)
Small test	-	-	2.754***	3.309***
			(3.298)	(4.097)
Adj.2/adj.Rw2	0.105	0.151	0.206	0.365
F-statistic/Rn-squared statistic	10.312	10.717	11.248	32.932
Pob(F-statistic/ Rn-squared statistic)	0.002	0.001	0.000	0.000
D.W.	2.134	-	2.198	-

Note. Parentheses are t-value (LS) and z-value (robust squared estimation). ***, **, * denotes significant at 1%, 5%, 10% respectively.

Why are students failing to achieve high outcomes? What can be understood from the estimation results is that class attendance and high scores on quizzes had a strong impact on obtaining higher outcomes prior to COVID-19. Reduced opportunities to attend and participate in classes reduce self-management ability and opportunities for communication, and also reduce opportunities to come into contact with different ideas, objectively reexamine their own ideas, and create new ideas. Khaldoun et al. (2021) indicated that self-regulation is important to study. Also, kavakoğlu et al. (2022) stated that communication between instructor and student and between student and student has been a problem in the case of online lessons.

So how should we go about solving this? Teachers may be able to change the content of classes to something that students are interested in, or increase opportunities for group work. However, this does not necessarily lead to better learning outcomes. Ultimately, it all comes down to encouraging students to be spontaneous. Even if the results are not good, teaching too much should not be a hindrance to voluntary learning. One way to do this seems to be a flipped classroom.

Flipped class is sometimes treated as 'active learning'. The phrase 'active learning' has attracted a lot of attention, and its introduction is sometimes regarded as an ideal teaching method. Educators are surely struggling to enable learners to promote the effectiveness and incentives to study and break away from knowledge-based learning. However, there seems to be a lot of cases where lecture-based classes produce active learning more than classes in which educators say 'my classes introduce active learning.'

Garrison & Kanuka (2004) proposed a blended class that performs work under face-to-face and educational contents from teachers online. Van Wyk (2018) stated that a flipped classroom with online is an effective way to improve performance of students.

Using videos online and related ICT resources/instruments effectively before attending face-to-face class promotes deep learning face-to-face and enables students to use the concepts and theories for case studies and to solve problems in mind or in reality.

The author's classes have adopted the flipped classroom both before and after coronavirus. However, the learning outcomes of the lessons fell. This may be a lesson design issue rather than a flipped classroom issue. I think it is necessary to correctly understand the special mention of students who have studied in a special and harsh environment due to the corona crisis, and to design classes with that in mind. Also, in addition to the equipment used in online classes, knowledge obtained from them should be made use of in the future.

5. Conclusions

This study analyzed the learning outcomes of after COVID-19 in universities compared with before COVID-19. Almost all of the after the COVID-19 students surveyed in this study had experienced online learnings instead of face-to-face during the pandemic period. The students are taking face-to-face classes now after a year or two of online learning experience. This study compared their learning outcomes to those of students who had only face-to-face classes. From the results of statistical analyses, some points were cleared. Final results of after COVID-19 showed that students had a drop in scores. Attendance in classes and quiz scores also dropped and lead to a drop in of final results scores. It can be considered that students have decreased their learning attitude to continue challenges without giving up. Moreover, report scores dropped significantly. The rate of decrease is much larger than attendance and quiz scores. The reports from these surveyed classes do not rely on a shallow understanding of the material or insufficient investigation, instead it it requires thorough analyses and thinking deeply, so the reduction of scores shows a serious decline in students' grasp of the fundamentals. Losing opportunities to attend and participate in classes may reduce self-management skills and opportunities for communication. Online lessons surely have contributed to maintaining the quality of learning in some parts, however, there exists a possibility that it does not provide opportunities sufficiently to know different ideas, objectively reexamine their own ideas, and the ability to create new ideas of their own may have declined. Ultimately, it all comes down to encouraging students to be spontaneous. Even if the results are not ideal, teaching too much should not be a hindrance to voluntary learning. One of the key ways to solve this seems to be a flipped classroom.

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Educational Field Trips as Part of Teaching Methodology in Adult Education

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Abstract
In modern times, adult education is growing at a significant pace as many adults worldwide are actively involved in learning processes to update their knowledge and skills. In adult education, experiential learning plays a central role which renders learners active participants in the learning process. Educational field trips are part of experiential learning. Several scientific studies have been carried out in recent years that highlight the importance of educational field trips in a learning process, but most of them concern school education. This research focuses on the field of adult education, exploring the benefits as well as the conditions for successful visits in this field. By studying a sample of in-service learners and educators, the research demonstrates the importance of educational field trips as a useful tool for promoting experiential and participatory learning in adult education. Participants in this study highlight the main benefits of educational field trips and the preconditions that need to be met for their successful implementation.

Keywords: Educational Field Trips, Benefits, Preconditions, Adult Education

1. Introduction

1.1 Theoretical framework

In modern times, adult education involves a wide range of formal and non-formal learning processes and activities deliberately designed for people beyond the age of compulsory education (Rogers, 1998). In a rapidly changing social and economic environment, adult education through appropriately designed actions can contribute to the development of the knowledge and skills that modern citizens need in order to adapt more effectively to the new post-COVID-19 digital era. Therefore today, perhaps more than ever before, people need to update their knowledge and skills to meet the demands of the modern labor market, improve their employment prospects as well as develop personally and professionally (Jarvis, 2004).

Moreover, adult education encourages learners to overcome possible stereotypes and prejudices and to take advantage of opportunities to develop communication and cooperative skills, which contribute to enhancing social cohesion (Charakopoulos & Tsilimeni, 2020). Also, through active participation in learning processes, adults make creative use of their free time, develop social contacts, and broaden their circle of acquaintances, which can help them on a personal, social, and professional level. In any case, adult education in its various forms is based on the specific characteristics of adult learners, which should be considered in advance during the design and implementation of the educational activities in question.

1.2 The specific characteristics of adult learners

It is a fact that adult learners have some specific characteristics that differentiate them from underage learners (Kokkos, 2005; Jarvis, 2004; Rogers, 1998) More specifically, adult learners:
- come to a learning process with clear objectives, given intentions and specific expectations,
- already have a wide range of experience as they are in the middle rather than at the beginning of an evolving development process,
- have already formulated methods and models of learning, crystallizing how they wish to learn for themselves
- participate voluntarily, actively, and consciously, seeking interaction with other learners as well as with trainers
- face barriers to learning, either externally due to increased social and personal obligations, or internally due to prior knowledge and already formed perceptions.

The above characteristics have a significant impact on the way adult education programmes are organized and should be considered by trainers in the choice of the teaching methodology to be followed. In any case, teaching methodology should be as experiential and participatory as possible, based on the mobilization of learners and their active participation (Jarvis, 2004). In this context, depending on the particularities of each learning process, educational field trips can be integrated as a useful tool for experiential learning.

1.3 Educational field trips in adult education

In recent years, several scientific studies have been conducted that highlight the importance of educational visits, emphasizing the multiple benefits that result from their successful implementation (Greene, Kisida & Bowen, 2014; McQueen, Wright & Fox, 2012). Most of these studies focus on school environments and mainly concern primary and secondary education (Goutzeri & Kougiourouki, 2018; Behrendt & Franklin, 2014;). However, in recent years, with the significant development of adult education internationally, scientific studies on educational field trips have started to be published in this field as well. (Radke, 2016; Vásquez Salazar, 2014). As these studies show educational field trips can be a useful tool in adult education as well, as they present several advantages-benefits.

More specifically, educational field trips: link theory and practice, promote experiential learning, provide new engaging learning experiences in real-life settings, stimulate learners' interest, and encourage their learning motivation while broadening their horizons (Forest & Rayne, 2009). Beyond the usual environment of a classroom, learners have the opportunity to visit a new place they may not have visited before and gain new perceptions and experiences. Moreover, in some cases study visits provide the possibility of contact with conditions that are impossible or extremely difficult to create in a classroom (Behrendt & Franklin, 2014).

In other cases, educational visits as a practical activity "come and build" on pre-existing knowledge and experiences gained in the classroom, ideally complementing theory with practical experience (Lei, 2010). Thus, new knowledge and new experiences learners gain from a study visit are more fully imprinted in their memory, compared to a classroom-based teaching session. Furthermore, a study visit breaks the routine of traditional teaching and helps to strengthen the relationship between learners and between learners and educators and improves the learning climate (Goutzeri & Kougiourouki, 2018). A positive learning climate ensures learners are fully engaged and feel part of the learning group. Therefore, in the context of a participatory and active teaching methodology, educational field trips can become a useful and experiential learning tool for adult educators.

In order educational field trips to ensure maximum benefits for adult learners, they should be planned in an integrated manner and specifically in three phases (Fragoulis & Frantzi, 2010). In the first phase educational activities should be planned and implemented before the field trip, in the second phase educational activities should be implemented during the field trip to maximize the benefits for the learners, and in the third phase activities should be implemented which relate to the consolidation of the knowledge and further development of the skills acquired by the learners during the trip (Fragoulis & Frantzi, 2010; Tsimboukli & Phillips, 2007) .

2. Method

Several scientific research has been conducted in recent years regarding educational field trips in school education, enriching the relevant literature. Nevertheless there is no extensive scientific research on similar actions in the field of adult education. This fact was an extra motivation for the present study, for the needs of which qualitative and quantitative research was used with the method of purposive sampling. More specifically, purposive sampling was chosen for both the qualitative (interviews) and quantitative (questionnaire) research as it was deemed by the researchers to be the most appropriate method for this particular circumstance.

Purposive sampling presents specific advantages as it exploits the researchers' experience and network of contacts, selects cases typical of the topic under study and saves time and costs during the implementation of the research (Campbell et all., 2020; Kelly, Bourgeault & Dingwall, 2010). On the other hand, purposive sampling also presents some weak points-disadvantages, as it involves researchers' subjective judgment and the survey's results may not always be generalizable and representative (Robson, 2010).

In this case, a purposive sample of learners and educators was used from specific adult education and training structures in Northern Greece, such as Institutes of Vocational Training (IEK in Greek), Second Chance Schools (SDE in Greek), Lifelong Learning Centers (KEDIVIM in Greek), School of Pedagogical and Technological Education (ASPAITE in Greek) and higher education institutions (AEI in Greek). Initially, 8 semi-structured interviews were conducted, 5 with learners and 3 with adult educators.

The interviews at the qualitative research stage were conducted in May 2023, in Northern Greece and constituted a first recording of opinions and perceptions, preparing at the same time the axes for the design of the questionnaire that would be used in a second phase, during the quantitative research. Thus, taking into consideration the conclusions of the interviews and based on the objectives of the study, the questionnaire was designed simple in its structure but also comprehensive, so as not to "get the respondents tired". More specifically, the questionnaire contained closed-ended Likert scale questions and was sent via Google Forms by email in June 2023 to a sample of 206 trainees and 48 trainers. Of the 206 learners, 193 responded, a response rate of 93.7%, and of the 48 educators, 45 responded, a response rate 93.8%, both very high rates for related surveys.

3. Results

As can been seen in Table 1, of the 193 learners, 101 were women (52.3%) and 92 were men (47.7%). Regarding learners' age, at the time of the survey 39 of them were aged 21-30 (20.2%), 42 between 31-40 years (21.8%), 51 between 41-50 years (26.4%) and 16 over 60 years (8.3%). As purposive sampling was used in this survey, a conscious effort was made to ensure that respondents were not only from one adult education and training provider institution, but that there was representation from five different provider institutions and organizations. Thus, of the quantitative research participants, 38 were from IEK (19.7%), 29 from SDE (15%), 46 from KEDIBIM (23.8%), 44 from ASPAITE (22.8%) and 36 from AEI (18.7%) (Table 1).

Table 1: Learners' participating in the research profile.

Gender	Men: 92	Women: 101	Total: 193		
Age (years)	21-30	31-40	41-50	51-60	>60 years
	39 (20.2%)	42 (21.8%)	51 (26.4%)	45 (23.3%)	16 (8.3%)
Institution or organisation	IEK	SDE	KEDIVIM	ASPAITE	AEI
	38 (19.7%)	29 (15%)	46 (23.8%)	44 (22.8%)	36 (18.7%)

Regarding the adult educators who responded to the questionnaire, out of 48, 25 were women (52.1%) and 23 were men (47.9%). Of the total number of participating educators, 6 of them were between 21-30 years old (12.5%), 14 between 31-40 years old (29.2%), 16 between 41-50 years old (33.3%), 10 between 51-60 (20.8%) and only 2 over 60 years old (4.2%). Moreover, an important parameter in adult educators' profile is their years of experience in the field. Of the research participants, 7 had 1-5 years of experience (14.6%), 15 had 6-10 years (31.3%), 12 had 11-15 years (25%) and 3 had more than 20 years of experience (6.2%) (Table 2).

Table 2: Adult educators' participating in the research profile.

Gender	Men: 23	Women: 25	Total: 48		
Age (years)	21-30 6 (12.5%)	31-40 14 (29.2%)	41-50 16 (33.3%)	51-60 10 (20.8%)	> 60 years 2 (4.2%)
Years of service in adult education	1-5 years 7 (14.6%)	6-10 years 15 (31.3%)	11-15 years 12 (25%)	16-20 years 11 (22.9%)	> 20 years 4 3 (6.2%)

Subsequently, the research focused on the educational field trips expected benefits. Taking into account the findings of the interviews conducted during the qualitative research stage as well as the relevant literature (Radke, 2016; Espree-Conaway, 2016; Vásquez Salazar, 2014; Lei, 2010; Forest & Rayne, 2009), the quantitative research participants, learners and educators, were asked to rate the importance of each expected benefit on a five-point Likert scale (5 = very important, 4 = important, 3 = moderately important, 2 = somewhat important, 1 = not at all important). As can be seen from the responses (Table 3), the five most important expected benefits of educational field trips were enhancement of experiential learning (4.91 - 4.97), linking theory to practice (4.89 - 4.90), activation of learning motivation (4.86 - 4.32), learning experience in a real environment (4.13 - 4.65) and strengthening learners'-educators' relationships (4.01 - 4.11).

Table 3: Expected benefits of educational field trips in adult education

Educational field trip benefit	Learners	Educators
Enhancement of experiential learning	4.91	4.97
Linking theory to practice	4.89	4,90
Activation of learning motivation	4.86	4.32
Learning experience in a real environment	4.13	4.65
Strengthening learners'- educators' relationships	4.01	4.11

Next, the preconditions for successfully conducting an educational field trip were explored by asking participants to rate the importance of each prerequisite on a five-point Likert scale (5 = very important, 4 = important, 3 = moderately important, 2 = somewhat important, 1 = not at all important). Already from the interviews of the qualitative research as well as from the relevant literature (Espree-Conaway, 2016; Lei, 2010) five specific preconditions had emerged which were set to the learners and educators for evaluation (Table 4).

Thus, as illustrated below, the factors that have a catalytic effect on the successful conduct of an educational visit time availability (4.88 - 4.83), appropriate choice of the field trip's place (4.67 - 4.69), learners' active involvement and participation (4.06 - 4.12), field trip's organisational preparation (4.06 - 4.68) and linking the field trip with learning objectives (3.76 - 4.02).

Table 4: Preconditions for a successful educational field trip

Precondition	Learners	Educators
Time availability	4.88	4.83
Appropriate choice of place	4.67	4.79
Learners' active involvement and participation	4.06	4.68
Field trip's organizational preparation	3.93	4.12
Linking the field trip with learning objectives	3.76	4.02

4. Discussion

In today's era of rapid socio-economic developments, adult education can play a key role in promoting lifelong learning and adults' successful adaptation to the new conditions emerging internationally. Today, perhaps more than ever before, people do not stick to the basic knowledge and skills of formal education, but engage in lifelong learning, education, and training processes. These individual adult learning processes should be experiential in nature to ensure learners' active participation. After all, adult learners are not passive recipients of knowledge and skills, but active participants in the learning process. In this direction, the implementation of educational field trips in the context of a learning process can have significant benefits in the field of adult education. As found in this research, according to learners and adult educators, the most important of these benefits focus on enhancing experiential learning, linking theory-practice, activating learning motivation, learning experience in a real-life setting, and strengthening learner-educator relationships.

The above benefits should be taken into account by adult educators who wish to integrate educational field trips into their teaching methodology to complement classroom teaching with practical field activities. Moreover, through field trips, experience and experiential learning are promoted, concepts which are vital to adult education (Jarvis, 2004).

Obviously, for a study visit to be successful, certain conditions must be met. As the research has shown, these conditions are time availability, appropriate choice of the place of the visit, learners' active participation, organisational preparation of the visit and its connection with the respective teaching objectives. Taking the above factors into account, adult educators are therefore able to plan and implement a successful educational field trip with the best possible learning outcomes.

This study deals with an issue that has not been the subject of extensive scientific research in the past, thus contributing to the enrichment of the relevant literature. Regarding the generalizability of the findings, there are limitations arising from the use of a purposive sample, but careful sample selection makes the results applicable to a wider population. Regarding suggestions for further research, it would be interesting to conduct similar research in other regions of Greece, studying other samples of adult learners and adult educators, possibly from different adult education and training structures. It would also be of research interest to carry out similar research in the future, to compare the results with those of the present study and to see if there are any changes in trends and assessments of learners and trainers.

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Learning Takes Flight: Empowering Growth through Dialogic Teaching in Individual Badminton Lessons

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Abstract

In the dynamic landscape of education, characterised by the need for resilience, the convergence of dialogic teaching and the passion for badminton presents a pathway to profound learning experiences. This article explores the intersection of these two realms, highlighting the invaluable insights and synergies they contribute within a robust educational framework. This qualitative investigation involves two experienced teachers and three Year 12 student athletes actively engaged in dialogic-based lessons. The data collection process encompasses recorded observations and interviews with the teachers and students and uses thematic analysis techniques to analyse the gathered information comprehensively. The findings reveal that dialogic teaching catalyses student engagement and growth, opens dialogues that stimulate metacognitive processes, promotes personal growth and respectful exchange of ideas, and extends the value of transferable skills beyond the court. The role of the teacher emerges as pivotal in shaping interactional behaviour and establishing an environment conducive to skill and knowledge acquisition. Through scaffolded dialogic interactions, students are guided towards critical thinking, enabling them to develop a more thorough understanding of the subject and refine their skills. The insights gained contribute to creating transformative learning experiences by promoting dialogue, resilience, and transferable skills, empowering students to excel in both badminton and their learning outcomes, preparing them for future challenges and fostering their holistic development.

Keywords: Dialogic Teaching, Metacognitive, Qualitative Inquiry, Teacher-Student Relationship

1. Introduction

As an ardent badminton enthusiast and player, I have benefitted from the sport's discipline, teamwork, perseverance, and personal growth that co-curricular engagements offer. This background led me to delve into dialogic teaching, eager to apply my knowledge and explore its transformative potential within education. Through engaging discussions and collaborative learning, I witnessed firsthand the profound impact of dialogic teaching on students' perspectives and critical thinking abilities. Observing their growth and genuine embrace of diverse viewpoints was genuinely inspiring. The significant effect on student focus, knowledge retention, and constructive feedback has reshaped my educational environment and has made an enduring impression on my students' personal development.

As Alexander (2020) highlighted, dialogic teaching is an effective approach that encourages students' involvement in meaningful conversations and discussions to enhance their understanding, critical thinking, and problem-solving

abilities. The methodology centres on purposeful classroom talk practices, emphasising the attitudes of both teachers and learners in the learning process. Rather than a fixed formula, dialogic teaching emphasises the contextualisation and interconnectedness of learning moments with the subject matter, recognising that discourse formats, instructional techniques, and classroom experiences contribute to the holistic learning experience.

Dialogic teaching creates a collaborative learning environment through engaging dialogues, stimulating thinking, and skill development. This approach offers numerous benefits for students and can also be applied in sports education, such as badminton, to enhance student athletes' fitness, skills, tactics, and success. Teachers play a crucial role in shaping interactions and creating a conducive learning environment. They exhibit effective communication and problem-solving skills, guiding students' educational experience through scaffolded instruction that encourages independent and creative thinking. Teachers foster intellectual autonomy by inspiring students, providing learning strategies, and promoting meaningful dialogue in a dynamic and enriching learning atmosphere (Zhang, 2022).

This study contemplates how teachers can further enhance the effectiveness of instruction through their interaction and guidance while considering the specific learning context (Damsa & Jornet, 2021), in this case, the learning context being badminton instruction. Teachers showcase adaptability in their instructional approaches to teaching badminton, considering the unique requirements and characteristics of the sport (Damsa & Jornet, 2021). They employ effective techniques to develop skills, address challenges, and create a supportive learning environment that enhances student engagement and progress.

The individual lesson model emphasises personalised instruction and targeted feedback, fostering practical and empathic learning between teachers and students (Saleh et al., 2021). Personalised instruction employs scaffolding strategies that bridge the gap between students' learning abilities and the desired outcome by providing the necessary support (Bruner, 1997). Some aspects include adjusting complexity, where tasks are broken down into smaller, manageable steps. Modelling involves teachers demonstrating the desired behaviour or process, providing a clear example for the students. Questioning helps guide students' thinking and encourages them to think critically about the task. Exchanging feedback on students' efforts helps them understand their progress, correct mistakes, and improve. As students become more confident and skilled, the scaffolding support gradually reduces, enabling them to take on more responsibility and facilitating effective knowledge and skill acquisition in a personalised learning environment.

The interaction between teacher and student involves negotiation, active listening, and openness to different viewpoints (Karrass, 2013). Dialogic teaching and learning create a space for mutual respect and co-construction of knowledge, leading to various emotions and valuable insights into students' learning experiences. Immersive engagement in enjoyable activities allows for a deeper understanding of the impact of dialogue on students' actions and learning outcomes.

2. Aim of the study

The aim is to examine how the interplay of dialogic teaching in badminton instruction promotes learning and critical thinking and shapes student behaviour and thought. The insights gained will guide the development of effective educational techniques and strategies to enhance student engagement in diverse contexts. Emphasising the importance of exploratory dialogue, this study highlights the benefits of active listening, questioning, and authentic interaction for creating a collaborative learning environment. Teachers play a crucial role in modelling and scaffolding this process, facilitating students' collaborative knowledge scrutiny and negotiation.

3. Purpose and Significance of the Study

The purpose is to explore how teachers can enhance the effectiveness of their instruction by considering the specific learning context, particularly in the case of badminton instruction and to seek to improve skill development, address challenges, and create a supportive learning environment that fosters student engagement and progress.

The study's significance lies in providing valuable insights to educators and researchers, helping them tailor instructional approaches to diverse learning contexts, especially in sports education like badminton. The findings support teachers' professional growth with practical and adaptable approaches to enhance their instruction, potentially improving student learning outcomes in badminton instruction.

4. Literature Review

3.1. Dialogic Teaching

Dialogic teaching utilises dialogue to enhance students' thinking, promoting learning and understanding. It enables teachers to identify needs, structure assignments, and assess progress effectively (Alexander, 2020). Dialogic teaching transcends ordinary discussion, distinguishing itself from traditional teaching methods centred on question-answer and listen-tell routines and informal conversations in casual contexts. Research on dialogic teaching recognises the critical role of classroom talk and interaction in promoting respectful discourse, exchanging ideas, considering multiple perspectives and engaging in critical inquiry.

Alexander (2020) states that dialogic teaching goes beyond a specific methodology and necessitates reevaluating instructional techniques and classroom dynamics, including teacher-student relationships and conceptions of knowledge. Rooted in evidence-based practices and fundamental educational principles, dialogic teaching employs diverse strategies and techniques to address educational goals, meet student learning needs, and adapt to specific subjects and contexts. In dialogic classrooms, learners engage in meaningful conversations, acquiring essential skills like active listening, thoughtful reflection, and respect for diverse viewpoints. Teachers establish clear ground rules and regularly review them with students to foster effective communication. Moreover, teachers go beyond conventional approaches, employing exposition, instruction, recitation, and rote learning methods. While the teaching methods serve their purpose, there is a need to increase the frequency of discussion and scaffolded dialogue in the learning process because it fosters interactive and engaging learning experiences for students. Facilitating these dialogue forms depends on effective classroom organisation, a favourable classroom climate, and strong relationships. The different types of talk and their dynamics in dialogic classrooms contribute to essential processes such as uptake, which involves responding to and building upon others' ideas; scaffolding, which provides tools to bridge understanding gaps; and handover, which ensures successful transfer and assimilation of new knowledge into the existing understanding (Alexander, 2020). Increasing dialogue and discussion aims to empower learners intellectually and socially by promoting active thinking, engagement, and decision-making in their learning process.

Limited empirical evidence exists on the effectiveness of implementing and evolving dialogic teaching principles in the classroom over an extended duration. Studying dialogic talk and its repertoire over time poses theoretical and methodological challenges, but it is essential to understand the connections between interactions and events. Contextualising discourse practices within the social context of the learning community and considering their function within that community is crucial in determining their effectiveness. A dialogic stance, evident in conversations that promote exploration and diverse viewpoints, should be analysed over time, including how teachers and students discuss and present content. Challenges arise in balancing student engagement and meeting curriculum goals, potentially hindering productive dialogue and interaction (Cui & Teo, 2021). In addition, one-way communication sometimes restricts student participation, further complicating the situation (Cui & Teo, 2021).

Teachers ought to cultivate a collaborative and inclusive classroom environment to enable effective dialogic teaching, encouraging student participation, regardless of their background or experience (Alexander, 2020). By fostering such an atmosphere, teachers can assist students in developing communication skills and enhancing their educational experiences, leading to the cultivation of critical thinking, problem-solving abilities, and other essential life skills (Alexander, 2020).

4.2. Teacher-Student Relationships

Koca (2016) emphasises the importance of establishing a strong teacher-student relationship, which is crucial for achieving shared goals and developing essential qualities such as trust, open communication, and sharing. These relationships play a pivotal role in shaping the understanding and meaning of interactions, providing stability and continuity while also adapting to the evolving needs of students over time (Koca, 2016).

Brinkworth et al. (2018) highlight that a connected, empathetic, and respectful teacher-student relationship is essential for effective real-time interaction. Such relationships facilitate students' understanding, interpretation, and thoughtful response to events, enhancing their learning experiences. Positive relationships in the learning environment significantly impact teaching effectiveness, learning outcomes, and student motivation. Evans et al. (2019) thoroughly analyse teacher-student interactions and demonstrate that effective relationships, imparting skills, knowledge, and know-how, improve learning, enhancing sense-making and situational awareness. These dynamic and developmental aspects of a learning relationship meet students' changing needs over time, leading to a more implicit learning mindset and improved comprehension of specific moments in the lesson and their context.

Teachers employ diverse strategies to guide students' actions and attention, considering individual understanding, skills, and independence (Brinkworth et al., 2018). Meaningful dialogues and immersive experiences deepen students' comprehension and critical thinking (Evans et al., 2019). Integrating these approaches fosters engaging learning environments for student success. Gillies (2019) emphasises that offering guidance to students and teachers enhances engagement. Through this cycle, teachers can provide targeted instruction, leading students towards independent and successful learning outcomes. Strategic interactions facilitate integrated learning experiences, promoting learners' engagement, elaboration, and adaptation to the learning moment (Díez-Palomar et al., 2021). This heightened awareness and adaptability foster active participation and deeper learning outcomes.

4.3. Bruner's Scaffolding

Bruner's scaffolding concept employs scaffolds to aid students' knowledge construction (Bruner, 1997). The scaffolding functions to simplify tasks, maintain goals, attract attention, gauge task-student gaps, control learning difficulties, and promote rational behaviours. Strategies like modelling, prompting, cueing, feedback, and questioning enhance students' understanding and foster learning independence (Bruner, 1997). Effective scaffolding helps students comprehend challenging educational content. The gradual release approach involves the teacher modelling, guiding, and encouraging independent work as students gain confidence and competence, aiming to cultivate autonomy and ownership in the learning process. Scaffolded dialogue (Alexander, 2020) fosters interactive discussions that promote diverse thinking, thought-provoking questions, and follow-ups for deep exploration. This dialogue unfolds within a well-organized and supportive classroom environment, extending contributions (Alexander, 2020).

4.4. Divergent and Convergent Thinking

Divergent and convergent thinking play valuable and complementary roles in problem-solving and decision-making. Hu et al. (2015) highlight that divergent thinking encourages creativity, exploration, and the generation of multiple possibilities. On the other hand, convergent thinking, as discussed by Cassidy (2004), emphasises analysis, evaluation, and the ability to arrive at the best solution or answer based on given criteria. With guidance from teachers, students learn to evaluate and refine their ideas, developing well-reasoned solutions based on solid evidence (Alexandre et al., 2020). Educators recognise the significance of integrating both types of thinking in learning environments to foster holistic cognitive development, enhance students' problem-solving skills and acquire skills necessary to tackle real-world situations (Alexandre et al., 2020).

Integrating divergent and convergent thinking within the framework of dialogic education is crucial in enhancing students' thinking, learning, and comprehension (Palmgren-Neuvonen et al., 2021), and by balancing these two types of thinking, students are encouraged to develop problem-solving skills and think creatively and independently (Alexandre et al., 2020). Alexandre et al. (2020) highlight that this approach fosters a learning

environment that promotes engagement and student participation and provides opportunities for learners to express their ideas and opinions without fear of judgement, creating a safe and inclusive dialogue space. Consequently, dialogue is a powerful tool to broaden, create and deepen learning spaces where students can engage in collaborative learning tasks that encompass divergent and convergent thinking, and the learning space refers to shared resources of ideas in dialogue (Palmgren-Neuvonen et al., 2021). Students are provided with this interactive and inclusive learning experience which empowers them to encourage independent and creative thinking, express their ideas without being criticised (Zhou et al., 2017), and develop problem-solving skills, leading to achieving optimal learning outcomes and creating a dynamic learning space (Palmgren-Neuvonen et al., 2021).

4.5. The Impact of Dialogic Teaching on Student-Teacher Engagement

Dialogic teaching has positively impacted student-teacher engagement, fostering active listening, critical thinking, and collaborative learning (Padros, 2020); it allows students to express their thoughts and ideas while promoting openness to alternative perspectives (Koca, 2016). This approach has proven to enhance learning outcomes across different domains, including sports skills training. Student athletes can improve their decision-making abilities through reflective practices, exploring new strategies, and effectively navigating unforeseen circumstances (Teo, 2019). This development fosters increased confidence and adaptability (Teo, 2019), enabling athletes to outperform opponents and contribute to their team's overall success (Harvey et al., 2020).

5. The Study

The insights will help identify essential aspects of teacher-student engagement that enhance dialogic teaching and provide personalised techniques for effective learning. Educators' personal beliefs and attitudes influence their teaching methods, and observing various approaches to dialogic teaching can provide an improved understanding of the relationship between real-time actions, developmental processes, and learning experiences.

The research questions of this study centre on identifying evidence of dialogic teaching in the lessons being examined. There are two research questions: First, how does dialogic teaching manifest in the lessons under study? Second, what evidence supports the benefits or drawbacks of dialogic teaching?

6. Qualitative Methodology

A qualitative methodology provides flexibility and enables a deeper understanding of the research topic, allowing for exploring unexpected findings and patterns that may arise during the research process; qualitative research provides detailed insights into social processes, behaviours, and attitudes, which can uncover subtleties that might be missed using the process (Mathison, 1988).

The researcher invited two teachers to participate and communicated with their students to inform them about the study. This approach was taken to prevent any potential influence or bias from the teachers in their students' decision to participate. There were sixteen students, and only three agreed to be recorded and interviewed. The eligibility criteria required teachers with at least ten years of teaching experience to ensure pedagogical expertise, one teacher being 42 years old and the other 39, allowing diverse perspectives based on life experience. The students were at the Year 12 level, with two students aged 17 years old and one student aged 18. Before the study began, a minimum teacher-student engagement period of one week was implemented, providing an opportunity for meaningful interactions. This engagement allowed them to establish rapport and cultivate a conducive learning environment. The two teachers and three students gave informed consent to their participation. The teachers were labelled Teacher A and Teacher B, while the three students were Student A, Student B, and Student C, respectively. Preserving participant anonymity upheld ethics, protected confidentiality, and respected privacy to avoid negative consequences from revealing identities in research.

7. Data Collection and Analysis

In-depth interviews with teachers and students yielded qualitative data, allowing participants to share their experiences, challenges, and perceptions in their own words. These interviews provided rich and detailed accounts of the dialogic interactions, strategies, and outcomes. Recorded audio and video footage of the lessons further facilitated an in-depth examination of how dialogic teaching unfolded in real-time. These insights were subsequently subjected to thematic analysis (Braun & Clarke, 2014), allowing for the identification of common patterns and themes.

8. Findings

8.1. Audio and Video Recordings

Table 1 presents coded qualitative data from transcript extracts. The table condensed and tracked essential information, efficiently summarising the findings.

Table 1: Coding Qualitative Data from Transcript Extracts

Transcript Extract	Codes
Dialogue between Teacher A and Student A	1. Guidance 2. Feedback 3. Height impact on serve 4. Instruction and demonstration 5. Student engagement 6. A supportive and encouraging approach
Dialogue between Teacher A and Student B	1. Conducting drills to improve the high serve 2. Emphasis on wrist action and follow-through for generating more power on the high serve 3. Encouragement of student questions 4. Explanation of advantages of pushing opponents to different court areas 5. Importance of hitting the shuttlecock in the back corner of the receiver's side 6. Low serve technique introduction 7. Strategically positioning opponents with high serve 8. Student enthusiasm for the lesson 9. Student gratitude for the guidance and instruction provided by Teacher A 10. Valuable coaching throughout the lesson
Dialogue between Teacher B and Student C	1. Adjusting serving angles 2. Analysing previous matches 3. Footwork improvement 4. Mental toughness 5. Net play improvement 6. Pre-game routine 7. Self-care and time management 8. Setting goals 9. Tactics in badminton gameplay. 10. Variety of serving targets 11. Visualisation techniques

Some statements could fit under multiple codes, encompassing various aspects of dialogic teaching. The themes identified from the audio and video recordings were analysed through thematic analysis, resulting in the following identified themes:

8.1.1. Theme 1: Teaching and Learning Techniques

Several key methods enhanced badminton players' proficiency. The guidance provided structured insights into techniques and gameplay strategies, ensuring comprehension of game intricacies. Thus teacher A explained to a student that he should "stand sideways to the net with your feet shoulder-width apart and knees slightly bent." Feedback offered constructive input for skill refinement, which, in contrast to the initial guidance, was in response to actions from a student, so the teacher might say, "The serve didn't work. Okay, let's try this position and start at the waist." Instruction and demonstration visually explained proper playing techniques. Student engagement was still more student-centred; for example, a student queried, "What if my right leg is positioned like this?" Student engagement thrived through interactive discussions and activities, fostering an active learning environment. Supportive and encouraging methods created a positive atmosphere for skill exploration.

Effective teaching and learning techniques in badminton instruction elevated students' skill mastery. Structured drills refined high serve execution, emphasising wrist action and follow-through for power. Hence, Teacher A explained to a student that he should "keep practising, and you'll master the high serve in no time! Let's work on some drills to improve your technique." The student completed his drills, and the teacher praised him and offered feedback.

Encouragement of student questions nurtured engagement and critical thinking. Another example was the instructor-guided precision in shuttlecock placement, including the impactful strategy of directing it to the receiver's corner. The serve technique added versatility to students' skillset. Effective badminton coaching combines techniques to hone mental and physical competence. Methods included match analysis for insights, teaching mental toughness for resilience, and instilling a pre-game routine for optimal performance preparation. Instructors also prioritised self-care and time management, ensuring players maintained their physical well-being and energy levels.

8.1.2. Theme 2: Skills and Strategies

Integral to badminton instruction was the cultivation of specific skills and strategic approaches. Students engaged in hands-on drills to improve their serves, enhancing proficiency in this pivotal manoeuvre. Teacher A demonstrated the low serve technique to Student A and guided him through the practice. Emphasising wrist action and follow-through increased the power of the serves and deepened movement mechanics understanding. Teacher A advised, "Let's hold the racquet handle as if you're shaking someone's hand. Now, move your thumb to the left to create a V-shape between your thumb and index finger." Manoeuvring opponents across different court areas underscored strategic understanding, enabling students to dictate the game flow. Recognising the advantage of aiming shuttlecocks at the back corner disrupted opponents' positioning and created tactical opportunities. A student asked, "What if I can draw my opponent to the back edge of his court?" The teacher responded, "When a high serve is delivered to the back corner, he must take many steps back to the centre of the court, which can exhaust him." Effective teaching strategies complemented this skill acquisition, with student enthusiasm underscoring their teachers' impactful guidance. This interplay of techniques and skills created a valuable coaching and learning experience that resonated.

A robust badminton game demands mastery of diverse skills and strategies. There were serving angle adjustments manipulated shots, while refined footwork enhanced agility, balance, and court coverage. Netplay mastery included net shots, blocks, and smashes, establishing frontcourt dominance. Goal setting fostered progress tracking and motivation. Tactical instruction ensured strategic choices during matches. Varied serving targets kept opponents guessing, while visualisation techniques enabled enhanced execution by mentally rehearsing gameplay scenarios.

8.2. Teachers' Interviews

This section presents the content and structure of the teachers' interviews. Three main questions were asked during these interviews to gather valuable insights into implementing dialogic teaching and using different communication approaches in the teaching space. The questions focused on essential competencies for effective dialogic teaching, the techniques employed by teachers to engage students in meaningful discussions, and strategies for maintaining a balanced approach during open discussions where the direction of conversation might be less controlled. Three questions were asked:

8.2.1. Question 1: What competencies are essential for teachers to implement dialogic teaching effectively?

The teachers' interviews' findings indicated that effective dialogic teaching implementation required teachers to possess diverse competencies. Their competencies included effective communication, promoting active student engagement, and contributing to dynamic and interactive learning environments. Teacher A thrived in discussion facilitation and subject guidance, while Teacher B's interactive approach and probing questions enhanced student engagement and critical thinking. They emphasised continuous improvement. Their dedication was centred on enhancing student experiences and fostering critical thinking skills.

8.2.2. Question 2: How do you use different forms of communication in dialogic teaching?

The teachers' interviews also revealed that Teachers A and B used diverse communication approaches in dialogic teaching. Teacher A reported, "I encourage active participation and show videos," while Teacher B commented, "I motivate my student to engage in discussion, use videos, and use simple thumbs-up gestures. My students remark that my expression turns serious when a mistake occurs." Teacher A encouraged active participation through inclusive discussions and innovative instructional videos to enhance understanding and enthusiasm. Teacher B motivated students through meaningful discussions, concise videos, and creative feedback gestures, all contributing to engaging and impactful learning experiences. Their receptiveness to feedback and adoption of student-centred teaching approaches fostered a conducive learning environment. An interesting statement was that Teacher B also used body language to communicate with his students.

8.2.3. Question 3: How do you maintain a balance in open discussions when you have little control over the direction the conversation takes?

Teacher A navigated the challenge of balancing open conversations by using guiding questions to steer discussions towards desired outcomes. The teachers prioritised acknowledging every opinion and encouraging active student engagement. Both teachers' approaches emphasised effective communication and student engagement, enriching the learning experience and facilitating meaningful interactions that allowed for a balanced control of the direction of the conversation. Teacher B also commented, "I give post-lesson discussions for students who want to explore and satisfy their curiosity in techniques." The teacher encouraged a habit of seeking knowledge, fostered a closer student-teacher relationship and promoted an environment where questions and guidance were comfortably exchanged. This approach enhanced critical thinking, promoted individualised learning, and reflected a commitment to supportive and proactive teaching.

8.3. Students' Interviews

This section examines interviews with students, and their responses revealed how dialogic teaching influences their badminton education. Four questions asked were:

8.3.1. Question 1: What did you enjoy most about your badminton lessons?

The students enjoyed friendly competitions, shared improvements with their peers, motivated their best efforts, and fostered celebratory progress. Student A commented, "I enjoy the competition," while Student B stated, "Teamwork teaches me collaboration and communication." Student C remarked, "It is a sport where I can improve and achieve new skills." They enthusiastically embraced the teamwork inherent in matches, which taught collaboration and effective communication. They also valued personal growth, finding constant improvement and skill acquisition rewarding, while a sense of accomplishment kept them engaged and motivated.

8.3.2. Question 2: Were there any aspects of the badminton lessons that you found challenging and would like to improve in the future?

Students discussed how they addressed challenges and recognised challenges in footing, emphasising the need for movement assistance, requiring help with backhand shots, highlighting increased practice positively, and identifying weak points in serving. These perspectives offered a comprehensive view of individual challenges, showing awareness and determination for improvement. These experiences highlighted the symbiotic relationship between student efforts and teacher support, eventually enhancing skills and self-assurance, and persistently engaging in active learning.

8.3.3. Question 3: How would you describe your teacher's teaching style in badminton lessons?

The students admired their teacher's teaching approach and caring attitude, valuing open communication, appreciating support beyond academics, and responding to encouragement in overcoming personal challenges. The students expressed admiration for their teachers' teaching approach, recognising the teachers' care for both physical skills and mental well-being. They appreciated the incorporation of exercises that enhanced focus and preparedness. In addition, the students acknowledged the teachers' emphasis on open communication and provisions for video teachings and independent problem-solving. Moreover, they lauded the teachers' focus on the basics and attention to detail. These perspectives revealed that teachers prioritise effective teaching methods, holistic well-being, and skill improvement. One interesting comment was Student A mentioning, "but [he] talks a lot to explain clearly …." This highlighted that the teacher's teaching style combined structure with verbosity, which, although at times less concise, underscored the teacher's commitment to delivering comprehensive information.

8.3.4. Question 4: Do you have any advice to share with your peers?

The students emphasised dedication and persistence in practice, promising rewarding results in technical proficiency. Student A disclosed, "The long hours of practising, you'll see amazing results." They highlighted self-assessment and growth through attentive self-listening after teachers' guidance. In addition, they stressed open-mindedness and discouraged quick judgements from fostering personal growth and skill enhancement. Student C noted, "It's important not to judge and avoid quick judgements." These perspectives guided students towards success by merging commitment, self-reflection, and an open mindset for continuous improvement.

9. Discussion

9.1. Research Question 1: How does dialogic teaching manifest in the lessons under study?

The responses reveal how both teachers actively communicate with their students, fostering an environment encouraging questions, discussions, and exchanging ideas. Specific examples of dialogic teaching practices are presented, such as introducing badminton techniques and inviting students to explore strategic positioning and improve mental toughness. The teachers' thoughtful responses to student inquiries, integration of instructional videos, and encouragement of meaningful discussions demonstrate the dialogic teaching approach in their lessons.

In addition, the interviews with Teachers A and B reaffirm the prevalence of dialogic teaching in their instructional practices. The teachers' possession of strong teaching skills, effective communication, and facilitation of conversations are evident. They also emphasise the importance of student engagement and creating inclusive learning environments. The teachers' receptiveness to student feedback and commitment to continuous improvement exemplify the student-centred teaching approaches that promote meaningful interactions and engaging learning environments. These practices promote effective student learning guidance and the development of critical thinking skills.

The students' responses reflect their enjoyment of friendly competition, teamwork appreciation, and recognition of the importance of qualities like persistence and self-reflection, underscoring the positive impact of dialogic teaching on skill advancement and growth mindset development. Also, their emphasis on attentive self-listening and following coaching guidance demonstrates the effectiveness of dialogic teaching in nurturing progress and improvement. The students value the teacher's personalised approach and feedback, enhancing their enjoyable and enriching learning experience. The supportive and meaningful learning environment is evident in teacher-student interactions and the students' perspectives.

9.2. Research Question 2: What evidence supports the benefits or drawbacks of dialogic teaching?

The evidence supports the positive impact of dialogic teaching on students' active engagement, motivation, and learning experiences. Teachers A and B foster student curiosity and critical thinking by encouraging questions and facilitating meaningful discussions. The students' enthusiasm for the lessons and their expressions of gratitude for the guidance provided by Teacher B further underscores the benefits of dialogic teaching in promoting a dynamic and interactive learning environment.

The teacher interviews also provide evidence supporting the benefits of dialogic teaching. Teachers A and B demonstrate their proficiency in strong teaching skills, effective communication, and facilitating meaningful conversations. Their prioritisation of student engagement and creating inclusive learning environments encourages self-expression and the sharing of perspectives. They foster enjoyable and supportive learning experiences by incorporating techniques like videos and thought-provoking discussions. Students can access and review targeted video content at any time during and outside regular teaching hours. This personalised approach caters to individual learning needs, encouraging students to pose questions, voice uncertainties, and actively seek clarification. This process nurtures a sense of autonomy and fosters a continuous learning mindset.

Moreover, a teacher's interesting approach involves using hand gestures while students observe his facial expressions. This highlights the connection between body language and tacit knowledge, as body language communicates unspoken elements of knowledge. Body language conveys thoughts and feelings without words, while tacit knowledge is gained through experience. The teacher intuitively expresses himself using subtle cues when evaluating students' performance. This impacts interactions as students pick up on these cues. This approach fosters an engaging learning environment where students actively construct meaningful knowledge.

The interviews uncover minimal significant drawbacks; however, the risk of excessive teacher talk time limiting student participation is notable. It is advised for teachers to thoroughly harmonise their instruction and dialogic engagements, ensuring ample chances for students to participate in their learning experience actively. The challenges rest in the potential for mixed interpretations of non-verbal cues in body language, leading to misunderstandings. Excessive talking can also overwhelm students and obscure the main message, posing another challenge. These factors can hinder effective communication and student engagement, thereby underscoring the importance of balancing clear verbal communication and creating room for student input. This equilibrium is essential for the success of dialogic teaching.

The evidence gathered from the interviews with teachers and students strongly supports the benefits of dialogic teaching in creating a positive and enriching learning environment. The dynamic and interactive nature of dialogic

teaching contributes to student engagement, motivation, and holistic learning experiences while fostering effective communication and positive teacher-student relationships.

10. Implications

The practical implications encompass fostering active student participation, enhancing critical thinking and understanding, and cultivating a supportive learning environment. By assuming the role of facilitators, teachers guide discussions and empower students to engage in their learning process actively. Dialogic teaching not only aids in developing practical communication skills but also cultivates a critical consciousness by encouraging students to challenge assumptions and explore alternative perspectives. In addition, this approach can transform students' attitudes, learning dispositions, knowledge acquisition, and cognitive progress, resulting in a more enriched educational experience.

Another implication is the enhancement of students' self-reflection and self-assessment skills. Implementing dialogic teaching can lead students to develop the capacity to critically assess their performance, recognise areas needing enhancement, and establish individual objectives through substantive dialogues and interactions with the instructor. This cultivation of self-reflective practices can bolster their self-awareness, boost their self-assurance, and foster a sense of responsibility for their learning experience, ultimately contributing to ongoing progress and advancement.

11. Limitations

One limitation is the study's exclusive focus on dialogic teaching in badminton instruction within co-curricular activities, potentially limiting its applicability to other sports areas and subject domains. This study's reliance on the experiences of only two teachers might restrict the extent to which the findings can be generalised to various contexts, particularly within the realm of sports teacher education.

Not only does the study utilise self-reported data from teachers and students, which may have introduced bias or inaccuracies, but also this study's focus on a specific period allows for a clear snapshot of the situation. However, by not considering the potential changes in teachers' and students' perspectives over time, the opportunity to capture the dynamic evolution of the subject may have been missed.

To enhance dialogic teaching in sports teacher education, increasing opportunities for in-service and pre-service teachers to engage in dialogic interactions, receive feedback, and foster reflection on their experiences is crucial. This also highlights the need for more professional development programmes primarily focusing on dialogic teaching in sports teacher education.

12. Conclusion

This study presents detailed insights into authentic teaching and learning behaviours, highlighting the dynamic nature of badminton skill acquisition. It emphasises how dialogic teaching fosters personalisation and visibility in the learning process, with real-time exchanges during individual lessons being pivotal for evolving teacher-student relationships. The study also reveals that effective dialogues enhance learning, showcasing teacher expertise and promoting positive student and teacher experiences. Furthermore, the study uncovers the role of trust-based connections in fostering creative possibilities within teacher-student relationships. Early lessons progress in small, manageable steps, from instrumental demonstrations to dialogic discussions, nurturing interactive and collaborative learning. Teachers balance flexibility and structure, integrating dialogue and instruction to facilitate growth in interpersonal relationships. This approach enhances communication, emphasising its significance within the learning environment.

Counterfactual curiosity (Fitzgibbon & Murayama, 2022) and critical thinking engage students in cognitive exploration. Teachers encourage questions, fostering inquiry and broadening comprehension. Teachers also integrate convergent and divergent thinking by structuring discussions that start with convergent thinking to

establish a shared understanding and then transition to divergent thinking for exploring diverse interpretations, solutions, and perspectives. Integrating personalised lessons and scaffolded dialogue amplifies exploration and critical thinking, enriching students' experiences. This approach equips students with adaptable skills, empowering them to navigate modern challenges.

The outcomes of dialogic talk can vary based on students' desired learning and developmental goals. Increasing teachers' understanding of the advantages of dialogic teaching and talking is crucial to elevating students' communication opportunities and skills. The key factor influencing opportunities and limitations is whether teachers and students have embraced a dialogic approach.

This study underscores the profound impact of dialogic teaching on students and educators. It fosters engagement, critical thinking, and creativity and prepares students for a multifaceted world. The synthesis of personalised approaches, scaffolded dialogue, and instructive modelling cultivates a culture of exploration and learning, nurturing the growth of 21st-century learners as active participants, and facilitating the process of understanding and skill development, and empowering learners to excel and embrace limitless possibilities.

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Conflict of Interest

The author declares that the study was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Biographical Notes

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Leadership's Role in Effective Quality Assurance Implementation in Higher Education Institutions

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Abstract

In the rapidly evolving realm of higher education, the integration of effective quality assurance mechanisms has become imperative for institutions to ensure educational excellence and meet global standards. Central to this endeavor is the role of leadership, which intricately shapes the implementation and success of quality assurance initiatives. This paper delves into the intricate relationship between leadership and quality assurance in higher education institutions, aiming to uncover the nuanced interplay between leadership styles and quality enhancement efforts. Through a comprehensive literature review and conceptual analysis, a robust framework emerges that illustrates how diverse leadership styles—transformational, transactional, and distributed—intersect with quality assurance mechanisms, subsequently influencing educational quality. The practical implications of the framework underscore the importance of tailored leadership development programs, cultural alignment, and strategic decision-making for effective quality assurance. Furthermore, this paper sets a visionary trajectory by delineating promising avenues for future research, including empirical validation, cross-cultural comparisons, exploration of long-term effects, stakeholder engagement, and adaptation to technological advancements. By bridging theory and practice, this paper not only enriches the discourse on leadership and quality assurance but also offers a navigational guide for educators, administrators, policymakers, and researchers striving to elevate the standards of higher education.

Keywords: Quality Enhancement, Educational Leadership, Higher Education Institutions, Leadership Styles, Quality Assurance Strategy

1. Introduction

In the ever-evolving landscape of higher education, quality assurance mechanisms have gained prominence as institutions strive to enhance their educational offerings, maintain standards, and respond to global demands for excellence. The pursuit of quality in higher education is a multifaceted endeavor that goes beyond academic rigor and curriculum design, encompassing broader aspects such as leadership, governance, and organizational culture. As the educational environment becomes increasingly complex and competitive, the role of leadership in shaping and implementing quality assurance mechanisms has become paramount. This paper delves into the intricate relationship between leadership and quality assurance mechanisms in higher education, aiming to provide insights into the ways leadership practices influence the effectiveness of quality assurance efforts.

The past few decades have witnessed a significant transformation in the higher education sector on a global scale. This expansion, accompanied by heightened expectations from various stakeholders, including students, parents, employers, and regulatory bodies, has underscored the importance of maintaining and improving the quality of educational programs and services (Gordon, 2002). Quality assurance mechanisms have emerged as crucial tools for ensuring that higher education institutions consistently meet or exceed defined standards, aligning with the principles of accountability and transparency (Harvey and Newton, 2007; Ryan, 2015). These mechanisms encompass a range of strategies, including accreditation, audits, evaluations, and benchmarking, which collectively contribute to the continuous enhancement of educational practices (Stensaker and Harvey, 2010).

Amid the diversity of quality assurance strategies, the pivotal role of leadership in guiding their implementation and effectiveness cannot be overstated (McCaffery, 2018). Leadership, at both the institutional and departmental levels, plays a critical role in shaping culture, setting strategic priorities, and influencing decision-making processes (Bryman, 2007; Mintzberg, 2017). Effective leadership is essential for fostering a culture of quality and innovation, aligning stakeholders' efforts, and navigating the complexities of implementing and sustaining quality assurance initiatives (Flumerfelt and Banachowski, 2011; Harris et al., 2004). Leadership's influence on quality assurance is particularly evident in how it shapes the organizational culture (Prajogo & McDermott, 2005). Leadership behaviors, values, and priorities set the tone for the institution's commitment to quality (Dean, 2005). For instance, transformational leadership, characterized by inspirational motivation and intellectual stimulation, has been found to positively impact innovation and quality improvement efforts in higher education (Nurdin & Ismaya, 2017). Conversely, laissez-faire or ineffective leadership can hinder the development of a robust quality assurance culture (Cardoso et al., 2015; Cheng, 2010).

While the relationship between leadership and quality assurance is acknowledged, the specific leadership practices and attributes that facilitate effective quality assurance mechanisms in higher education remain relatively unexplored. The literature often treats quality assurance and leadership as separate entities, lacking an in-depth exploration of their interconnections in education (Bendermacher et al., 2017; Bryman, 2007; Ryan,2015; Setiawati, 2016). This paper aims to address this gap by examining the multifaceted roles and attributes of leadership that contribute to the successful implementation and functioning of quality assurance mechanisms in higher education institutions.

2. Methodology

This section outlines the research methodology employed in this study to explore the relationship between leadership and quality assurance in higher education institutions. The research approach involves a comprehensive literature review and a conceptual analysis. This mixed-methods approach allows for a thorough examination of existing knowledge and the development of a conceptual framework that synthesizes the findings.

The study begins with an extensive literature review, which involves a systematic analysis of scholarly articles, books, reports, and other relevant sources. The literature review is conducted to establish a solid theoretical foundation and to identify key concepts, frameworks, and trends related to leadership and quality assurance in higher education (Bendermacher et al., 2017; Bryman, 2007; Ryan,2015; Setiawati, 2016). The review process encompasses a range of sources, including empirical studies, theoretical works, and policy documents (Anderson, 2006; Bendermacher et al., 2017). It aims to identify existing theories and models of leadership that are applicable to the higher education context, as well as established quality assurance mechanisms and best practices (Gordon, 2002; Harvey and Newton, 2007).

In lieu of case studies, this study employs a conceptual analysis approach to synthesize and integrate the findings from the literature review. The aim is to develop a comprehensive conceptual framework that outlines the relationship between leadership and quality assurance in higher education institutions. This framework will be based on the identified themes, theories, and concepts from the literature (Jackson, 2000). The conceptual analysis involves identifying commonalities, patterns, and interconnections among various concepts related to leadership and quality assurance. The goal is to generate a unified theoretical framework that captures the dynamic

interactions between leadership styles, practices, and quality assurance mechanisms (Flumerfelt and Banachowski, 2011; Vilkinas and Ladyshewsky, 2012).

The data synthesis process involves organizing and categorizing the findings from the literature review into key themes and subthemes (Zhang, 2022). These themes are used to construct the conceptual framework that illustrates how different dimensions of leadership (e.g., transformational, transactional, distributed) influence quality assurance processes and outcomes in higher education institutions (Hassan et al., 2018). Given that the study relies solely on literature and conceptual analysis, ethical considerations related to human participants are not applicable. However, ethical guidelines related to proper citation and intellectual property are rigorously followed to ensure the integrity of the research. It is important to acknowledge that the study's findings are dependent on the quality and availability of the literature. The conceptual framework developed in this study is a theoretical synthesis based on the literature, and its practical applicability may vary across different institutional contexts. The research methodology employed in this study involves a comprehensive literature review and a conceptual analysis to explore the relationship between leadership and quality assurance in higher education institutions. By synthesizing the findings from the literature, the study aims to develop a conceptual framework that enhances our understanding of how leadership styles and practices influence quality assurance mechanisms in the higher education sector. Through this approach, the study seeks to contribute to the theoretical foundation of the field and provide insights that can inform leadership and quality assurance strategies in higher education institutions.

3. Conceptual Framework

The conceptual framework developed in this study aims to provide a comprehensive understanding of the relationship between leadership and quality assurance in higher education institutions. This framework is based on a thorough literature review and a conceptual analysis of key themes, theories, and concepts related to leadership styles and practices, as well as quality assurance mechanisms.

3.1. Leadership styles and practices

The foundation of the conceptual framework lies in the identification of various leadership styles and practices that are commonly observed in higher education contexts. The literature review reveals that transformational, transactional, and distributed leadership are prominent styles in this setting (Khan & Khan, 2021). Transformational leadership is characterized by leaders who inspire and motivate their teams, foster innovation, and promote a shared vision (Nurdin & Ismaya, 2017; Saenz, 2011). Transactional leadership involves structured approaches that emphasize task accomplishment and performance monitoring (Flumerfelt and Banachowski, 2011; Khan & Khan, 2021). Distributed leadership, on the other hand, recognizes leadership as a collective effort distributed across various roles and individuals within an institution (Lu, 2022; Gronn, 2002; Jones and Harvey, 2017).

3.2. Quality Assurance Mechanisms

The conceptual framework also encompasses quality assurance mechanisms that are integral to maintaining and enhancing educational quality in higher education institutions (Harvey and Newton, 2007; Houston, 2008). Quality assurance includes processes such as curriculum design, assessment and evaluation, faculty development, and institutional governance (Harvey and Newton, 2007). External quality assurance agencies, national accreditation bodies, and internal review processes play pivotal roles in ensuring compliance with quality standards and continuous improvement (Anderson, 2006).

3.3. Interactions and Impacts

The core of the conceptual framework is the exploration of how leadership styles and practices interact with quality assurance mechanisms and subsequently impact the quality of education in higher education institutions. The framework suggests that different leadership styles can have varying effects on the implementation and effectiveness of quality assurance processes (Benoit, 2005; Osseo-Asare et al., 2005). Transformational leadership

may facilitate a culture of innovation and excellence, leading to a proactive approach to quality assurance (Cardoso et al., 2015; Flumerfelt and Banachowski, 2011). Transactional leadership may ensure adherence to established quality standards through efficient processes and clear accountability (Osseo-Asare et al., 2007; Spendlove, 2007). Distributed leadership may foster a collaborative environment where quality assurance becomes a collective responsibility (Gronn, 2002; Jones and Harvey, 2017).

3.4. Moderating Factors

The framework also acknowledges the presence of moderating factors that influence the relationship between leadership and quality assurance in higher education institutions. Organizational culture, institutional context, stakeholder engagement, and regulatory frameworks are examples of factors that can shape how leadership practices interact with quality assurance mechanisms (Cardoso et al., 2015; Houston, 2008; Setiawati, 2016). The developed conceptual framework synthesizes the findings from the literature review and conceptual analysis, providing insights into the complex interplay between leadership and quality assurance in higher education institutions. The framework serves as a guide for understanding the potential impacts of different leadership styles and practices on the implementation and outcomes of quality assurance processes. By considering moderating factors, the framework also highlights the contextual nuances that influence this relationship. This conceptual framework contributes to the theoretical foundation of the field and offers a lens through which higher education institutions can analyze and optimize their leadership and quality assurance strategies.

4. Literature Review

In recent years, the domain of higher education has undergone transformative changes globally, catalyzed by factors such as globalization, technological advancements, and shifting societal needs. These changes have led to an increased emphasis on the quality assurance of higher education institutions. To comprehend the role of leadership in quality assurance mechanisms, it is imperative to delve into the literature on this subject. Quality assurance mechanisms in higher education encompass a range of practices aimed at ensuring and enhancing the quality of educational programs and services (Abdullayev, 2019). Leadership, as a central aspect of organizational dynamics, plays a pivotal role in shaping the implementation and effectiveness of these mechanisms. Leadership, in this context, refers to the ability to influence individuals and groups to work collectively toward shared goals, often involving decision-making, strategic planning, and fostering an organizational culture (Nurdin & Ismaya, 2017).

4.1. The Role of Leadership in Quality Assurance Implementation

Effective leadership plays a pivotal role in the successful implementation of quality assurance mechanisms in higher education institutions (Ahmad & Ahmed, 2022). The multifaceted nature of quality assurance necessitates leaders who can navigate a complex web of challenges and opportunities (Newton, 2002). Quality assurance involves a comprehensive overhaul of institutional processes, including curriculum design, teaching methodologies, assessment strategies, and administrative practices (Bendermacher et al., 2017). Leaders must orchestrate these changes in a coordinated manner, ensuring that all stakeholders are aligned and engaged in the process. Institutional leaders serve as the driving force behind quality assurance efforts. They are responsible for setting the tone, vision, and strategic direction that guide the entire institution toward embracing a culture of continuous improvement and accountability (Anderson, 2006). Leaders must be adept at communicating the rationale behind quality assurance to both internal and external stakeholders, emphasizing the benefits it brings to students, faculty, and the institution as a whole. Their ability to inspire and motivate others is central to overcoming resistance to change and instilling a sense of ownership in quality assurance processes (Anderson, 2006).

Navigating the challenges of quality assurance also requires leaders to allocate resources judiciously. This includes not only financial resources but also human capital, technology, and infrastructure (Ekman et al., 2018). Effective leaders must make strategic decisions about how to allocate these resources to support the implementation of quality assurance initiatives (Seyfried & Pohlenz, 2018; Williams, 2016). Their role as resource allocators involves balancing short-term needs with long-term sustainability and ensuring that the institution is equipped to meet

quality standards consistently (Ekman et al., 2018). Furthermore, leaders must recognize that quality assurance is an ongoing process rather than a one-time endeavor. They must establish mechanisms for continuous monitoring, evaluation, and improvement (Yirdaw, 2016; Stensaker & Harvey, 2010). This requires a combination of data-driven decision-making, collaboration with faculty and staff, and a commitment to incorporating feedback from all stakeholders (Mgaiwa, 2020). Through their leadership, institutions can evolve from reactive approaches to quality assurance to proactive, forward-looking strategies that foster a culture of excellence (Bendermacher et al., 2017; Ekman et al., 2018).

4.2. Leadership Styles and Quality Assurance

The literature underscores the pivotal connection between leadership styles and the outcomes of quality assurance initiatives. Transformational leadership, with its emphasis on inspiring and motivating followers through vision and charisma, is closely associated with fostering a culture of innovation and improvement (Nurdin & Ismaya, 2017). Leaders who exhibit transformational qualities encourage faculty and staff to embrace change, explore new pedagogical approaches, and actively engage in enhancing the quality of education. Transactional leadership, while distinct from transformational leadership, remains relevant in the context of quality assurance (Ismail et al., 2010). This style involves setting clear expectations, providing rewards for meeting performance standards, and ensuring that processes are adhered to (Saenz, 2011). While transactional leadership may be perceived as more rigid, it can play a crucial role in ensuring that quality assurance standards are met consistently and that institutional processes are aligned with established benchmarks.

Effective leaders recognize that a balance between transformational and transactional leadership styles is essential (Ismail et al., 2010). Transformational leadership can inspire a shared vision and create enthusiasm for quality enhancement, but it needs to be complemented by transactional approaches that provide the necessary structure and accountability to ensure that quality standards are met consistently (Bendermacher et al., 2017). Achieving this balance requires leaders to tailor their leadership approaches to specific contexts and adapt their styles as circumstances evolve.

4.3. Resistance to Change and Leadership Strategies

Resistance to change is a common challenge in the implementation of quality assurance mechanisms (Newton, 2002). Faculty and staff may harbor concerns about increased administrative burden, alterations to teaching practices, and potential infringements on academic freedom (Karran, 2007). Effective leaders recognize the inevitability of resistance and adopt strategies to address it proactively (Miller, 2001).

Communication lies at the heart of effective leadership in managing resistance to change (Banwart, 2020). This study suggests that leaders must clearly articulate the rationale for quality assurance initiatives, explaining how they align with the institution's mission, enhance student learning experiences, and contribute to overall institutional excellence. Transparency is key: leaders should engage in open dialogues, addressing concerns and debunking myths surrounding quality assurance (Hood & Heald, 2006). By providing clear explanations and addressing misconceptions, leaders can mitigate resistance and build trust among faculty and staff (Branson, 2007). Engaging stakeholders in decision-making is another potent strategy (Leal & Brandli, 2016). Leaders who involve faculty, staff, and students in the design and implementation of quality assurance mechanisms create a sense of ownership and shared responsibility (Mohamedbhai, 2006). This participatory approach demonstrates that the institution values diverse perspectives and is committed to cocreating processes that work for everyone (Leal & Brandli, 2016). Effective leaders use feedback mechanisms and collaborative platforms to ensure that quality assurance is not imposed from above but emerges as a collective effort to enhance education (Cardoso et al., 2015).

4.4. The Impact of Institutional Culture on Leadership and Quality Assurance

Institutional culture significantly shapes leadership practices and quality assurance efforts (Bass & Avolio, 1994). Effective leaders recognize that implementing quality assurance mechanisms requires adapting strategies to align with the prevailing institutional culture (Kotter, 2008). Institutions have unique histories, values, and traditions

that influence how they approach education and change (Arizpe, 2014). Leaders must navigate this complexity to ensure that quality assurance is not seen as an imposition but as a natural evolution of the institution's commitment to excellence (Davies et al., 2007). For instance, academic culture, often characterized by a strong emphasis on individual autonomy and shared governance, requires leaders to adopt adaptive leadership styles (Torres et al., 2012). Such styles respect the academic freedom of faculty while also channeling their expertise and energy towards quality enhancement (Cheng, 2010). Leaders must be skilled in striking a balance between fostering a culture of openness and innovation and ensuring that quality assurance processes are integrated seamlessly into the institution's academic fabric (Shalley & Gilson, 2004).

Moreover, institutional leaders have the responsibility of setting the tone for how quality assurance aligns with the institution's values (Mishra, 2007). They must demonstrate that quality assurance is not a bureaucratic exercise but a means to preserve and enhance the institution's academic reputation (Materu, 2007). Leaders who successfully navigate the intersection of leadership and institutional culture can inspire faculty and staff to embrace quality assurance as an opportunity to strengthen the institution's core values while driving positive change (Armstrong, 2017).

4.5. Cross-Cultural Leadership Challenges

In an increasingly interconnected world, the challenges of leadership in quality assurance extend beyond geographic boundaries (Youssef & Luthans, 2012). International perspectives highlight the need for leaders to adopt cross-cultural leadership approaches that accommodate diverse contexts (Mgaiwa, 2020). Globalization has led to the proliferation of international quality assurance frameworks, necessitating leaders to transcend cultural boundaries and adapt their leadership strategies accordingly (Litz, 2011). Cross-cultural leadership requires leaders to be culturally sensitive and attuned to the nuances of different educational systems (Bird & Mendenhall, 2016). Leaders must be skilled in cross-cultural communication, recognizing that norms and expectations around education may vary widely (Hofstede, 2001; Javidan et al., 2006). Flexibility and adaptability are paramount: leaders who can navigate cultural differences while remaining committed to quality enhancement objectives can facilitate the successful implementation of quality assurance mechanisms on a global scale (Earle et al., 2007).

Global quality assurance networks also emphasize collaboration and knowledge sharing across countries and regions (Pardo et al., 2010). Effective leaders recognize the value of engaging with peers from diverse backgrounds, learning from best practices in different contexts, and adapting those practices to suit their own institutions (Leithwood & Riehl, 2004). Cross-cultural leadership entails both humility and confidence: humility in recognizing the wealth of knowledge available globally and confidence in leading change in one's own institution based on these insights (Thomas & Fujimura, 2022).

4.6. Strategic Decision-Making and Leadership in Quality Assurance

Strategic decision-making is central to leadership in quality assurance (Parvin, 2018). Leaders are tasked with selecting and implementing quality assurance mechanisms that align with the institution's goals, values, and mission (Carroll, 2010). This involves assessing the various options available, understanding the potential benefits and challenges, and making informed choices that reflect the institution's unique context and aspirations.

Effective leaders consider quality assurance as an opportunity to strategically position their institutions in a competitive landscape. They identify mechanisms that not only meet external accreditation requirements but also enhance the institution's overall quality and reputation (Hult, 2019; Spendlove, 2007). Strategic decisions encompass a range of considerations, from selecting appropriate assessment methods to establishing a culture of continuous improvement (A, 2015). Moreover, leaders must ensure that the chosen mechanisms are sustainable in the long term, avoiding the pitfalls of implementing initiatives that lack resources or stakeholder buy-in (Williams, 2016).

Strategic decision-making also involves managing the tension between compliance and innovation. While quality assurance mechanisms must meet established standards, leaders must also ensure that these mechanisms do not

stifle creativity or discourage experimentation (Houston, 2008). Effective leaders find ways to strike a balance between standardization and flexibility, leveraging quality assurance as a framework that empowers faculty and staff to explore innovative pedagogies and methodologies (Spendlove, 2007).

4.7. Leadership Development and Quality Assurance

Investing in leadership development is a critical component of ensuring that institutions have the leadership capacity required to effectively implement quality assurance mechanisms (Day, 2000). Leadership development programs equip leaders with the skills, knowledge, and mindset needed to navigate the complexities of quality assurance (Abdullayev, 2019). These programs go beyond traditional leadership training, focusing specifically on the unique challenges and opportunities posed by quality assurance in higher education (Scott, et al., 2010).

Leadership development programs recognize that effective leadership in quality assurance involves more than just technical skills. It encompasses emotional intelligence, effective communication, conflict resolution, and the ability to inspire and motivate teams (Huber, 2009). Leaders must be prepared to lead change, manage resistance, and drive a culture of continuous improvement (Anderson & Anderson, 2011). Such programs provide leaders with the tools to navigate the interpersonal and institutional dynamics that are intrinsic to quality assurance efforts (Black & Earnest, 2009).

Furthermore, leadership development programs encourage leaders to reflect on their own leadership styles and preferences (McCall, 2004). Leaders who can self-assess and engage in reflective practices are better equipped to adapt their approaches as circumstances evolve (Holmes, 2016). Self-awareness is crucial: leaders must understand their strengths and areas for growth to effectively leverage their leadership styles in the context of quality assurance (Eurich, 2018). By nurturing self-awareness and promoting ongoing learning, institutions can cultivate a cadre of leaders who are adept at steering quality assurance initiatives toward success (Lim, 2019).

4.8. Conclusion for Literature Review

In conclusion, the reviewed literature underscores the indispensable role of leadership in shaping the successful implementation of quality assurance mechanisms in higher education. Effective leaders orchestrate the complex web of processes, resources, and stakeholders required to drive quality enhancement. They must inspire faculty, staff, and students to embrace change, navigate resistance, and engage in continuous improvement. The literature demonstrates that leadership styles significantly impact quality assurance outcomes. Transformational and transactional leadership qualities each have a role to play, with the balance between the two being crucial for success. Furthermore, the cultural context of the institution significantly influences leadership practices. Leaders must adapt their approaches to align with institutional values and encourage faculty autonomy while promoting quality enhancement.

The global nature of higher education underscores the need for cross-cultural leadership skills. Effective leaders in quality assurance embrace diversity, engage with international networks, and adapt their strategies to different educational contexts. Moreover, leaders must make strategic decisions that align quality assurance with institutional goals while promoting innovation and sustainability. Investing in leadership development is pivotal for fostering effective leadership in quality assurance. Such programs equip leaders with the skills, knowledge, and self-awareness needed to navigate the intricacies of quality assurance efforts. Ultimately, effective leadership in quality assurance is not a one-size-fits-all endeavor; it requires adaptability, strategic acumen, and a commitment to continuous learning.

The insights provided by the reviewed literature offer practical implications for institutions, policymakers, and leaders alike. As institutions strive to enhance the quality of higher education, leaders who recognize the significance of their role can drive positive change and ensure that quality assurance mechanisms lead to meaningful improvements in teaching, learning, and student outcomes. By embracing the multifaceted responsibilities of leadership, institutions can pave the way for a future of educational excellence.

5. Implications for Practice and Future Research

Implications for Practice:

The insights garnered from the comprehensive literature review carry significant implications for higher education institutions and their leaders as they endeavor to enhance the implementation of quality assurance mechanisms:

Leadership Development Programs: Institutions should invest in comprehensive leadership development programs that equip leaders with the skills and knowledge required to navigate the complexities of quality assurance. These programs should go beyond technical training, focusing on fostering emotional intelligence, effective communication, conflict resolution, and adaptive leadership strategies. By nurturing these competencies, institutions can cultivate a cadre of leaders who can effectively drive quality enhancement initiatives.

Balancing Leadership Styles: Recognizing the dual impact of transformational and transactional leadership styles on quality assurance outcomes, institutions should encourage leaders to strike a balance between these two approaches. Transformational leadership can inspire innovation and engagement, while transactional leadership ensures accountability and adherence to standards. This balanced approach allows leaders to empower faculty and staff while ensuring that quality assurance mechanisms are met consistently.

Open Communication and Collaboration: Leaders must establish a culture of open communication and collaboration to effectively address resistance to change. By engaging stakeholders in transparent discussions about the rationale, benefits, and implications of quality assurance initiatives, leaders can mitigate concerns and foster buy-in. Collaborative decision-making processes also enable institutions to design mechanisms that align with the unique needs and aspirations of the academic community.

Cultural Sensitivity: Institutional leaders should acknowledge and respect the existing cultural context when implementing quality assurance mechanisms. Adaptive leadership styles are essential to harmonize quality assurance efforts with the institution's values and traditions. Leaders should foster an environment where faculty autonomy is upheld while simultaneously aligning quality assurance processes with the institution's overarching goals.

Strategic Decision-Making: Leaders should adopt a strategic approach to decision-making that considers the long-term sustainability and alignment of quality assurance mechanisms with institutional objectives. This involves selecting mechanisms that not only meet accreditation standards but also encourage continuous improvement, innovation, and a commitment to excellence. Striking a balance between standardization and flexibility is vital to foster a culture of quality enhancement.

Implications for Future Research:

The literature review offers valuable directions for future research endeavors that can further enrich our understanding of the interplay between leadership and quality assurance in higher education:

Longitudinal Studies

Long-term studies tracking the implementation of quality assurance mechanisms and their outcomes over an extended period would provide insights into the sustainability of improvements and the evolving role of leadership. These studies could explore how leadership strategies adapt to changing circumstances and the impact of sustained quality enhancement efforts.

Cultural Context and Leadership

Future research could delve deeper into the interaction between leadership styles and the cultural context of higher education institutions. Comparative studies across institutions with different cultural backgrounds could shed light on the nuances of effective leadership approaches in varying settings and their implications for quality assurance.

Faculty and Student Perspectives

Investigating the perspectives of faculty and students on leadership in quality assurance can yield valuable insights into how these stakeholders perceive leadership practices. Understanding their experiences, expectations, and suggestions can guide leaders in tailoring their approaches and building greater engagement in quality enhancement initiatives.

Leadership Development Efficacy

Research that assesses the effectiveness of leadership development programs specifically tailored for quality assurance leadership roles can provide evidence-based insights into the impact of such programs. Evaluating the outcomes of these programs on leadership practices, institutional culture, and quality assurance implementation can inform best practices.

International Collaboration and Cross-Cultural Leadership
Given the global nature of higher education, research that examines effective cross-cultural leadership strategies and their impact on quality assurance outcomes is essential. Studies on how leaders navigate cultural differences, collaborate in international networks, and adapt strategies across diverse educational contexts can enhance our understanding of global quality assurance challenges.

Technology and Leadership
As technology continues to shape higher education, research can explore the role of leadership in integrating technological innovations within quality assurance mechanisms. Investigating how leaders harness technology to enhance data-driven decision-making, feedback mechanisms, and collaborative platforms could provide insights into effective leadership practices in the digital era.

Faculty empowerment and leadership
Further research could examine how leadership approaches impact faculty empowerment and engagement in quality assurance efforts. Understanding how leaders encourage faculty involvement in decision-making, curriculum design, and assessment strategies can shed light on leadership practices that drive meaningful quality enhancement.

By embarking on these research avenues, scholars and practitioners can advance our understanding of the intricate relationship between leadership and quality assurance in higher education. These insights can pave the way for evidence-based practices that not only elevate the quality of education but also cultivate a culture of continuous improvement and innovation.

6. Conclusion

In the dynamic landscape of higher education, where quality assurance is paramount, the interplay between leadership and effective quality assurance mechanisms stands as a critical nexus. This study embarked on a comprehensive exploration of this intricate relationship, aiming to unravel the multifaceted roles and attributes of leadership that contribute to the successful implementation and functioning of quality assurance in higher education institutions.

Through an extensive literature review and a conceptual analysis, a robust framework has emerged, delineating how various leadership styles interact with quality assurance mechanisms and subsequently impact educational quality. The developed conceptual framework serves as a guiding compass, providing insights into potential avenues for practical implementation and future research directions.

The synthesis of the literature showcased that leadership styles, including transformational, transactional, and distributed leadership, significantly influence the implementation and effectiveness of quality assurance mechanisms. Transformational leadership's capacity to inspire innovation and excellence, transactional leadership's emphasis on structured processes, and distributed leadership's collective responsibility together form a dynamic triad that shapes quality assurance initiatives.

The implications for practice elucidate the pragmatic utility of the framework. Institutions can bolster quality assurance endeavors through targeted leadership development programs that embrace diverse leadership styles. By aligning organizational culture, leaders can create an environment that fosters quality enhancement. Furthermore, informed decision-making guided by the framework empowers leaders to adopt strategies attuned to their institution's unique needs.

Future research directions underscore the forward-looking nature of this work. Empirical validation can substantiate the framework's efficacy through real-world cases, surveys, and interviews. Cross-cultural comparisons illuminate the cultural dimensions that affect leadership and quality assurance practices. Investigating long-term effects, stakeholder engagement, and technological adaptation refines our understanding and advances best practices in the field.

In conclusion, this study enriches the discourse on the synergy between leadership and quality assurance in higher education. The conceptual framework developed herein not only enhances theoretical foundations but also paves the way for pragmatic applications. As institutions strive for continuous improvement and global excellence, this framework serves as a beacon, guiding educators, administrators, policymakers, and researchers toward more effective quality assurance practices. Through its synthesis of theory and practice, this study contributes to the ongoing evolution of the higher education quality assurance landscape. As the horizon of higher education continues to evolve, this framework will remain a foundational pillar, enhancing the educational journey for generations to come.

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Predictors of Examination Integrity among Secondary School Students: Framework for Proactive Actions Against Examination Malpractices

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Abstract
This study focused on determination of predictors of academic integrity during examinations among secondary school students. The population consisted of 300,000 final year secondary school students in South-South geopolitical zone of Nigeria out of which a sample of 3000 students (1720 females and 1280 males) were selected through multistage proportionate stratified random sampling technique. Analysis of data collected with the aid of Examination Integrity Questionnaire (EIQ) that was adopted and validated by the researchers showed significant influence of students' gender on academic integrity during examinations with female students having higher mean score on examination integrity. Moreover, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Examination Attitude and Past Experience were significant predictors of examination integrity of students. Past experience was the strongest predictor of students' examination integrity. However, there was no significant impact of Age on students' examination integrity. These findings have implications for preventive actions against examination malpractices. For instance, proactive actions should be targeted at improving students' study habits, examination anxiety, moral reasoning, attitude towards cheating or examination ethics and subjective norms before they sit for school examinations. This proactive action framework based on the Modified Theory of Planned Behaviour may be more effective in curbing examination malpractices than the extant practice of administering punitive measures after examination ethics violations.

Keywords: Examinations, Predictors, Academic Integrity, Malpractices, Proactive Framework

1. Introduction

Examination integrity is an aspect of academic integrity which requires honesty, fairness, trustworthiness, respect for examination ethics and responsibility in educational assessment. The International Center for Academic Integrity [ICAI] (2019) defined academic integrity "as a commitment … to six fundamental values: honesty, trust, fairness, respect, responsibility, and courage". Educators, parents as well as the general public are expected to uphold these values in the administration of school examination so as to ensure valid, reliable and accurate information (examination scores) about students' academic achievement. Examination scores obtained from

school test administration free from academic dishonesty are very important for improving instruction and identification of the needs of individual students as well as in attaining educational goals. Unfortunately, several factors inside and outside the school setting as well as within the individual students have contributed to academic misconduct or examination malpractices thereby casting aspersions on the genuineness of results obtained by students at the end of each stage of learning. Some of these factors identified in previous research studies by McCabe & Treviño, 1997; McCabe, Treviño, & Butterfield, 1996; McCabe, Treviño, & Butterfield, 1999; McCabe, Treviño, & Butterfield, 2001) include peer pressure, performance anxiety, tolerance of academic dishonesty by parents and school authorities, inability to manage examinations properly, the demands of students life, self justification habit and so on. For instance, McCabe(1992, 1993); McCabe and Treviño (1993); McCabe and Treviño (1997); McCabe and Pavela (1997); McCabe et al.(1996); and McCabe et al.(1999) established contextual factors within an academic institution and individual as responsible for academic integrity such as practice of honor code, students awareness of institution academic integrity policy, effectiveness of monitoring and reporting of offenders, students perception of severity of penalties and prevalence or popularity of cheating behavior among students' peers. Student factors include age, grade level and gender. These previous research findings led to the adoption of the *"*overt punitive measures" for tackling the problem of examination malpractices in schools. Some of the overt punitive measures include suspension from school, cancellation of results, and outright expulsion of student offenders. These overt punitive measures seem to have failed to deter students from engaging in examination malpractices.

Examination malpractices is referred to as cheating in examinations or in broad terms as 'academic dishonesty' in international research literature. It is a global educational pandemic comparable in magnitude and spread to the 'coronavirus' (COVID-19). New strategies are needed in the fight against examination malpractices because the overt punitive measures that have been previously employed seems to be failing. For instance, in a study of the endemic nature of academic dishonesty which lasted for 12 years from 2002-2015, McCabe and The International Center for Academic Integrity (2020) reported that from a sample size of 70,000, "95% of the surveyed students admitted to cheating on a test and homework, or committing plagiarism" in the United States of America (USA). In **China, students caught engaging in examination malpractices from 2016 onwards are sentenced to seven-year jail term.** In the United Kingdom, there was an increase of 11% in sanctions for examination malpractices in 2019 over 2018 (Office of Qualifications and Examinations Regulation, 2019). The Nigerian situation is equally worrisome. For example, Onyechere (2017) stated that examination malpractices are contributors to the economic, social and political underdevelopment of the country. There is no doubt that examination malpractices is a plaque which has defied all previous measures adopted to curb it and the consequences have been very disastrous. It is very disturbing to note that the number of candidates caught engaging in examination malpractices in public examinations in Nigeria every year is still very significant.

2. Statement of Problem

The major problem of the study is how to tackle examination malpractices in Nigeria's educational system through establishing the basis for a proactive strategy different from the punitive methods in practice. The magnitude of the problem caused by examination malpractices among secondary school students in Nigeria is very high. For instance, Omeri (2012) who was the Director General of National Orientation Agency (NOA) reported that Nigeria ranked number one in the world's examination malpractice index because the average annual examination malpractice index that year was 12 per cent. The Nigerian situation is so pathetic that Magaji (2019) stated that examination dishonesty is responsible for "most cases of collapsed buildings, death through medical negligence, drug trafficking, armed robbery, drug adulteration, separatist agitation, kidnapping, insurgency, low quality political leadership as well as other vices bedeviling the society".

 Furthermore, significant number of candidates are caught engaging in examination dishonesty in public examinations in Nigeria every year. For example, in the 2019 May/June examinations of West African Examinations Council (WAEC); National Examinations Council (NECO); and Joint Admissions and Matriculation Board (JAMB), the number of candidates caught cheating were 180,205 (11.33%), 40,630 (3.53%) and 34,120 (1.90%) respectively. In 2022, the number of confirmed examination malpractice cases in the WAEC examination rose to 365,564 (22.83%) according to Ossai et al. (2023). Given that these were the ones caught

while many others who engaged in malpractices may have evaded the anti-cheating devices put in place by the examination bodies, it becomes more imperative to develop other inherent techniques to checkmate examination dishonesty which no candidate can evade. The question is whether Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude, Past Experience, Age and Gender can predict Examination Integrity thereby forming basis for proactive framework to tackle the problem of examination malpractices in Nigerian schools. This is the challenge taken up by this study.

3. Justification for the Study

The strategies adopted by the examination bodies to curb examination malpractices seems to have limited success hence it is imperative for academics to discover other means of tackling this educational monster. New measures such as determination of the propensity of a candidate to engage in examination malpractices so as to checkmate it, is the emerging strategy (Madara, Namango & Katana, 2016; Zanon, Hutz, Yoo & Hambleton, 2016; Ossai, 2018; Ossai et al. 2014, 2020, 2023). One dimension of the preventive approach is to devise a means of measuring the propensity of a candidate to either engage or disengage in the act of cheating in examinations. There must be a way for educational counselling psychologists to determine whether a candidate has positive or negative disposition towards examination malpractices. The work of Zanon, Hutz, Yoo & Hambleton (2016) showed that it is possible for an assessment instrument to achieve this. Since it is possible to measure Intelligence Quotient (IQ), then by extension there must be a way to measure "Examination Integrity". If intelligence test scores do predict academic achievements so also the examination integrity instrument will predict examination integrity behaviour thereby providing the framework for teachers, guidance counsellors and school administrators to take proactive actions to checkmate examination malpractices in schools.

Therefore, new approaches are needed to complement the "overt punitive measures". A proactive strategy is needed. This strategy requires identification of variables that could lead to the detection of potential cheats in school examinations so that they could be reformed before they sit for the actual examinations. The present study, therefore, focuses on specific individual-centred predictors of academic performance such as Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude and Past Experience as predictor variables for Examination Integrity with a view to establishing a framework for proactive actions against examination malpractices.

4. Objectives

The major objective of the study is to determine if Gender, Age, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude towards Cheating in Examinations (Exam Attitude), Past Experience in Cheating in Examinations (Past Experience) are predictors of Examination Integrity. On the basis of this objective, it was hypothesized that these variables will significantly predict examination integrity thereby providing a framework for preventive actions against cheating in school examinations.

5. Method

Correlational Survey research design was used in the study. The population of the study consisted of all 300,000 final year secondary school students that enrolled for the 2023 May/June West African Examinations Council (WAEC) Senior School Certificate Examination (SSCE) in the six states that make up the South-South geopolitical zone of Nigeria. A sample size of 3000 students were selected from 3 states through multistage proportionate stratified sampling technique which yielded 1720 females and 1280 males.

Data was collected with the aid of an Examination Integrity Questionnaire (EIQ) adopted from Academic Integrity Measurement Instrument (AIMI) developed by Ossai et al. (2023). EIQ was used to measure the examination integrity of secondary school students across private, public, urban and rural schools. The EIQ items measured Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude, Past Experience, Age and Gender of students. EIQ consists of Sections A and B. Section A elicits responses on the students Age, Gender among other variables on students demography while Section B has a total of 102 items made up of the

aforementioned 6 segments. First segment measures Study Habits with 16 items; second segment measures Examination Ethics with 20 items; third segment measures Examination Anxiety with 20 items; fourth segment measures Moral Background with 15 items; fifth segment measures Attitude towards Cheating in Examinations (Exam Attitude) with 13 items; and, the sixth segment measures Past Experience in Cheating in Examinations (Past Experience) with 18 items. EIQ utilized a four-point scale format in which responses to each item ranges from SA = Strongly Agree, A = Agree, D = Disagree and SD = Strongly Disagree. Depending on the direction of an item SA could be scored as 4 or 1; A as 3 or 2; D as 2 or 3 and SD as 1 or 4. Collectively, the composite score on EIQ is indicative of the examination integrity quotient of the respondent. The EIQ was first subjected to face and content validity by expert assessment of 3 specialists in the fields of educational measurement and evaluation and counselling psychology. Their assessments helped to fine tune the items. Data for validation of EIQ was generated from 100 subjects drawn from a different local government area outside the sample area. The pilot study data was analyzed with Principal Component Factor Analysis which yielded Cronbach Alpha index of .94 for the entire instrument. Odd and Even split half method was used to test internal stability for each of the two parts and this produced indices of .85 and .83 respectively. Each of the six segments of the EIQ were also subjected to Factor Analysis and their Cronbach Alpha indices ranges from .77 to .97.

The researchers and their assistants personally administered the copies of the validated EIQ to the 3,000 respondents who agreed to participate in the research. This procedure helped to achieve 100% rate of return of completed questionnaire.

The Point Biserial Correlation was used to run the analysis for determining the association between Gender and Examination Integrity since the independent variable (gender) is dichotomous while the dependent variable (examination integrity) is a continuous or scale variable. Multiple Regression was used in the analysis of the predictive power of Age, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude towards Cheating in Examinations(Exam Attitude), Past Experience in Cheating in Examinations (Past Experience) on Examination Integrity as dependent variable because they are all scale variables but they were tested to satisfied the conditions of 'Normal Distribution'; being free from 'Outliers'; and, 'Non-collinearity'.

6. Results

The data analysis output tables and their interpretations are presented. To test the hypothesis whether there is significant difference in examination integrity of male and female students, Point Biserial Correlation Levene's t-Test was run and the result in Tables 1 and 2 were obtained.

Table 1: Group Descriptive Statistics by Gender of Students

GENDER	N	Mean	Std. Deviation	Std. Error Mean
EXAM INTEGRITY Male	1280	268.19	34.84	.97
Female	1720	277.14	31.05	.75

The data in Tables 1 and 2 show that there is significant difference in the examination integrity of male and female students. In Table 1, Mean score for males (268.19) is lower than Mean score for females (277.14). Furthermore, independent t-test analysis in Table 2 confirms significant difference (t = - 7.41, p = .00 < 0.05). This indicates significant difference in the examination integrity of male and female students. As seen in Table 1, the higher mean score for female students implies that they may be more prone to better examination integrity.

Table 2: Independent Samples Test for Differences on the Basis of Gender

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.	MD	SED	Lower	Upper
Exam Integrity	Equal variances assumed	23.96	.00	-7.41	2998	.00	-8.95	1.21	-11.32	-6.58
	Equal variances not assumed			-7.29	2569	.00	-8.95	1.23	-11.36	-6.54

Multiple regression was used to determine the association between each of the other independent variables (Age, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude towards Cheating in Examinations [Exam Attitude], Past Experience in Cheating in Examinations [Past Experience]) and Examination Integrity(dependent variable). Results are presented in Table 3. Data in Table 3 show that Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Examination Attitude and Past Experience are significant predictors of Examination Integrity as seen in the significant Beta weights and t values in Table 3. However, there was no significant predictive relationship between Age and Examination integrity.

Table 3: Coefficients of Predictor Variables

	Unstandardized Coefficients		Standardized Coefficients			95.0%Confidence Interval for B		Collinearity Statistics	
	B	SE	Beta	T	Sig.	Lower	Upper	Tolerance	VIF
(Constant)	1.01	.18		5.56	.00	.66	1.37		
Study Habit	.99	.00	.16	438.71	.00	.99	.99	.62	1.62
Exam Etics	.99	.00	.25	606.46	.00	.99	1.00	.50	2.01
Exam Anxiety	1.00	.00	.28	798.07	.00	1.00	1.01	.68	1.48
Moral Background	.99	.00	.18	488.88	.00	.99	.99	.60	1.66
Exam Attitude	.99	.00	.18	442.38	.00	.99	1.00	.52	1.93
Past Experience	1.00	.00	.27	597.39	.00	.99	1.01	.42	2.36
Age of Students	-.01	.01	.00	-1.39	.17	-.03	.01	.85	1.18

a. Dependent Variable: Examination Integrity

Variable Inflation Factor (VIF) for each of the predictor variables are far below the thresh-hold of 10. The highest VIF is 2.36 for Past Experience. Moreover, each of the predictor variables were regressed stepwise with Examination Integrity as dependent variable (Table 3).

7. Discussion

One of the findings of this study is that examination integrity of students differ on the basis of their gender; but age does not significantly predict the tendency to engage in examination malpractices. Some previous studies found gender and age differences in students' academic integrity such as McCabe and Trevino (1997);

Hendershott, Drinan and Cross (1999); Becker and Ulstad (2007); Olasehinde-Williams, Olawuyi and Alabi (2011); Zhang, Yin and Zheng (2018); On the other hand, other studies found no significant gender differences or relationship between gender and academic integrity such as Muthukamatchi, Veerachamy, Chitradevi (2021). Whereas the question as to whether gender predicts academic integrity remains inconclusive (Williams & Aremu, 2019), it is pertinent to note that most studies reported that males have more tendency to engage in academic dishonesty than females (Salleh, Alias, Hamid & Yusoff, 2013; Mohd, et al. 2013). The present study corroborates these previous findings in research literature because it found significant difference in the examination integrity of male and female students. It appears that female students may have more tendency to exhibit higher examination integrity than the males on the basis of their significant higher Mean Score (277.14) compared to that of the males (268.19). This finding agrees with that of McCabe and Trevino (1997) who found significant differences in the attitude of male and female students towards general academic dishonesty. In the McCabe and Trevino study, female students were less favourably disposed to academic dishonesty. This research outcome may be attributable to the fact that males are more prone to risky behaviour than females (Harris & Jenkins, 2023). This difference in tendency towards risky behaviour between males and females has been attributed to women being more sensitive to the negative consequences of their actions than any gains or advantages that might accrue (Neuroscience, 2023). In other words, females are more psychologically inhibited towards engaging in examination malpractices than the males.

In this study, Age is not a significant predictor of examination integrity and this finding is contrary to research findings in literature that suggested "that younger students tend to cheat more than older students" (McCabe, Trevino & Butterfield, 2001; Salleh, Alias, Hamid & Yusoff, 2013). The finding of the present study regarding insignificant predictive relationship between Age and Examination Integrity could be explained on the basis of the fact that there was no wide gap in the ages of the students that participated in the study. The ages of the participants ranges between 16 and 18 years unlike some previous studies that utilized students of wider age range such as the Study by Nazir, Aslam & Nawaz, (2011) on students in Pakistan where they found that students at the lower undergraduate levels showed more disregard for academic ethics. Their finding corroborates the results of the Ossai (2012, 2013) studies which implicated inexperience and less maturity of fresh students as responsible for their greater disposition towards engaging in examination malpractices. Younger students tend to have more favourable disposition towards examination dishonesty because they do not have enough experience about the the consequences of violating examination ethics but as they climp the academic ladder and become more experienced, they tend to become more aware of the dangers of engaging in examination malpractices. However, this should not be confused with students who have become so experienced in the act of cheating in examinations without being caught (past experience) especially in the context of the the "subjective norm" and "perceived behavioural control" segments of the Modified Theory of Planned Behaviour (MTPB).

In the context of the modified theory of planned behaviour (MTPB) which recognizes the impact of moral background, past experience, attitude, subjective norm and behavioral control towards formation of intention and actual involvement in examination malpractices, the findings of significant association between the other independent variables (Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude, Past Experience) and Examination Integrity scores of students have greater relevance. On the variables of study habits and examination anxiety, there is a preponderance of studies on their relationship with academic achievement but very few , if any, have considered their association with examination integrity or academic integrity. For instance, in a study by Asha and Anju (2020) on the relationship between study habits and academic achievement of high school students, it was found that study habits had very strong positive relationship with academic performance hence it was concluded that "a rise in study habits score will also raise the academic achievement score among high school pupils." By extension, as found in the present study, study habits also has very strong relationship with examination integrity. It could also be said that a rise in study habits will improve the examination integrity of students as reported in the research by Ossai (2011a). The present study has confirmed that study habits is a significant predictor of examination integrity. Similarly, examination anxiety has been established in previous studies as a predictor of academic achievement such as Christopher (2017) who found that uncontrolled or very high levels of test anxiety are associated with poor academic performance. In the same vein, examination anxiety has been found to be a predictor of examination integrity. Uncontrolled test anxiety could lead to positive predisposition towards academic dishonesty (Ossai, 2011b).

Regarding moral background, attitude and past experience as correlates of students' academic performance, some studies have found positive relationship. For instance, Ukwetang et al. (2021) discovered that "students' academic performance is influenced by family moral and family life background". Similarly, there is significant relationship between attitude towards schooling, educational values, achievement motivation and academic performance of students (Dagnew, 2017; Mao et al, 2021). On these premises, the present study extended the frontiers of knowledge by establishing significant relationships between these predictor variables (Examination Ethics, Moral Background, Attitude, Past Experience) and examination integrity. Most significantly, the very strong prediction of examination integrity by past experience should be taken seriously. It justifies the inclusion of this variable (past experience) in the Modified Theory of Planned Behaviour (MTPB) as well as gives credence to the subjective norm and perceived behavioural control segment of MTPB (Bagraim, et al. 2014). The ease with which individuals engage in cheating in examinations without being caught determines the propensity of repetition of the behaviour and tendency of more individuals joining in the behaviour. Therefore, it is imperative for counsellors and psychologists to take cognizance of these predictor variables in developing proactive actions geared towards curbing academic dishonesty in schools.

Proactive framework strategies or preventive actions against examination malpractices such as counselling programmes targeting students who have high tendency towards engaging in acts of cheating in school examinations should consider these variables (Gender, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude towards Cheating in Examinations, Past Experience in Cheating in Examinations) as well as utilize diagnostic test measures in which items derived from these variable are components. The fact that past experience is the strongest predictor of examination integrity supports the previous views that the degree of tolerance or subjective norms towards a behaviour tends to provide impetus for the repetition of such behaviour. Also noteworthy is the significant difference in the examination integrity score of males and females. Female students seem to have an edge over the males in the integrity scale. All of these findings have implications for proactive approach towards reorienting the disposition of students away from acts of academic dishonesty. Improving students' Study Habits, Examination Ethics, Examination Anxiety, Moral Background/Reasoning, Attitude and Past Experience in Cheating will ultimately lead to improvement of students' disposition towards examination integrity. Guidance and Counselling services in the schools will help to propagate the preventive approach towards curtailing examination malpractice. Fadipe and Uwadia (2021) strongly held that Counselling services in schools will encourage students to improve their study habits, manage their time and levels of examination anxiety as well as provide a social atmosphere that encourages honesty, high moral standards and promotion of fairness, equity and justice. School Counsellors and Psychologists are well trained to tackle examination anxiety which often is the first signal of academic deficiency along with poor study habits. The answer lies in what Putwain, Joost and Thijmen (2023) described as boosting the "academic buoyancy" of students in order to take care of "test anxiety" and other setbacks. This is situated within the framework of the MTPB in that examination malpractices thrives where students have not been helped to develop proper attitudes towards the ugly behaviour of examination malpractices. Moreso, when students perceive that there is little or no control of the behaviour by the school personnel hence many of those actually engaged in examination malpractices go free because they were not caught in the act. There is need, therefore, for all stakeholders in education to look in the direction of adopting more preventive approaches to tackle the problem of examination malpractices in schools. Such preventive approaches should put into consideration students' Gender, Study Habits, Examination Ethics, Examination Anxiety, Moral Background/Reasoning, Attitude and Past Experience in Cheating.

8. Conclusion

Research has established that Gender, Study Habits, Examination Ethics, Examination Anxiety, Moral Background/Reasoning, Attitude and Past Experience in Cheating are significant predictors of Examination Integrity. Therefore, these factors should be considered in any preventive or proactive framework against examination malpractices. The Modified Theory of Planned Behaviour (MTPB) is suitable for addressing the menace of examination malpractices or academic dishonesty. MTPB arose from observations that there are other variables that determine the tendency of an individual to engage in the target behavior (academic dishonesty) and these include demographic factors, moral upbringing, past experience and personality factors. In other words, the three original elements of Theory of Planned Behaviour [TPB] (Ajzen, 2006) which comprised of Attitude towards

Behaviour (ATB), Subjective Norms (SN) and Perceived Behavioural Control (PBC) could be influenced by demographic factors, moral obligation and moral reasoning because the phenomenon of academic dishonesty is not just a spontaneous event but an activity that is planned, coordinated and executed. That being the case, it is, therefore, possible to measure the tendency or propensity of an individual to engage in the act of examination malpractices as demonstrated by Ossai et al. (2014; 2020; 2023) where inventories for measuring examination behaviour of students at the secondary school and tertiary educational institutions levels were developed. Scores from these measurements are the bedrock of the proactive framework for preventive actions against examination malpractices in schools.

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Promoting Religious Moderation Among Post-Conflict Students': A Need Analysis of Gamification Interactive Multimedia

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Abstract
Implementing multicultural education in Indonesia experiences various obstacles, including the emergence of opposition to the socialization and internalization of multicultural education values among conservative groups. Several conflicts have arisen in religious life due to a lack of multicultural awareness. Internalizing the value of religious moderation within the framework of multicultural education is an alternative approach for schools. This research aims to develop a gamified interactive multimedia integrated with religious moderation in learning discussion texts. The method used adapts Borg and Gall's research development methods. In analyzing students' needs, a data collection technique in the form of an intercultural sensitivity questionnaire was used. Teacher needs analysis used the Delphi technique with a consensus questionnaire instrument. Curriculum analysis in the form of literature and document studies. Analysis of the learning environment using direct observation techniques. Based on the needs analysis, students' cross-cultural communication beliefs need to be improved. Teachers need multicultural awareness by the framework of inclusive education in the applied curriculum. There are two specific profiles in the product's development, namely gamification and integration of religious moderation. Study results revealed that the development product is in accordance with the religious moderation needs of post-conflict students in Aceh. Behind the limitations of the research, further dissemination is needed to find out the picture of the developed product through further experimentation to find out a comprehensive description of the resulting product.

Keywords: Discussion Text, Gamification, Interactive Multimedia, Multicultural Education, Religious Moderation

1. Introduction

Multicultural education emerged as a response to globalization that began to enter Indonesia in the post-democracy era (Ningsih et al., 2022). In the former policies, this big idea was drowned in history by the mono-culture politics applied, so multicultural education was not considered as common platform for designing Bhinneka Tunggal Ika-based learning (Rosyada, 2014). Previously, educational goals focused on developing the internal quality of human beings, and then the next step leads to the external orientation of human development as a whole culture (Farid

Hasyim, 2016). In multicultural-based learning, students are able to develop respect in assessing cultural differences, providing opportunities to work with groups of different ethnicities. It is also expected that multicultural learning can erode stigmatization and racial sentiments inherent in life between ethnicities, races, religions and cultures in Indonesia. Several international treaties provide key agreements regarding 1.) the need for access to education for all people around the world, 2.) equality of rights and opportunities to access education, and 3.) equal rights to receive support and accommodation for all students (UNESCO, 2009). This is then accompanied by education policies that are practiced to provide access to all students equally (Dalton et al., 2019). This achievement is in line with the 2030 SDGs target, which states that young people must be agents of producers who are able to create real changes (*Sustainable Development Goal (SDG) Indonesia*, 2022).

Implementation of multicultural education in Indonesia faces various constraints, including the emergence of resistance to the socialization and internalization of multicultural education values, especially from religious groups that tend to be textualist and conservative (Burhanuddin & Khairuddin, 2022; Davids, 2017). Based on data, 236.53 million people (86.88%) are Muslim, and among them are polarized into several sects and sects that tend to have a radical understanding (Marzuki, 2020). This radicalization has expansively entered the scope of Islamic education, as evidenced by intolerant actions against minority groups (Suntana, 2022). Educational institutions potentially spread this radicalism through several factors, including implementing curriculum and learning approaches (Suhendi, 2020). The confessional nature of this religious-based curriculum can be classified as "learning into religion", and opens up great possibilities for truth claims from what they believe to be the most correct (Raihani, 2017). As a preventive action, the Ministry of Religious Affairs, through the field of Islamic education, issued a Decree of the Director General of Islamic Education number 7272 of 2019 to establish guidelines for implementing religious moderation in Islamic education. Moderation is known as wasath or wasathiyah, which has the same meaning as the words *tawassuth* (middle), *i'tidal* (fair), and *tawazun* (balanced) (Kemenag, 2019, p. 16). Internalization of Islamic values that prioritize the principle of moderation is considered to prevent radicalism and achieve the value of multiculturalism (Sutrisno, 2019).

Aceh is one of the special regions in Indonesia that applies Islamic sharia law in its regional law enforcement. Of course, the specificity of this region is an advantage for madrasah (schools under the auspices of the Ministry of Religious Affairs) as Islamic education providers in achieving student School Participation Rate (APS) statistics. Based on BPS statistics there are 89,478 secondary level students who carry out education in madrasahs. However, the diagonal conflict that occurred from 1976 - 2005 in Aceh became one of the dark histories for the community (Jayanti, 2018). The huge impact of the conflict caused deep trauma to the Acehnese, especially for students who were affected directly (Jayanti, 2018). Students tend to close themselves off to change and polarize on the stigma of other ethnicities entering Aceh. Recognition has been done, one of which is with multicultural discourse (Akob, 2016; Sahlan et al., 2022). Cultural discourse is a strategic formula to instill a multicultural paradigm in cultural preservation, social justice, equality, unity in diversity, and social interaction (Jayadi et al., 2022). This multicultural paradigm is then integrated into education with the involvement of local culture and exploration of other culture (Widyanto, 2017).

Internalization of religious moderation in relation to multicultural education is not only *tasammuh* or tolerance but also must be part of cultural diversity. This cultural diversity can be realized through language learning, which is part of cultural products. Indonesian language learning can be utilized as a medium for conveying multicultural values. Indonesian language learning can introduce cultural diversity, perspectives, customs and traditions, as well as local genius from regions in Indonesia. Indonesian language learning is not merely oriented towards language awareness but also cultural awareness in the form of elements of identity or worldly vision of a nation (Arief, 2011).

Based on the background and needs analysis, we want to develop educational products in the form of application-based interactive multimedia in discussion text teaching materials in class IX at the secondary school (MTs) grade. The discussion text is expected to develop students' knowledge of contemporary themes that contain multicultural issues and internalize students' religious moderation values. This product has novelty in terms of user interface that has interactivity so that it can operate the module while learning the teaching material. The product is developed using Articulate Storyline software. Furthermore, the developed product is integrated with the

cultivation of multicultural education values and religious moderation. Each activity in this product will use a theme that is integrated with indicators of religious moderation, namely (1) national commitment, (2) tolerance, (3) non-violence, and (4) accommodating local culture (Islamy & Amirullah, 2022).

Literature analysis has been carried out and revealed similarities and differences from previous studies with the research to be carried out. The findings of similarities are related to the integration aspects of religious moderation in the products developed, while the differences are generally in the teaching materials of different subjects. Research with the title "Development of BIPA Digital Books Based on Islamic Moderation Values" has been conducted by Syauki (2021) with the development of teaching materials based on religious moderation for BIPA target students. Furthermore, development research from Sukmawati (2022) has made an integrated e-module product for religious moderation for elementary school students in Islamic religious subjects. Finally, research conducted by Syauki Faznur (2021) which makes curriculum development for Islamic religious education subjects integrated with religious moderation.
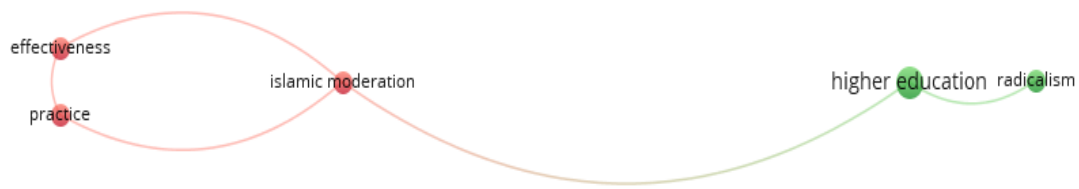

Figure 1: Bibliographics analysis relating religious moderation

Furthermore, to strengthen the analysis of novelty and research gaps, a VOSViewer analysis is attached, showing a diagram of research related to the keywords "education" AND "Islamic moderation" published in SCOPUS-indexed journals in the last ten years. In the diagram (Figure 1.) There are two interconnected clusters marked with green and red colours. These two clusters show the relationship of research results in SCOPUS-indexed journals from 2013 to 2023. The linkage in the first cluster shows the relationship between the moderation keywords 'religion', 'practice' and 'effectiveness'. The second cluster is shown with the keywords 'higher education' and 'radicalism'. Both are interconnected through 'religious moderation' and 'higher education'. Based on the analysis, it is found that research conducted on religious moderation and its relation to education is still mostly carried out in the scope of higher education as in research (Nasir & Rijal, 2021; Y. Rahman et al., 2022). Other findings show that the practice of religious moderation is related to the prevention of radicalism (Achmad, 2023; Muhaemin, 2023).

2. Method

This study used a research and development approach. The educational research and development model was adapted from the Borg and Gall model (Sugiyono, 2010). This R&D model has an iterative pattern that aims to conduct revisions at each stage so that the developed product has guaranteed test value and validity. In addition, this design has advantages, especially regarding usefulness, because the basis of research comes from real problems resulting from needs analysis in the field. This research aims to develop interactive multimedia discussion texts for MTs (junior high scool) students so that in the process, it is only prioritized to develop prototypes without being tested directly in learning due to the limited time owned by researchers.

Research and development are grouped into two stages, namely the preliminary study stage or research and information collecting, which includes two main activities: literature review and previous research results and field studies. The result of this activity is to obtain a profile of the implementation of the learning system, primarily related to the learning activities or objects to be improved. The preliminary study in the field was conducted by analyzing MTsN 6 East Aceh to find out the initial conditions of the discussion text learning process in class IX.

The needs analysis will be conducted on several subject samples. In students, a needs analysis is carried out on the population of class IX students to filter information that can be used as a sample. The sample in question is students who have been physically affected or lost their lives (family, parents, relatives) for victims of conflict violence. The instrument used is an intercultural sensitivity questionnaire that measures multiculturalism from a communication perspective. Furthermore, to determine the needs of teachers, a Delphi study was conducted to find consensus on the teaching materials needed in the research situation. Document and literature analysis was used to enrich data related to the curriculum suitability. Furthermore, observations were made in analyzing the students' learning environment.

The next stage is model development, which includes two activities, namely planning and developing a preliminary form of the product, including activities to determine objectives, determine the qualifications of the parties involved in research and development (for example, researchers and teachers), formulate the form of participation of the parties involved in research and development, determine work procedures, and feasibility testing. However, this study focuses on product development based on need analysis without intending to evaluate judgmentally. This research was conducted at MTsN 6 Aceh Timur, East Aceh region, Aceh Province. The instruments used were the student intercultural sensitivity questionnaire, teacher needs questionnaire, and expert validation questionnaire.
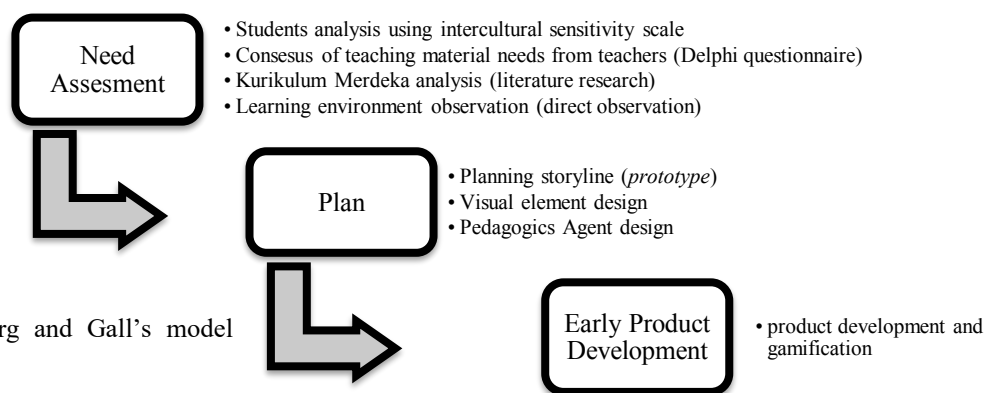

Figure 2. Borg and Gall's model adaptation

Need Assessment
- Students analysis using intercultural sensitivity scale
- Consesus of teaching material needs from teachers (Delphi questionnaire)
- Kurikulum Merdeka analysis (literature research)
- Learning environment observation (direct observation)

Plan
- Planning storyline (*prototype*)
- Visual element design
- Pedagogics Agent design

Early Product Development
- product development and gamification

3. Results.

3.1 Need Assesment

3.1.1 Students' intercultural sensitivity assesment

Cross-cultural communication stigma recognition efforts must prioritize the principle of stigma-free. In building this recognition, it is necessary to have an "umbrella concept" that includes cognitive, affective and behavioral interaction abilities in cross-cultural communication (Chen & Starosta, 2000; Uyun & Warsah, 2022). From the entire population, a sample of 14 students was found to be physically affected, with a cumulative score in the physically affected category. Then, the respondents completed an intercultural communication sensitivity questionnaire based on the 24-items Intercultural Sensitivity Scale (ISS).

Table 2: Students intercultural sensitivity scales

Aspect	N	Mean	Std Dev
Interaction Engagement	14	3,29	1,321
Respect for Cultural Difference	14	3,46	1,452
Interactions Confidence	14	2,95	1,263
Interaction Enjoyment	14	3,31	1,379
Interaction Attentive Items	14	3,15	1,515

Source: ISS datasets

From the data, the "Respect for Cultural Differences" aspect has the highest mean value (3.46). While "Interactions Confidence" has the lowest mean value. These two findings descriptively explain that students in the Likert scale range of 1-5 tend to understand respect for other cultures. Confidence in communicating across cultures is a need of students as the subjects of this study.

3.1.2 Description of teacher consensus

Diagnostic assessment is needed to collect data on teachers' needs in language subject matter. The data collection technique was adapted from the Delphi method. This method has practically survived since 1950, seeking consensus on an educational field. The Delphi method determines consensus among experts on an institution's goals and pressing needs. The Delphi method is adapted to use experts, panels, anonymity, and feedback (Skinner et al., 2015). In this study, the adaptation was carried out by applying the FGD technique to strategic stakeholders in the scope of the research site. Four respondents consisting of the principal (KM), head of curriculum (WK), and two Indonesian language teachers (GB 1 and 2) were gathered to seek consensus on teaching materials that are appropriate to the cultural context of the research site.

Table 3: Phase 1 delphi questionnaire analysis

Phase	Question	Response
1	*Describe according to your knowledge and understanding of the condition of students at MTsN 6 East Aceh?*	KM: most students come from families whose livelihoods are farmers, fishermen and a small number of traders. WK: MTsN 6 East Aceh students have different characters, behaviors and levels of understanding, both in terms of knowledge, attitudes and skills. GB 1: Students really need competent guidance GB 2: Students are good enough
	Describe according to your knowledge and understanding the condition of teachers at MTsN 6 East Aceh?	KM: The current condition of the teaching staff at MTsN 6 East Aceh is dominated by honorarium teachers, and a small number of civil servants, and most of them are certified professionals. Mastery of technology around 80%. WK: MTsN 6 East Aceh teachers are mostly professional and teach linear subjects in accordance with their academic degrees. GB 1: Already competent but do not lose sight of the attention to their students. GB 2: Friendly and kind
	Describe according to your knowledge and understanding, the impact of the conflict in Aceh on the students condition (psychological, learning, and socio-cultural)?	KM: As far as we understand, the impact after conflict and especially after covid 19, which is very difficult for teachers in dealing with students, namely morality or ethics that are very dilapidated, especially with the existence of social media (cellphones) that are not used properly. WK: The impact of the conflict is very influential on students' psychology, learning methods, and socio-culture. For example, there are some students who are traumatized by the impact of the conflict. From an economic point of view, it causes parents to have a weak economy, resulting in their way of learning not in accordance with the desired expectations. GB 1: Students are very disturbed by the conflict situation and even the school does not feel comfortable, which affects the attitude and acceptance of learning. GB 2: Students become narrow-minded and limit themselves to other people, especially migrants or outsiders.

Source: Delphi assessment datasets

The four respondents did not know who was authorized to fill it out. So, to make sure the questionnaire was given in turns to the respondents. The first stage focused on assessing the general conditions of the research situation. Each respondent answered three open questions. The first question aimed to explore the condition of the students. From the four respondents, it can be seen that the demographics of students and the need for competent guidance are based on different characters, behaviors and levels of cognition. The second question explored the condition

of teachers, which is known to have an unbalanced proportion between honorary teachers and certified teachers. However, subsequent responses found linearity in terms of the suitability of education and subjects taught. In general, the third question explored teachers' knowledge of the impact of the Aceh conflict on students' learning, psychological and socio-cultural styles. Based on the responses, the conflict in Aceh several decades ago still has a traumatic effect on students. It can be said that this conflict caused prolonged trauma because it had a derivative effect on the economic situation, psychology, and openness to new things.

Table 3: Phase 2 delphi questionnaire analysis

Phase	Question	Response	Percentage
2	*Do you agree with the implementation of the Director General of Islamic Education Number 7272 of 2019 concerning the implementation of religious moderation in Islamic education units?*	Agree	100%
		Disagree	0%
	Has your institution implemented religious moderation in the education unit where you teach?	Already comprehensive	25%
		Already partially	50%
		Not yet	25%
	According to your understanding, is it necessary to implement religious moderation in the education unit where you teach?	Very necessary	25%
		Necessary	75%
		Not necessary	0%
		Very not necessary	0%
	According to your understanding, can the implementation of religious moderation be integrated into learning materials in each subject?	Very able	25%
		Able in several subjects	75%
		Not able	0%
	Which of the four indicators of religious moderation (tolerance. non-violence, accomodating local culture, and national commitment) can potentially change the perception of Islams for students?	Tolerance	25%
		Non-violence	0%
		Accomodating local culture	25%
		National commitment	25%
		All	25%
		Tidak ada	0%
	According to your understanding, how well do you know about multicultural education?	Very not understand	25%
		Not understand	50%
		Understand	0%
		Very understand	25%
	According to your observation, are there many students who have different cultural backgrounds from the majority of students?	Very much	75%
		Much	25%
		Very few	0%
		Nothing at all	0%
	According to your observation, are the majority of students able to accept students with other cultural backgrounds?	Yes	25%
		No	75%
	Do you think majority students can influence the understanding of the culture of students with other cultural backgrounds?	Yes	25%
		No	75%
	According to your observations, are students in your education unit likely to move to other areas (e.g. study, work, marriage)?	Very potential	0%
		Potential	25%
		Potential enough	0%
		Not potential	75%
	According to your observations, are students able to communicate/interact with other people of different cultures?	Very capable	25%
		Capable	0%
		Not capable	50%
		Very not capable	25%
	According to your observation, do students have the ability to maintain their own culture?	Have	75%
		Don't have	25%
	According to your understanding and observations, do the majority of students enjoy knowing about other different cultures?	Very enjoy	25%
		enjoy	50%
		Not enjoy	0%
		Very not enjoy	25%
	Integration of religious moderation in subject material can help create inter-religious harmony	Very agree	50%
		Agree	25%

	Disagree	25%
	Very disagree	0%

Source: Delphi assessment datasets

In this second phase, the needs analysis focused on extracting responses to religious moderation and multicultural understanding. The questionnaire was in the form of a Likert scale and true-false opposition. From several questions, there are conclusions on several findings, primarily related to the lack of understanding of religious moderation and multicultural education in teachers' perceptions. Religious moderation can be associated with learning materials, and in the perception of teachers, students are still not able to be open to other cultural backgrounds. The consensus that can be taken from this second stage is about the need to understand and internalize religious moderation in the praxis of multicultural education in related research situations.

Table 4: Phase 2 delphi questionnaire analysis

Phase	Question	Average Percentage
	ICT (electronic) media in learning have ever used	50%
	The learning media used in the learning process has helped and supported the learning process.	87,5%
	Teachers need learning media other than those already available (such as textbooks)	93,75%
	Students need to have a learning media handbook that they can access independently to make it easier to understand the subject matter.	81,25%
	Teachers already have learning media that students can access anywhere and anytime through devices	56,25%
3	Teachers have used learning media in the form of interactive multimedia	31,25%
	Interactive multimedia integrated with religious moderation is an interesting media	100%
	The need to use multimedia integrated with religious moderation in the learning process	93,75%
	The use of multimedia integrated with religious moderation in the learning process is projected to improve learning outcomes.	87,5%
	Students' mastery of Indonesian is very good	62,5%
	Teacher's explanation of Indonesian language subjects is very good	75%
	Teachers can easily access learning support facilities and infrastructure	100%

Source: Delphi assessment datasets

In this third phase, the Delphi analysis focused on finding consensus on the learning media used in the research. Based on several responses' findings, interactive multimedia integrated with religious moderation is still infrequently done. It is projected to improve the quality and learning outcomes in the subject of Indonesian language.

3.1.3 Description of implemented curriculum

Following the instruction of Kepmendibudristek no. 56 of 2022, the research location uses the Merdeka Curriculum scheme. The three key aspects that differentiate the independent curriculum from its predecessor are the development of character and life skills by the Pancasila learner profile, the emphasis on learning essential material, and flexible curriculum development (Jojor & Sihotang, 2022). This aspect provides an understanding that the independent curriculum simplifies the previous curriculum by allowing teachers to freely develop learning materials according to the environment and student needs. This becomes the essence of independent learning, where teachers can design learning outcomes that favor students.

The implementation of the Kurikulum Merdeka is also carried out in stages by giving the option to implement the independent curriculum at the education unit level according to readiness (Nugraha, 2022). The independent curriculum innovation model emphasizes the development of Pancasila's character, interests and talents as learning outcomes. This model of ideology and spirit model can develop superior, reliable, creative, innovative and

character resources to face the demands of the times (Kurniati et al., 2022). The rationalization of Indonesian language learning also emphasizes developing literacy skills aimed at various communication purposes in the Indonesian socio-cultural context (BSKAP, 2022). The main point in learning Indonesian is language skills consisting of receptive and productive skills. Receptive skills are divided into reading, listening, and viewing, while productive skills mean writing, speaking, and presenting (Sari & Prasetyo, 2021). These two new terms (viewing and presenting) imply the normalization of education's digitization, which recently aims to respond to changing times through multimodal literacy.

The main model in Indonesian language learning is genre-based pedagogy, which has stages of context building, modelling, mentoring, and independent construction (BSKAP, 2022). The use of this model has actually been applied in the 2013 Curriculum in the framework of systemic functional linguistics-based language learning where the discourse used as learning material represents genres based on specific lines of thought, structure, and distinctiveness (Arsiyana & Edi Wibowo, 2023). Concerning the Indonesian socio-cultural context, each genre represents a particular function in Indonesian socio-cultural practices. Teachers can choose the focus of certain teaching materials in accordance with the characteristics of the learning unit.

In developing global and contemporary language skills, discussion text is an essential material that students need to learn. Discussion text talks about or discusses a topic from various aspects to provide different perspectives, insights, and horizons (Priyatni, 2014, p. 76). The discussion text discusses a problem issue that contains two arguments: supporting and opposing. Discussion texts provide information and opinions that oppose each other on a problem to then add knowledge perspectives in students' cognitive space. Discussion texts do not pretend to seek absolute truth but accept differences in arguments due to diversity. This is the intersects point between discussion texts and the conception of multicultural values to be achieved in this research.

3.1.4 Learning environment description

This research was conducted based on a needs analysis at MTsN 6 Aceh Timur, East Aceh District, Aceh Province. This madrasah is located about 6 km from the district capital and is an ex-undeveloped madrasah. Based on the learning environment analysis, demographic findings were obtained that 80% of the student's parents are farmers and 100% are Muslim. The metadata can be used as a consideration in the product development that will be implemented.

Table 5: Learning environment assesment

Learning Support Infrastructures	Amount	Condition
Computer	*30 unit*	Good
Wall projector	3 unit	Good
Free projector	2 unit	Good
Speaker	3 unit	Good
Multimedia room	1 unit	Good

Source: Lingkungan belajar datasets

Based on the data on the availability of infrastructure, the research location has good learning support resources. The findings are supported by technological tools such as computers with 30 units, projectors, speakers and multimedia rooms. These various mediums of information delivery can be engineered using technological tools to increase the accessibility of learning (Dell et al., 2015; Javaid, 2020). With digital technology, students can be more engaged in learning because it is more contextual and provides multi-modal access.

3.2 Planning Stage

3.2.1 Prototyping

This section will describe in detail the stages of making interactive multimedia based on various needs described in the previous section. The Merdeka Curriculum only provides general guidelines for teachers in the form of

learning outcomes to develop learning according to local contexts and needs. The view of the need for religious moderation for students today requires input from contemporary, discursive, and factual language materials to master 21st-century skills. For this reason, discussion text is used as a genre that suits these needs.

The general learning objectives in the context of the Merdeka curriculum are learning outcomes, which are learning competencies that students must achieve at each development phase. Learning outcomes include a set of competencies and a scope of material, which are comprehensively organized in narrative form. More specifically, learning outcomes in language subjects are derived into language skills learning outcomes. These four language skills are then developed by teachers into specific instructional objectives (SIO) or learning objectives. Learning objectives are descriptions of the achievement of aspects of competence obtained by students in one or more learning activities. Learning objectives are compiled by taking into account the observable and measurable evidence in students. Learning objectives use at least two components: competence and material scope. Competency refers to the ability that needs to be demonstrated by students to show the success of learning objectives. At the same time, the scope of material is the main content and concepts that need to be understood at the end of a learning unit.

Based on this consideration, this interactive multimedia is divided into four learning activities based on the competency elements that students must achieve. The four elements are reading, listening, speaking, and writing. To ease the development of the storyboard, it is modelled below.
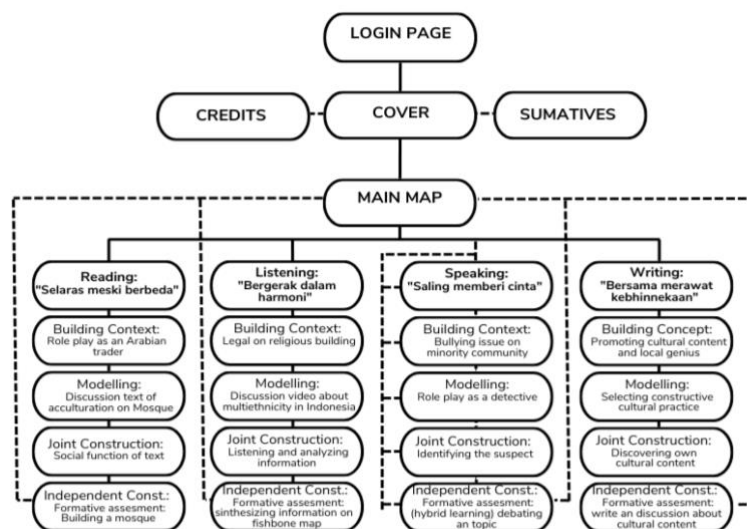
Figure 2: Interactive multimedia storyboard

The module design considers the principles of Universal Design for Learning (UDL) by providing access to multiple means of representation, expression, and engagement. So, each activity in this module is designed to be non-linear to open up user access to the content they want to learn. Each activity is given a title that represents the construction of the theme it contains. Each activity pays attention to the genre-based pedagogy model with steps that are adaptive to other models, such as discovery, problem-based learning, or project-based learning, making it easier for teachers to adapt learning to local settings. The syntax of this module includes 1.) context building, which is a stage of contextualization on discursive issues in learning activities. Context related to the issue is needed so students can first build their meta-cognition to stimulate critical and creative thinking skills. 2.) Modeling, with the general form of multimodal text literacy. Modelling serves to clarify learning instructions or organize students to the problem. 3.) Joint construction, where students can collaboratively work on learning challenges. This step can train students to collaborate and communicate with their friends actively. 4.) Independent construction, in the form of formative assessment, to measure the achievement of learning objectives. The type of assessment used is assessment for learning, where the teacher can use the results of the data to improve further learning.

3.2.2 Visual element design

Interactive multimedia requires quite a lot of visual elements. Based on the characteristics and learning style preferences of students, it is necessary to pay attention to several aspects in the selection of elements. Visual elements are adapted to the concrete - abstract operational development phase. Then the design of visual elements is summarized in 3M aspects (meaningful, motivating, and memorable (A. Rahman et al., 2022). The product uses various designer software in designing image elements such as Canva, CorelDraw, and Midjourney. In designing video and animation elements, we used Plotagon and Unscreen. The visual elements were then compiled and made into interactive multimedia using Articulate Storyline 3. This software is widely used because of its easy and user-friendly interface. The output of AS is compatible with all types of devices (Hadza et al., 2020; Heliawati et al., 2022). AS has complete features in a learning design, such as question maker (graded questions, survey questions, and free based questions), hyperlinks, video insertion, print results and others.
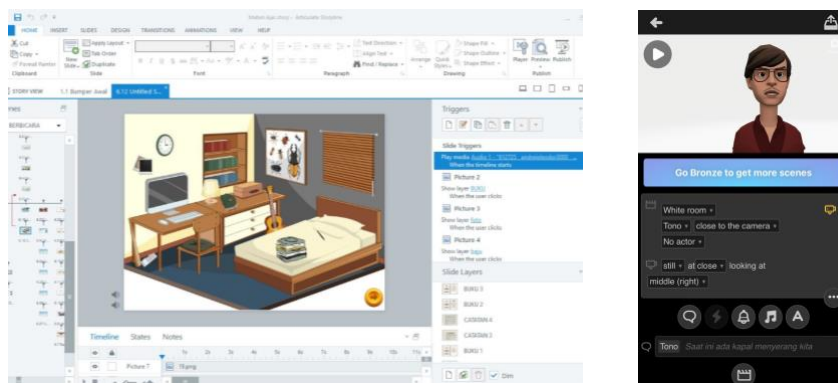
Figure 3: Slide design in AS 3(left), pedagogical agent design Plotagon (right)

In order to provide learning and usage instructions, a character was created as a pedagogical agent. This character has the physical presentation of a male teacher. This pedagogical agent will act as a virtual teacher who gives instructions to students. These visual elements are inserted into the content slides. The combination of slides that form an activity is called a scene. Each scene represents one learning activity. The network between scenes produces a network called a story. This story is then the output of interactive multimedia that is ready to be exported into one file. AS3 export results are generally in the form of .html5 which is more adaptive according to the device used.

3.3 Product development

3.3.1 Gamification

The gamification process of the developed interactive multimedia is described in this section. Gamification refers to the use of game mechanics to achieve non-game outcomes. More specifically, gamification is not just making a game but providing the content of the lesson in such a way that the effect of the game is applied to deliver the lesson and develop it based on user feedback (Hussein et al., 2023). In each activity in this interactive multimedia, there is gamification, which is not only in the need to deliver subject matter but also useful for increasing student engagement. The interactivity of the developed multimedia allows users to provide responses and feedback.

In activity 1 of the theme "Selaras Meski Berbeda", the user is given the role of becoming an Arab merchant who wants to trade in a large archipelago called Nusantara. Users will play a role in the game thinking in the case of the spread of Islam in the archipelago. The dialogue that wants to be built in this activity is the mosque architecture, which has become a polemic in Indonesia. In this activity, the material is presented in a pop-up manner. The layer-to-layer feature makes it easy to design gamification. In the formative assessment, users are instructed to build a mosque architecture brick by brick, with the principle of puzzle games.

In activity 2, with the theme "Bergerak dalam Harmoni" users were taken "flying" to the city of Banda Aceh to see the historical buildings there. The game thinking carried out in this activity is a museum game. The instruction is that users can walk around by pressing the arrow direction button on a road map. In certain parts, users will visit one of the historic houses of worship in the real situation in Banda Aceh City. This city is used as a game setting because it has a certain historical value in Indonesia as a role model of a city of religious moderation. In addition, to make the research subjects feel proud of their own culture. The discussion material is delivered through video shows, and users, together with the teacher, can do guided activities. In the formative assessment, users can analyze by deconstructing the information contained in the previously presented audio text into a fishbone map. The dialogue fostered through this gamification is how users can listen to information from others to foster a sense of empathy and kinship.
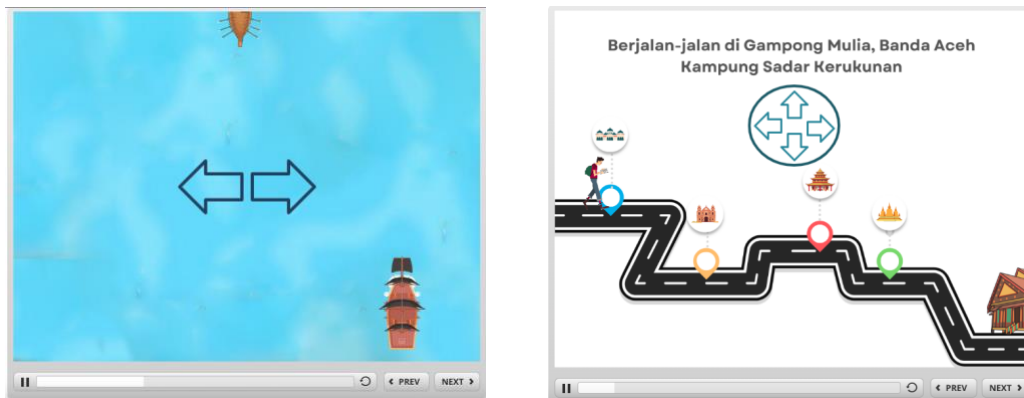
Figure 4: Gamification on activity 1 (left), activity 2 (right)

In activity 3 of the theme "giving love to each other" users will be given hybrid gamification. Virtual gamification is presented in non-linear interactive multimedia in the form of game-thinking detective games. The dialogue built in this virtual gamification is that the user is given the role of a detective to solve a bullying case at a school. Users are given access to enter places to look for evidence. The free-based question feature presents the material of language structure and rules. Users must compile scraps of letters as evidence that will corroborate in the trial of the case later. In one stage of collecting evidence, users are given instructions to conduct a face-to-face discussion game with the teacher. This face-to-face gamification is a simple game where the class will be divided into two large groups. One group is instructed to raise arguments in favour and the other arguments. The teacher acts as a moderator and gives a thesis/motion for discussion. Students are given word cards as their coupons to speak in front of the class. Formative assessment is given by engineering a case trial. The user must point out one of the perpetrators based on the evidence that has been collected. The dialogue to be built in this activity is to apply and think empirically based on evidence and also be able to argue according to the portion.

Figure 5: Gamifikasi virtual dalam kegiatan 3 (kiri), Gamifikasi *face to face* dalam kegiatan 3 (tengah), Gamifikasi dalam kegiatan 4 (kanan)

In activity 4 of the theme "Bersama Merawat Kebhinnekaan" users are given a thinking game "selection and take", where users can see various traditional arts and ceremonies spread across Indonesia. Users can explore products, arts, customs, belief systems, and social systems to choose which ones are against their faith as a Muslim. Users are required to be observant and able to evaluate which cultures are acceptable to them and then appreciate these cultures as the wealth of the nation, without having to avoid them. Formative assessment is given with an essay test with the theme of culture. The dialog that wants to be built in this activity is to be part of the surrounding environment.

The interactive multimedia resulting from this development was then incorporated into the LMS page on the website of MTsN 6 Aceh Timur at the link lms.mtsn6atim.sch.id. There are two versions of interactive multimedia that have been successfully developed, namely the desktop version and the android version. Users can choose the device version used to get a more satisfying user experience. In the first development phase, the desktop version was released first because desktop is more compatible in running web-based modules.

3.2.2 Integration of religious moderation
In the developed interactive multimedia, there are four indicators of religious moderation that are integrated. These indicators are 1) adaptive to local culture; 2) tolerance; 3) non-violence; 4) national commitment (Islamy & Amirullah, 2022). Meanwhile, integration means the process of aligning various functions, tasks and the same parts so that they can work together and not conflict with each other in obtaining goals and objectives (Suprapto, 2020). The pattern of integration in this interactive multimedia is explicitly displayed in a special column "Seputar Moderasi" and some are implicit as part of learning. Users can find out the indicators of religious moderation displayed through the identity listed at the beginning of the activity.

Figure 6: Identity of activity (kiri) Integrationof religious moderation on "Seputar Moderasi" (kanan)

Contextualizing lessons with real life is necessary to instill student understanding, especially with regard to the process of cultural acculturation which is closely related to the process of Islam's entry into the archipelago. This assumption is illustrated in activity 1 with the integration of the religious moderation indicator "acceptance of tradition". Users can learn the process of Islam's entry into the archipelago and acculturation to the local culture that existed at that time. This understanding is useful for presenting the value of peace that Islam entered the archipelago not through war. In activity 2, integration of the indicator "tolerance". Users can emulate the model of Banda Aceh City which uses the principles of Islamic sharia but still upholds tolerance between religious communities with the characteristics of the many houses of worship of non-Muslims that have stood tall since ancient times. Users are given crucial problems that occur among students, namely the issue of bullying due to differences in ubudiyah / procedures for worship. Users are given examples of problems from hate speech that is rampant in virtual spaces, and how to solve it without presenting violence. In activity 4, the integration of "national commitment" is shown by the selection of cultural products, traditional ceremonies, and even belief systems that do not conflict with the principles of Islamic faith, but do not attempt to negate the culture itself, instead making it a national wealth and identity.

4. Discussion

Behind the limitations that have not been implemented in this research and development study, several findings need to be interpreted through knowledge of two topics. First, the integration of religious moderation values in digital learning content can reduce the impression of dogmatism to form moderate humans. Second, the multiculturalism frame is an educational framework that needs to be applied to increase the multicultural awareness of post-conflict students.

One of the main issues in post-conflict reconciliation efforts is national inclusiveness. That is, how affected communities are given access as part of forming a stigma-free national identity. However, more effort is needed to instill the spirit of multiculturalism in both sides of the conflict. The stigma formed by the outside community towards Aceh's condition as a vulnerable, conflicted, and unsafe area is narrated in social construction. Meanwhile, the internal community tends to close itself and maintain its exclusivity as a post-conflict area. So, to dissect the stigma, it is necessary first to assess the intercultural sensitivity of the affected students. The physical impact may be healed in this post-conflict decade, but structural injustice makes the discourse of multiculturalism sink again into the vortex of policy representation. This is the limitation of the assessment found. We only focus on students who are physically affected, but the rest we believe that they find inequality in other forms, economically the majority.

We agree with the explanation (Bagir & Mubarok, 2021) that each group must cooperate and build good relations in conflict resolution theory. However, we disagree that religious moderation pretends to sharpen the boundaries between moderates and non-moderates but rather erases these boundaries by instilling the values of harmony and equality for all groups (Rismawati, 2021). In general, being moderate means promoting balance in terms of beliefs, morals, and character when dealing with others as individuals (Daheri et al., 2023). This implementation can begin through individual personal life, family, social life in society, and ultimately, more broadly, in the life of the nation and states (Jamarudin et al., 2022).

In the study (Subchi et al., 2022) one's religiosity positively impacts religious moderation. So, someone with intellectual intelligence, ideology, politics, public worship practices, and religious experience supports someone to be moderate. This can be shown in the findings that integrating learning content with moderation values can improve student competence because learning with these values helps students develop better reasoning, understanding and professional skills (Syarif, 2021). The cultivation of ethnic identity in the construction of learning communities traumatized after conflict also forms awareness for students about understanding the need for tolerance and living together in differences (Fernando et al., 2023). Therefore, the integration of religious moderation can be realized through education (Fakhriati et al., 2022).

The most important factors of religious moderation found in previous studies have a linear perspective with the model of intercultural sensitivity, a theory introduced by Chen and Starosta (2000) in (Daheri et al., 2023). This model defines intercultural sensitivity as one who appreciates and values the exchange of information during cross-cultural communication. Inter-cultural sensitivity has five components that were used in the multicultural perception questionnaire in this study: enhancement in cross-cultural interactions, appreciation of cultural differences, trust in cross-cultural interactions, comfort in cross-cultural interactions, and attention to cross-cultural interactions. Empathy, active and continuous improvement, open-mindedness, high self-confidence, non-judgmental attitude, and self-regulation during cross-cultural interactions can identify a person with intercultural sensitivity.

Indicators of intercultural sensitivity are prerequisites for content integration in multicultural education, which then becomes a key factor in maintaining harmony and unity (Baihaqi et al., 2021; Firdaus et al., 2020). Historical narratives reveal that the ancestors of the Indonesian nation were knowledgeable people, able to establish international relations, proud of their superior culture, cosmopolite, inclusive, and able to maintain tolerant values (Ambarwati et al., 2023). For the need to provide multicultural education, teachers also need to accept individual differences as wealth and strive to create instructive opportunities for all students to help them improve academic and social success. In a culturally rich country like Indonesia, teachers should better understand students' cultural

backgrounds, appreciate socio-cultural differences, value differences, and value students with different abilities and perspectives (Karacabey, 2019). A teacher can also be an agent in multicultural education to maintain the values of democracy, pluralism, and humanism in students (Suri & Chandra, 2021). The end result is that multicultural education can be a common platform in promoting inclusive education, which gives access to anyone with any background to receive quality education.

The gamification approach applied in this study can also be useful for increasing understanding of multiculturalism and tolerance (Hussein et al., 2023). We all know that the current development of digital technology can be utilized in providing engaging learning content for students. This study illustrates that the learning approach taken can increase the effectiveness in embedding language concepts that are the learning objectives. The game-thinking approach in multimedia provides interactivity, a fun learning environment that facilitates direct acquisition of skills and competencies by students, increases motivation, reduces learning anxiety, and increases student engagement in learning (Chugh & Turnbull, 2023; Hossein-Mohand et al., 2021).

The language skills learning techniques developed in this interactive multimedia also have a good effect on language skills acquisition. The planned writing evaluation model applied in this study contributed highly to the achievement of writing skills (Seban, 2022). This study observed "intercultural differences" as students with different backgrounds tried out other regional languages in the digital materials (Ou & Malmström, 2023) Regarding the limitations of the research, further studies need to be conducted to assess the effectiveness of interactive multimedia in real learning situations in order to get a scientific picture of the application of multicultural education with the internalization of religious moderation values.

Researchers believe that despite the limitations and shortcomings of the research, further studies need to be conducted through field experimentation and wider dissemination to get a comprehensive picture of the interactive multimedia developed. The results of this study provide a projection of the profile of interactive multimedia that suits learning needs. How does it affect the language competence of students with traumatic backgrounds, such as the research subjects who are post-conflict victims. For this reason, the researcher recommends that this interactive multimedia be widely disseminated to students in language learning in Indonesia.

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Trainee Teachers Attitudes toward Macro-Teaching: Resource Impact and Mentors Perspectives

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Abstract
Macro-teaching is a technique used to prepare trainee teachers for the real classroom setting. This technique enables trainee teachers to experiment and learn relevant teaching skills through interactions with their lead mentors and mentors. This study assessed the attitude of trainee teachers towards macro-teaching from the perspective of lead mentors and mentors. The study also assessed the importance of school resources in macro-teaching exercise. Using a qualitative case study research design, and Braun and Clarke's inductive thematic analysis approach 194 respondents' responses were used for analysis. The study findings revealed a positive attitude among trainee teachers toward the macro-teaching exercise. It also revealed that school resources, particularly infrastructure and teaching and learning resources were inadequate and also not available in some public basic schools in the Bono East region. The findings found this to adversely affect trainee teachers' competency development in the teaching profession. The study recommends that the Ministry of Education through the Ghana Education Service should provide school resources such as staff common rooms and reading materials for basic schools in the municipality to promote quality teaching and learning in schools.

Keywords: Macro-teaching, Mentors, School, Trainee-teacher, Resource

1. Introduction

The achievement of Sustainable Development Goal four (SDG4), which focuses on ensuring inclusive, equitable, quality education and lifelong learning, is indeed pivotal for the strength and sustainability of societies worldwide. Quality education is not only a fundamental human right but also a key driver of economic growth, social development, and individual well-being. While progress has been made in advancing education and learning

opportunities globally, continuous improvements are essential, especially in light of evolving knowledge prospects and the changing landscape of education and learning. This assertion was highlighted in a study by Unterhalter (2019), underlining the need for ongoing efforts to enhance the quality of education and promote lifelong learning opportunities. The High-level Political Forum on Sustainable Development (HPFSD) in 2019 underscored the critical role of qualified teachers in achieving SDG4. This recognition reflects the significance of educators as central actors in the educational process and, by extension, in the overall advancement of societies towards sustainable development.

In Ghana, the pre-tertiary teacher education programme focuses on preparing teachers for basic and secondary schools (Ministry of Education [MoE], 2012). This programme aims to equip trainee teachers with pedagogical skills to provide quality education. Among the various components of the curriculum for trainee teachers, teaching practice stands out as a vital aspect (MoE, 2017). During teaching practice, trainee teachers have the opportunity to apply the theories and skills they have learned during their training period in actual classroom settings, under the supervision of experienced educators. This experience helps bridge the gap between theory and practice and determines the quality of readiness a trainee teacher carries into their future teaching career.

The term "teaching practice" encompasses the range of experiences that student teachers undergo while working in real classrooms and schools, as highlighted by Marais and Meier (2004). This practical application of learned concepts is crucial for a trainee teacher's transition into a professional teaching role, as explained by Kwatubana and Bosch (2019). Thus, teaching practice involves a trainee teacher leading a group of students in a school setting, where they are observed and evaluated by both mentors and host teachers. This process enables constructive feedback, critique, and correction, which is essential for the trainee teacher's growth.

In the context of teacher education in Ghana, teaching practice is divided into two distinct phases: micro-teaching (on-centre teaching practice) and macro-teaching (off-centre teaching practice). Both phases are compulsory for aspiring trainee teachers enrolled in teacher preparation programmes, and they serve as crucial components of the professional development of the trainee teacher. Micro-teaching is the initial phase of teaching practice and takes place within the trainee teacher's own educational institution (college or university campus). During this phase, trainee teachers engage in peer teaching under the supervision of tutors from their respective institutions. The primary goal of micro-teaching is to provide a controlled and familiar environment for trainees to practice teaching and receive feedback. By teaching their peers, trainee teachers can enhance their self-confidence and hone their teaching skills. This phase also allows educators to reinforce the concepts taught in classrooms, and also helps trainee teachers refine their professional competencies before progressing to macro-teaching.

The macro-teaching is the advanced phase of teaching practice and involves trainee teachers teaching in real classrooms, facing the challenges and complexities of actual educational settings. During this phase, trainee teachers are supervised by tutors or lecturers from their institutions, as well as experienced teachers from the placement schools where they conduct their teaching. The purpose of macro-teaching is to provide trainee teachers with an opportunity to apply their content knowledge, teaching methodology, and pedagogical skills in authentic teaching scenarios. This phase is particularly demanding, as it signifies the critical transition from initial teacher education to the professional teaching career. Research consistently demonstrates that teaching practice exercise, such as macro-teaching, offer trainee teachers the opportunity to acquire essential skills including lesson structuring, effective lesson planning (Mufidah, 2019), adept question formulation, classroom management, utilisation of diverse teaching materials (Saban & Coklar, 2013), as well as the ability for self-reflection and critical analysis of their teaching practices (Fernandez, 2010; Putnam & Borko, 2000).

Macro-teaching takes place in mentoring schools, usually at the basic school level. In this context, lead mentors (head teachers) are responsible for assigning trainee teachers to mentors (experienced teachers) and oversee their activities within the school. Mentors work collaboratively with trainee teachers in classroom settings. While mentors play a vital role in guiding trainee teachers, lead mentors have a more comprehensive role, including instructing, monitoring, and supervising various aspects of daily activities, such as lesson planning, teaching and learning resource development, classroom instruction, and student's assessment.

Attitudes play a pivotal role in determining how trainee teachers engage with the programme, interact with students and mentors, and ultimately, how they develop as educators. Positive attitudes among trainee teachers can significantly enhance their commitment to learning, help develop resilience when faced with challenges and feedback, and ultimately foster their professional growth, adaptability, and enthusiasm for the teaching profession.

Studies outside and within Ghana have highlighted common challenges and patterns related to teaching practice programmes and the attitudes of trainee teachers. These studies provide valuable insights into how these factors can impact the effectiveness of teacher education. For studies conducted outside Ghana, Adekunle (2000) found inadequate time allocated for teaching practice, and an unserious attitude among trainee teachers leading to trainee teachers not acquiring the necessary skills, confidence, and knowledge required for effective classroom management. This emphasizes the importance of allocating sufficient time for trainee teachers to engage meaningfully in teaching practice and take it seriously as a critical part of their professional development.

A study by Nwanekezi et al. (2011) highlighted issues related to inadequate preparation and short practice periods. These factors can result in trainee teachers not having the opportunity to fully engage in the teaching process, leading to negative attitudes during the practice exercise. This underscores the significance of providing thorough preparation and adequate time for trainee teachers to engage in comprehensive teaching practice experiences. Benjamin et al. (2011) demonstrated the correlation between student teachers' attitudes and their performance during teaching practice. While the overall attitude towards teaching practice was negative, those with a positive attitude performed significantly better than those with a negative attitude. This indicates that fostering a positive attitude among trainee teachers can lead to improved performance and better outcomes in their future teaching careers. However, a study conducted by Özonur and Kamışlı (2019) in Turkey, found positive attitude among preservice teachers during teaching practice programme.

Although there is a relative lack of literature to support, the widespread outcry about the quality of school resources available for most trainee teachers who undergo this practice, Marais and Meier (2004) opined that the effectiveness of the teaching practice can be diminished or eroded by a range of challenges, such as geographical distance, low and uneven levels of teacher expertise, lack of school resources as well as lack of discipline among a wide cross-section of learners and educators. A study conducted by Makori and Onderi (2014) on school resources (library, textbooks, laboratory, classroom, furniture, staffing level, workshops, playground and sports facility) found that lack of teaching and learning resources: libraries, laboratories, textbooks, classrooms, furniture, staffing level, playground, and sports facility affect teachers output. The authors stated that unfavourable access to teaching and learning resources raises serious concerns in the teaching and learning process. Quick and Sieborger (2005) assert that the challenge of lack of resources, if not addressed, may affect trainee teachers' performance and affect their perception of the teaching profession in the long run.

Studies conducted within Ghana provided valuable insights into the experiences of trainee teachers during teaching practice. However, they point out certain gaps in the existing literature. A study conducted in Ghana, by Yidana and Aboagye (2018) sheds light on the mentorship experiences of trainee teachers during teaching practice. The finding that some mentors contribute to professional development while others abandon trainee teachers highlights the importance of effective mentorship in guiding and supporting trainees during their practical experiences. Another study conducted by Adu-Yeboah and Kwaah (2018) focuses on the benefits of on-campus practical experience for trainee teachers. This type of experience provides a controlled environment for trainees to develop their pedagogical skills and improve their knowledge. These benefits could be further enhanced by integrating practical experiences with theoretical knowledge, creating a well-rounded preparation for teaching careers. While these studies provide insights into certain aspects of teaching practice in Ghana, they also highlight areas that have not been extensively explored. Amankwah et al. (2017) among other variables found that lack of teaching aids is one of the challenges faced by trainee teachings in their delivery during teaching practice period. The availability and quality of school resources have far-reaching effects on the teaching practice experience. Adequate resources can lead to more engaging and effective teaching, increased student engagement, and better learning outcomes. On the other hand, resource shortages can hinder teaching effectiveness, create disparities in education, and impact overall morale among educators. This presents an opportunity for further research to address this gap and contribute to a more comprehensive understanding of teacher education in the Ghanaian context.

Kant's (2000) Theory of Judgement underpins this research. In Kant's theory, the notion that experience involves reasoning and the active exercise of the mind aligns well with the complex process of teaching practice. Trainee teachers not only engage with the practical aspects of teaching but also actively reflect on their experiences and form judgments about how they will approach teaching and learning. This theory enables a nuanced analysis of how trainee teachers' prior knowledge, expectations, and reflections shape their understanding of effective teaching methods and the learning environment. As Kwatubana and Bosch (2019) demonstrated, applying Kant's theory to educational research can yield valuable insights. Thus, understanding how trainee teachers make judgments about their teaching practice experiences can provide a holistic view of the impact of these experiences on trainee teachers professional development. By grounding our research in this theoretical framework, this study has the opportunity to contribute to the understanding of how trainee teachers' active judgments and reflections shape the effectiveness and outcomes of teaching practice exercises.

2. Research Objectives

The objectives of the study were to:
1. Explore the attitudes of trainee teachers towards macro-teaching.
2. Assess impact of school resources on trainee teachers macro-teaching.

3. Methods

The study adopted a qualitative case study design. According to Yin (2014), this design is suitable when seeking a comprehensive and detailed understanding of a social phenomenon. Thus, the design aligns well with the study's aims of investigating 'how,' 'why,' 'what,' and 'who' questions concerning trainee teachers' attitudes and the impact of school resources on the macro-teaching exercise.

The study focused on the Bono East Region of Ghana, specifically involving Atebubu College of Education, two districts and the municipality in which it conducts macro-teaching placements. By concentrating on a single public teacher training institution and its associated districts and municipality, the research scope is manageable, enabling a thorough investigation into trainee teachers' attitudes and the impact of school resources in the macro-teaching exercise within this specific context.

Atebubu College of Education, the sole public teacher training institution in the Bono East region, operates within two districts and one municipality: Pru West, Pru East, and Atebubu-Amantin. These areas are utilised for assigning trainee teachers for macro-teaching. As a result, the participants for this study were selected from Atebubu College of Education, the aforementioned two districts, and one municipality within the region.

To provide specific details, the Atebubu-Amantin municipality consists of 91 Primary Schools and 36 Junior High Schools. In Pru East, there are 56 Primary Schools and 32 Junior High Schools, while Pru West has 51 Primary Schools and 24 Junior High Schools. The educational landscape also includes 127 head teachers in Atebubu-Amantin (both Primary and JHS), 88 head teachers in Pru East (both Primary and JHS), and 75 head teachers in Pru West (both Primary and JHS). Additionally, subject teachers are distributed as 1390 in Atebubu-Amantin, 840 in Pru East, and 750 in Pru West, respectively (Bono East Education Directorate, 2022). Considering the study's focus on the Atebubu College of Education, the sole case institution under scrutiny, the research specifically targeted its final-year students, numbering 380 (Atebubu College of Education Academic Affairs, 2022). To ensure a balanced representation, the quota sampling technique was utilised to select 50 trainee teachers for each of the three areas; Pru West, Pru East, and Atebubu-Amantin municipality - assigned for the macro-teaching exercise. This meticulous approach yielded a total of 150 participating trainee teachers. Again, the study employed convenience sampling to gather insights (Yin, 2003) from a group of 100 head teachers, who function as lead-mentors. Similarly, 120 teachers (who served as mentors) from Basic Schools were selected through convenient sampling. Their responses provided a valuable insight into trainee teachers' attitudes. In all 370 participants were sampled for the study.

The study utilised an interview schedule derived from existing literature, including works by Singh and Harun (2020); Royal-Dawson and Baird (2009); and Bricout et al., (2008), to investigate teaching practice activities. The selection of this schedule was based on the recognition of the importance of gathering accurate information through direct face-to-face interactions with participants, focusing on aspects related to the significance of the macro-teaching exercise. This interview schedule comprised two dimensions. The first dimension gauged the attitudes of trainee teachers towards the teaching practice experience, encompassing areas such as their initial reporting behaviour, punctuality, interactions with learners and mentors, and their commitment to teaching tasks and associated activities, involving a total of four items. The second dimension aimed to explore the influence of school resources (both infrastructure and teaching and learning resources) on the macro-teaching exercise, consisting of four items as well. Overall, the schedule incorporated eight items distributed across these two sub-dimensions.

Quality Control Strategies

After meticulously developing the interview schedule items, the researchers enlisted an expert's assistance to review and ensure content representation. Additionally, a pilot testing (involving 10 teachers', 10 head teachers and 15 students outside the sampled used for the study) was conducted to assess both the interview questions' efficacy and the interviewing approach. During the pilot sessions, the plausibility of responses and participants' demeanor were scrutinised to validate their trustworthiness. The researchers also sought corroborative evidence supporting participants' testimonies and ensured confirmability by sharing transcripts with participants for endorsement. These quality control measures employed in the pilot phase were faithfully upheld during the main data collection stage.

3.1. Ethical Protocols

This research study adhered to ethical guidelines by obtaining approval from the research project coordinating team at Atebubu College of Education and also sought permission from the respective institution heads. A study conference was organised in each school, during which participants were fully briefed on the study's purpose and ssignificance. Additionally, participants were assured of their confidentiality and anonymity rights throughout the study and were informed of their freedom to withdraw from the study whenever they wished. Prior to data collection, participants willingly provided their informed consent by signing a consent form and also indicated their preferred interview time slots. For anonymity of respondents, no name was used for the analyses.

3.2. Procedures

All researchers mentioned in this paper actively participated in conducting the interview sessions with the participants. Prior to data collection, participants shared their available time slots with their designated interviewers for scheduling. The majority of participants preferred to be interviewed after school hours. These interviews, conducted across different schools, were allocated a duration of 30 minutes each. With participants' consent, interview data were recorded using both phones and recorders. The interviews centered on the two primary themes outlined in the interview schedule; trainee teachers' attitudes towards macro-teaching and availability of school resources.

3.3. Dataset

Dataset 1 comprised 100 individual interviews conducted with Lead Mentors, focusing on the core topics of school resources and trainee teachers' attitudes, which were under investigation. The interview schedule consisted of 4 items, and throughout the interviews, inductive probing techniques were employed. Through inductive thematic analysis, responses to the four questions led to the identification of 53 distinct codes, each representing a new response. The study's sample displayed high homogeneity. Based on a thematic code threshold of 50%, the interview process concluded after the 53rd interviewee. At this juncture, the proportion of new information introduced by the final interview surpassed the 50% thematic code threshold. It was apparent that the addition of novel insights was declining, signifying that saturation had been achieved by the 53rd interview.

Dataset 2 encompassed 120 individual interviews involving mentors, focusing on one of the primary themes outlined in the interview schedule: Trainee teachers' attitudes towards macro-teaching. Interviews were scheduled

according to participants' convenience. All participants in this category were required to address the four items in the interview schedule. Similar to the Lead Mentors' dataset, the interviews were guided by inductive probing techniques. The interview questions yielded 65 distinct codes, representing 65 maximum responses.

Dataset 3 involved 150 individual interviews conducted with trainee teachers, centering on the focal topic of school resources being investigated. Four primary questions were posed to address the objective, including inquiries about logistical challenges and infrastructural issues at their practice schools, as well as the availability of tables and chairs for conducive classroom arrangements and the existence of a resource centre for children with special needs. Inductive probing techniques guided the interviews. The responses led to the identification of 76 distinct codes, each signifying a new response. The study sample displayed high homogeneity, and following the 50% thematic code threshold, the interview process concluded after the 83rd interview. At this stage, the percentage of new information introduced by the final interview surpassed the 50% threshold for thematic codes. It was evident that the infusion of novel insights was diminishing, indicating that saturation had been achieved by the 76th interview.

Dataset 4 incorporated a focus group discussion aimed at corroborating the emergent themes from the individual interviews. This discussion involved five lead mentors and centered on the significance of school resources in the context of macro-teaching. The responses from the discussion corresponded with the two main themes identified in the individual trainee teachers interviews. The alignment between the focus group discussion themes and the individual interview themes provided confirmation of the inductive thematic saturation of the data. Furthermore, a group of six teachers (mentors) participated in a similar interview concerning the relevance of school resources in macro-teaching.

Upon completing the data collection phase, transcription was carried out systematically, followed by data cleaning in preparation for processing and analysis. Transcribed data were organised based on identified themes in a sequential manner. The study employed Braun and Clarke's (2006) thematic approach for qualitative data analysis. Themes pertinent to the research objectives that had guided the study's execution were formulated. The research team independently reviewed all excerpts attributed to subthemes to ensure their coherent alignment.

Thematic analyses were conducted on both individual and focus group interviews, offering insights into the experiences of head teachers, teachers, and students in relation to macro-teaching, with specific emphasis on the relevance of school resources and trainee teachers attitude toward macro-teaching. The subsequent section provides a comprehensive account of the subthemes, accompanied by illustrative quotes that illuminate key themes and subthemes.

4. Results

In a retrospective analysis, the researchers of this study conducted interviews with both lead mentors and mentors to address objective one, focusing on the attitudes of teacher trainee teachers towards the macro teaching exercise. During the interview sessions with lead mentors, intriguing trends emerged concerning the initial behaviour of trainee teachers. These trends were characterised by a pronounced "enthusiasm towards the teaching profession" and a strong sense of "efficacy for the teaching tasks." Notably, these insights were corroborated by data collected from the mentors, as highlighted in Tables 1 and 2. Highlighting these points further, the responses from lead mentors indicated that trainee teachers exhibited zeal, displayed significant passion for their teaching responsibilities. They also conveyed a readiness to embrace the new teaching tasks during the macro-teaching period. Head teachers echoed this sentiment, noting that trainee teachers exhibited an eagerness by reporting to their duties promptly, signifying their enthusiasm for their roles in the macro-teaching exercise.

A female head teacher provided her perspective, stating:
> *"I had four trainee teachers in my school, and upon their arrival, they exhibited punctuality and a strong dedication to school-related tasks. They consistently adhered to their scheduled reporting time, and showed a remarkable commitment."* (School 1).

A male head teacher expressed:

> *"They arrived on the specified reporting day as instructed. All six mentees were present at the school on the designated reporting day."* (School 2).

Another male head teacher shared:

> *"To be honest, they displayed exceptional punctuality right from the outset of the exercise. Their commitment to work was evident, reflected in their punctual arrival at the school. Their dedication was noteworthy, and we acknowledged their consistent punctuality. In fact, none of them arrived late, and even the school's log book confirms this fact."* (School 3).

Another male head teacher shared:

> *"Indeed, the group of six mentees assigned to my school demonstrated commendable diligence in terms of reporting for duty. The majority of them were punctual and arrived early, aligning with our expectations. Although one individual was unable to report on the reopening day, the individual communicated the absence through a colleague."* (School 4).

Mirroring the sentiments expressed by lead mentors, the teachers who served as mentors for the trainee teachers confirmed the genuine enthusiasm and commitment exhibited by the trainee teachers at the outset.

A female teacher contributed:

> *"The trainee teachers adhered to the designated date for commencing the teaching practice exercise. Beyond their reporting, during the initial sessions of the exercise, they displayed substantial dedication to school activities, engaging in tasks such as aiding children in sweeping, organising assemblies, and participating in non-curricular activities."* (School   3).

A male teacher also shared:

> *"I can affirm that upon their arrival, they excelled in all aspects of engagement, actively participating in various activities including teaching, sports, assemblies, and more."* (School 3).

Tables 1 and 2 provide a concise overview of the respondents' perspectives regarding trainee teachers' attitudes toward the macro-teaching exercise.

Table 1: Perspectives of Head Teachers (Lead Mentors)

Questions	No. Resp.	% of Resp.	Responses
How was the behavior of trainees on the reporting day?	52	52	"They came on the day that they were asked to report. All six mentees were here in the school at the reporting day." (Similar responses from Lead mentors).
What can you report about the punctuality of trainees?	50	50	"It was one of the best, even we told them that we've been through this system with a lot of students but for their group, it was the best. They always sought for permission before absenting themselves." (Similar responses from Lead mentors).
How did trainee teachers relate with their mentor teachers?	43	43	"It was so cordial, very cordial, always you see them at the place where the mentors are. They worked together and whatever information they wanted to tell the lead mentor, they told their mentors to tell me which was an indication of good relationship." (Similar responses from Lead mentors).
What was their commitment toward teaching and related tasks?	53	53	"Trainee teachers were very committed to all the activities of the school. They were supportive in the teaching of various subjects, preparation of terminal reports, marking of attendance register and organizing of co-curricular activities for the children." (Similar responses from Lead mentors).

Source: Field Data (2022)

Table 2: Teachers' Perceptions on Attitudes of Trainee Teachers toward Macro-Teaching (Mentors)

Questions	No. Resp.	% of Resp.	Responses
How was the behavior of trainees on the reporting day?	65	54	"Trainees' behavior on the reopening day for the macro-teaching was impressive. They reported in their numbers and on time." (Similar response from mentors)
What can you report about the punctuality of trainees?	60	50	"The trainee that was assigned to me was very punctual. Notice of absence was always delivered in days of absence. I testify that an attitude of this nature is good for a beginner teacher." (Similar response from mentors)
How did trainee teachers relate with their mentor teachers?	51	43	"For me, trainees who were assigned to me related well with me. We discussed issues together, they shared their challenges with me, and we worked together as professionals in a community of practice." (Similar response from mentors)
What was their commitment toward teaching and related tasks?	45	38	"This batch of trainees was very helpful. They almost did every activity in the school. They performed every bit of activity that was assigned to them, both academic and non-academic tasks." (Similar response from mentors)

Source: Field Data (2022)

The active participation and dedication of trainee teachers in school activities during the macro-teaching period significantly determine the quality of relevant experience they gain for their future teaching roles. The feedback from the respondents overwhelmingly indicated that trainee teachers' attitudes were predominantly positive. Their engagement encompassed reporting to schools on time, assisting children in cleaning their surroundings and classrooms, promptly preparing lesson plans, teaching various subjects, and actively participating in co-curricular activities.

For research objective two, a series of interview sessions yielded responses from trainee teachers. These interviews unveiled two prominent themes derived from the participants' input on school resources. The first theme highlighted the scarcity of teaching and learning resources, while the second underscored the insufficiency of infrastructure. In the context of an apprenticeship-based learning model like macro-teaching, the absence of crucial resources such as children's textbooks, relevant charts, apparatus, and exercise books can impede the seamless execution of the exercise. Beyond the scope of teaching and learning resources, the inadequacy of infrastructure was also evident. For instance, at the Junior High Schools, essential facilities like staff common rooms were non-existent. The majority of staff at these schools operated in outdoor spaces like under trees or sheds. To provide a direct insight, some of the views of trainee teachers regarding the impact of school resources on the effectiveness of macro- teaching have been quoted verbatim.

A male trainee teacher provided this insight:
> *"In classrooms where the number of pupils is substantial, and there's an insufficient number of desks available, as is the case in our situation, you can observe that pupils are squeezed three by three onto a single desk. This setup has the effect of demotivating trainee teachers from engaging in practical activities with their pupils."* (School 2).

Another perspective was shared by a female trainee teacher:
> *"Apart from the absence of a staff common room for teachers to prepare, our classrooms are overly crowded with pupils, impeding teachers' smooth movement during instruction. This situation could potentially hinder trainee teachers from gaining proper classroom management experiences."* (School 1).

A female trainee teacher shared this:
> *"Dealing with the absence of textbooks has been a significant challenge. I find myself frequently writing passages on the board during English reading and comprehension classes. This has made teaching much more difficult for me."* (School 7)

An experience shared by another trainee teacher:

> *"The school where I conducted my teaching practice suffered from a severe lack of infrastructure. We had classes conducted outdoors, and also have our staff common room under trees. As a result, when it rained, we couldn't hold classes. I often feel disheartened and saddened by the fact that our Basic schools lack the necessary resources to effectively support teachers in carrying out their responsibilities."* (School 8).

In a focus group discussion, the researchers engaged five Lead mentors, and six mentors in a separate focus group discussion on the issue under investigation, they had the following to share:

Response 1: *Infrastructure is really a problem not only for my school but most of the basic schools around (Head teacher 23, Male, Sch. 23).*

Response 2: *For my school, we are really lagging behind in terms of infrastructure; we do not have staff common room for teachers, adequate number of classrooms and even place of convenience. This in my view does not help novice teachers' development (Head teacher 31, Male, Sch. 31).*

Response 3: *The kindergarten children in my school are taught under tress because we do not have classroom block for them. aside the problem of infrastructure, we also do not have textbooks, crayons and even chalkboards to use under the tree. How then do you expect trainee teachers to get the required experiential knowledge since they never got materials to practice? (Head teacher 29, Female, Sch. 29).*

Response 4: *Learning how to teach is to teach with the right materials, our schools do not have the right materials to aid trainee-teachers to learn how to teach properly. (Head teacher 40, Male, Sch. 40).*

Diverse challenges are present in various regular basic schools. While inadequate classroom desks posed a challenge for certain schools, others grappled with insufficient classroom infrastructure. Another insight was shared,

Response 5:

> *"Being a single-stream school, we possess just three block classrooms for grade 1 to grade 6. Our lower classes (i.e., grade 1 to grade 3) conduct their lessons under trees. This scenario could likely demotivate trainee teachers and dampen their enthusiasm for the teaching profession."* (Head teacher 4, Male, School)

One teacher highlighted the issue by stating,

> *"I want to stress the lack of textbooks in our school. Over the past nine or ten years, the government hasn't supplied basic schools with textbooks, especially for subjects like English language. This situation has created difficulties for trainees as they need to find ways to teach without proper resources."* (Subject teacher 1, Male, Sch. 3).

Another teacher expressed:

> *"In an ideal scenario, I should be able to prepare the day's lesson material in collaboration with the teacher trainee. However, due to the lack of a teacher's handbook that could provide guidance, I often have to search for information online even before coming to school. This situation prevents trainee teachers from gaining a comprehensive teaching experience."* (Subject teacher 3, Female, Sch 1).

Another teacher's perspective is shared as follows:

> *"Honestly, I don't believe that trainee teachers can effectively learn from their teaching practice because our school faces a significant issue – the lack of textbooks for teaching. For example, when we need to teach something like English reading, I have to write the entire passage on the board before the lesson starts. This situation causes stress and demotivation among most trainees."* (Subject teacher 4, Male, Sch 4).

Most schools faced challenges related to the availability of teaching and learning resources, which had a substantial impact on the practice of trainee teachers. The constraints imposed by the lack of resources affect various aspects of trainee teachers' work. Without textbooks, visual aids, and other teaching materials, trainee teachers might find it challenging to explain complex concepts or provide varied learning experiences to their students. This can lead to monotony in teaching methods and limited opportunities for active student engagement. Again, insufficient resources like classroom furniture, chalks, and whiteboard markers can hinder trainee teachers' ability to manage the classroom effectively. Also, inadequate desks and writing tools can disrupt the flow of the lesson and negatively impact classroom discipline. Adhering to standard educational practices, classrooms should be well-organised to facilitate movement and enable a learner-centered teaching approach (World Bank, 2013). The lack of adequate desks can pose challenges to arranging classrooms effectively, leading to learners clustering around the limited available desks.

5. Discussion

The study's findings indicate that lead mentors and mentors all recognised the importance of cooperative and positive attitudes displayed by teacher-trainees during macro-teaching. These positive attitudes are seen as crucial in establishing an environment conducive to "on-the-job learning." Participants identified this positive attitude as a key factor in the success of macro-teaching, suggesting that the right demeanor greatly contributes to effective teaching experiences.

By implication, the positive attitude towards macro-teaching exhibited by learners shows a readily available human resource prepared for work. The study's results indicate that fostering a positive attitude towards macro-teaching has the potential to ignite complete dedication and cooperation from trainee teachers. This discovery aligns with a prior study conducted by Özonur and Kamışlı (2019), who observed a similar positive attitude among preservice teachers participating in teaching practice programmes in Turkey. This positive attitude is also linked to a desire among trainees to experiment with different aspects of their teaching practice and to learn from these experiences. This inclination towards experimentation contributes to the optimistic perception of macro-teaching among trainees. However, the findings of this study disagree with that of Benjamin et al. (2011) study that revealed trainee teachers' negative attitude towards teaching practice.

Furthermore, a significant aspect of this study's findings lies in the impact of inadequate infrastructure and insufficient teaching and learning resources by trainees participating in the macro-teaching exercise. Inadequate classroom space in some of the schools had led to overcrowded classrooms, diminishing student-teacher interaction was identified through some of the study narratives, a concern echoed by a study conducted by Amankwah et al. (2017). The findings of this study revealed the impediment of lack of adequate school resources in the effective implementation of macro-teaching in the preparation of teachers for the teaching profession, thus hindering Ghana's progress towards SDG4 for quality education.

6. Conclusion

Based on the study's findings, it becomes evident that a positive attitude towards macro-teaching fosters a sense of complete dedication to work among trainee teachers. The findings also offer valuable insights into the significance of infrastructure and teaching and learning resources in the context of macro-teaching within Ghana, particularly within the study's setting in Bono East region. This dearth of resources critically impedes trainee teachers in the macro-teaching exercise from acquiring the crucial professional skills necessary for their development.

7. Limitations and Areas for Further Research

This study has several limitations, including potential issues related to sample size, generalizability, and subjective perception. The study involves a limited number of trainee teachers, lead mentors and mentors and as such the findings may not be representative of the broader population, reducing the generalisability of the results. Further,

attitudes are subjective and can be influenced by personal beliefs and experiences. The study might encounter challenges in objectively interpreting these attitudes. Future researchers can conduct a study to compare the attitudes of trainee teachers towards macro-teaching in different educational institutions or regions to shed light on how macro-teaching practices are influenced by cultural, contextual, or systemic factors.

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