

Education Quarterly Reviews

Alviz, Abigail. (2019), The Language Proficiency and Process Skills of Filipino High School Teachers. In: *Education Quarterly Reviews*, Vol.2, No.3, 615-628.

ISSN 2621-5799

DOI: 10.31014/aor.1993.02.03.93

The online version of this article can be found at:
<https://www.asianinstituteofresearch.org/>

Published by:
The Asian Institute of Research

The *Education Quarterly Reviews* is an Open Access publication. It may be read, copied, and distributed free of charge according to the conditions of the Creative Commons Attribution 4.0 International license.

The Asian Institute of Research *Education Quarterly Reviews* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of education, linguistics, literature, educational theory, research, and methodologies, curriculum, elementary and secondary education, higher education, foreign language education, teaching and learning, teacher education, education of special groups, and other fields of study related to education. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Education Quarterly Reviews* aims to facilitate scholarly work on recent theoretical and practical aspects of Education.



ASIAN INSTITUTE OF RESEARCH
Connecting Scholars Worldwide



The Language Proficiency and Process Skills of Filipino High School Teachers

Abigail Alviz¹

¹Centro Escolar University - Graduate School

Abstract

This study employed the Test of English Proficiency for Teachers-Process Skills Test (TEPT-PST) results of Grades 7-10 Science and Math public high school teachers in the Philippines. Qualitative and quantitative designs were applied, along with secondary data, to analyze the subtests in the teacher assessment consisting of Structure, Written Expression, Reading Comprehension, and Process Skills. Findings show that teachers are proficient in reading comprehension items but find difficulty in expressing themselves in written form. Analyses of the competencies show that assessed teachers performed poorly in using articles and noun forms, decoding meaning from a word, and inferring. Lastly, the implications in the teaching-learning process were discussed to provide recommendations based on the evidences.

Keywords: Language Proficiency, Process Skills, High School Teachers

Introduction

Teaching has always been regarded as a noble profession; one that creates all the other professions, as they say. Today's society demands that teachers' functions must have an impact in the lives of their students and the society. It is undeniable that the teachers' role is critical in improving student achievement. Notable features of teacher preparation programs consistently related to student outcomes were explored by Boyd et al. (2009) consisting of focused on classroom work, opportunities for immersion in actual teaching practices, and review of the curriculum. Preparing teachers for a career in the academe is tedious work and must be established in in-service training. Pre-service teacher training requires planning for professional growth and development of positive teacher attributes, while in-service training is aimed at the improvement of current teaching practices towards professional competence (Rahman, et al., 2011). Learning is a perennial aspect in the life of a teacher. The absence of continuous growth of a teacher hampers student achievement. Archer (1998) and Haycock (1998) reported the disturbing evidences of teacher ineffectiveness.

With the clamor for increased teacher quality, teaching has substantially developed multi-faceted standards considering the one-year approved DepEd Order 42, s. 2017 mentions the education sector's adoption of the Philippine Professional Standards for Teachers (PPST) which reiterate that quality is at the forefront of teaching. The PPST's implementation was based on nationally-based validation of teacher standards across career stages. Similarly, a plethora of studies have explored teacher quality in terms of teacher preparation, educational qualifications, years of teaching experience, teacher assessment, classroom observation scores, and most recently—value-added models (VAM).

In understanding teacher effectiveness, evaluative tests are employed as central factors in analyzing teacher quality as observed in the classroom. Teaching constitutes more than just mastery of the subject matter but reflects on what actually skills identify effective teaching. In providing quality education to students, assessment emphasizes the linkage between teacher dimensions and actual teaching practices. However, assessment is one misunderstood aspect in the field of education. High-stakes teacher assessment defeats the real objective of looking into indicators that work or hampers student learning. Measuring teacher effectiveness based on teacher assessment results to derive analysis provides policymakers and educational stakeholders a systemic scope. Research literature emphasizes that certain teacher attributes in teacher assessment can provide a more detailed lens of the teaching-learning process (Wayne & Youngs, 2003; Bacher-Hicks et al., 2015; Kane et al., 2013; Kane & Staiger, 2008; Glazerman & Protik, 2015). These studies provide consistent results on the impact of teacher effectiveness on students' current achievement. Further experimental research on this research frame are continuously being done to validate its occurrence, particularly in value-added models (VAM) for teacher assessment.

Despite the extent of review and literature analyzing the effects of teacher assessment on student achievement, conclusive findings are not yet fully established in probing teacher indicators that affect student scores on achievement tests.

Teacher Effectiveness

The terms *teacher quality* and *teacher effectiveness* are used interchangeably in several studies. In most contexts, teacher quality is a critical component for placement and career pathing but is highly debated due to the measures by which it is assessed. Standards are internationally employed as the backbone of teacher quality, described as "of utmost importance for long-term and sustainable nation-building" (Philippine Professional Standards for Teachers). It is also acknowledged in these new teaching standards that high-quality teachers who were prepared and trained properly are capable in meeting the demands of a K to 12 teacher. This is in consonance with Boyd's, et al. (2009) study which posited that immersion in actual teaching practice and provision of oversight programs on the teaching profession allows more opportunities for pre-service teachers to increase student gains during their initial teaching year.

Teacher effectiveness, on the other hand, constitutes a broader umbrella of definitions and one dimension of this is teacher evaluation. Weisberg, Sexton, Mulhern, & Keeling (2009) exposed the harsh reality of teaching as depicted in their findings that in a sample of 15, 000 participants, low-performing teachers are overlooked, and high-performing teachers seem to be unrecognized. Popularly known as the *widget effect*, this is traced to the instructional leaders' equal manner of rating teachers and is similar to an actual "widget" application which can be re-aligned depending on the wants of the user. This is symptomatic of the idea that teachers perform in a standardized manner regardless of qualifications, years of experience, performance, among others. Central to this idea is the lack of careful considerations on what teachers really deliver in the classroom, and likewise, this may result to minimal feedback and teacher quality.

In a study conducted by the National Education Testing and Research Center (NETRC, 2002) regarding teacher effectiveness, indicators abstracted from UP-NISMED (2002) are as follows: academic preparation, positive behavioral manifestations, good command of the medium of instruction, research-driven, and mastery of the subject matter they teach.

Language Proficiency

Hanushek's (1971) seminal work on teacher characteristics that affect student gains revealed that verbal ability tests have two-fold functions: gauge of communication skills and initial measure of general ability. It also provided several interesting findings about teacher quality in terms of verbal ability which contributes to increased student academic performance (Hanushek, 1971, cited in Fong-ye & Normore, 2013). Despite formal training on teaching, good command of the medium of instruction is important in teacher quality. Empirical studies show that high-performing teachers on verbal ability tests significantly impact student learning gains that their low-performing counterparts. Similar to any theoretical standpoints, teachers' verbal ability tests are also subjected to mixed findings. In examining teachers' verbal ability using the Graduate Research Examination-Verbal (GRE-V), Andrew, Cobb & Giampietro (2005) found that there is no conclusive relationship between the verbal abilities of teachers and their teaching ability. The study's primary consideration relied on the small sample of undergraduate education students, but other findings that the lowest performers have the weakest verbal ability scores are in consonance with the following research:

Research Base	Findings
Strauss & Sawyer (1986); Rowan, Chiang, & Miller (1997); Rotherman & Mead (2003)	Students who were taught by teachers with strong verbal abilities do better in standardized tests than students taught by teachers with poor verbal abilities.
Greenwald, Hedges, and Laine (1996)	Teacher ability positively effects student achievement and school resources with student achievement.
Heck (2009)	The effectiveness of teachers (collective teacher effectiveness and stability of school staff and institutional quality) is positively related to student achievement in reading and math.
Sehgal, Nambudiri & Mishra (2017)	There is a positive correlation between teacher self-efficacy and dimensions of teacher effectiveness in the delivery subject matter, facilitation of learning, and regulation of student learning.

TEPT-PST (Teacher Effectiveness Indicators)

In defining language proficiency, several references have to be consulted in order to avoid polarized contexts. In order to ascertain its definition, this terminology will be adapted from Cummins (1984) definition whereby "*language proficiency*" for test language refers to the language performance of students in response to a test situation. The language participants referred to in the TEPT-PST would have to be the Science, Math, and English teachers in the sample of public school teachers.

This study seeks to establish certain connections of high-performing teachers with student learning gains by analyzing the results of the Test of English Proficiency for Teachers-Process Skills Test (TEPT-PST).

The Test of English Proficiency for Teachers-Process Skills Test (TEPT-PST) is a multiple-choice assessment primarily conducted to provide baseline information on the training needs of public school teachers in the country. The covers ninety (90) items of subtests in:

a. Structure

This fifteen (15) item subtest measures how grammatical components are correctly used in sentences and in contexts.

b. Written Expression

This twenty-five (25) subtest measures teachers' ability to compose their thoughts and ideas in written form.

c. Reading Comprehension

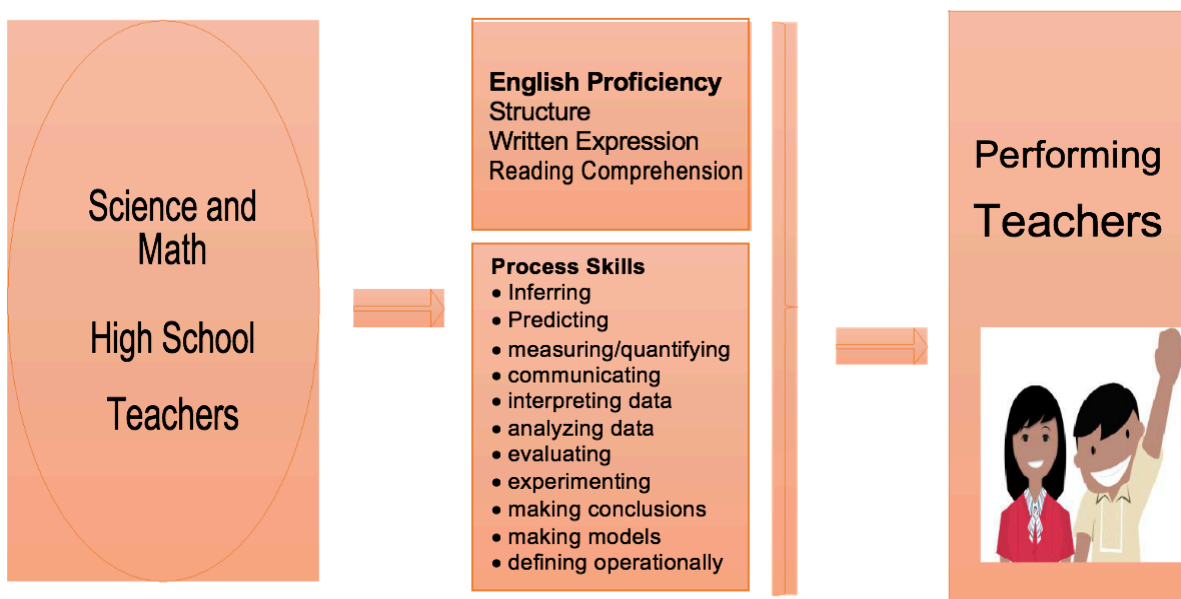
This fifty (50) item subtest assesses the ability of teachers to use their analytical, interpretative, and critical reading skills as they read text materials/excerpts in order to provide concrete generalizations and conclusions.

Process Skills Test (PST)

In understanding how process skills are employed in the classroom, Irwanto, et al. (2017) describes that Science teachers play a critical function in enhancing their students' thinking activities through scientific learning. Correspondingly, this is relatively acquired through master of scientific knowledge in analyzing, assessing, evaluating, comparing, and contrasting abstract concepts. It was maintained that science process skills are cognitive and psychomotor skills employed in authentic classroom contexts in the thirteen (13) process skills in the TEPT, namely: "inferring, predicting, measuring/quantifying, communicating, interpreting data, analyzing data, evaluating, experimenting, making conclusions, making models and defining operationally".

Mathematical process skills, according to Scusa (2008), are reflected in the key traits of a mathematical thinker in communicating, representing, reasoning and proving, problem-solving, and connecting learning. It was found in the study that meaning-making contexts allow one to think and understand mathematically.

The PST is the second part of teacher assessment which measures the subject matter-based knowledge of Science and Math teachers. It consists of forty items with thirteen (13) process skills.

Research Paradigm

To illustrate the concept of teacher effectiveness as reflected in the above research paradigm, variables that are taken into account are the English proficiency and process skills of Science and Math teachers. Assessing teachers through the TEPT-PST provides an evaluative measure of the competencies which teachers know. The

aspects which are being looked into are structure, written expression, and reading comprehension under the TEPT test and process skills which contribute to teacher effectiveness as an aspect of quality. In understanding how teachers perform in the TEPT-PST, teaching gaps are analyzed to provide recommendations that lead to high-quality teachers. The language component in the DepED-standardized teacher test provides an overview of teachers' knowledge of language functions while the process skills aspect delivers results of critical Science and Math skills that teachers know and use in situational contexts.

Research Questions

This study aimed to look at teacher effectiveness using the 2016 TEPT-PST results of Grades 7-10 Science and Math teachers. Specifically, it aims to address the following research questions:

1. What are the levels of proficiency of Grades 7-10 teachers in the TEPT-PST subtests?
2. What are the significant differences between the performance of Grades 7 & 8 teachers with Grades 9 & 10 teachers in the TEPT-PST?

Limitations of the study

Utilizing teacher assessment scores as measures for teacher effectiveness is a longstanding form of probing the quality of teachers in an education system. The debatable topic is accountability, as to whether system assessment can impact outcomes at the grassroots' level, is seemingly unexplorable in this study. Factors such as teacher core competencies and teacher performance for school effectiveness are beyond the scope of this paper. In this regard, a more comprehensive study has to be conducted in order to generate more generalizable statements regarding the relationship of teacher effectiveness and student learning gains. Crooks (1988) maintained that use of student assessment may be practical for the teacher's individual development but can be highly unreliable for bureaucratic purposes.

Methodology

Research design

This study utilized qualitative-quantitative designs in probing the proficiency levels and competencies of the sampled Grades 7-10 junior high school teachers who took the Test of English Proficiency for Teachers-Process Skills Test (TEPT-PST), a nationally-conducted evaluative assessment for public school teachers. The primary objective of the assessment is to look at the competencies of teachers that may serve as evidences for teachers' in-service training and professional development. The conduct of the TEPT-PST is done in two grade levels and school year. For instance, Grades 7 and 8 teachers were assessed in 2016, and Grades 9 & 10 teachers took the tests in 2017.

The dissemination of the results for the TEPT-PST is given through an individual certificate of rating (COR), and as such, the data utilized for the purpose of this study were analyzed singularly. Results are provided to regions and divisions through school classification, and performance, and data for this study was extracted from the database.

Sampling Procedure

In the conduct of this study, secondary data analysis was utilized in the analysis of TEPT-PST results of Grades 7-10 teachers. DepEd Memorandum 127, s. 2016 stipulates that *all* permanent public school Science and Math teachers will take the tests. These include out-of-field teachers regardless of teacher position and length of service.

Level of Proficiency	
90% - 100%	Highly Proficient
75% - 89%	Proficient
50% - 74%	Nearly Proficient
25% - 49%	Low Proficient
0% - 24%	Not Proficient

Statistical Treatment

In processing and analyzing the data in this study, the following statistical treatment was applied in SPSS version 22:

- a. Mean -to determine the average of the scores in each subtests and overall percentage scores
- b. Standard deviation –to analyze the spread of scores of the TEPT-PST takers

Standard error- to validate the effect size in the t-test

Results and Discussion

Presentation, Analysis, and Interpretation of Data

This section discusses the findings of the sampled Science and Math teachers' performance in the 2016 and 2017 Test of English Proficiency for Teachers- Process Skills Test (TEPT-PST) of all public Science and Math high school teachers. The inclusion process for the sample is based on the criteria provided by the Department of Education-Bureau of Education Assessment's (DepEd-BEA) criteria, formerly the National Education Testing and Research Center (NETRC) as disseminated in a department order. The TEPT-PST is conducted in batches and grade and year level. For 2016, Grades 7 and 8 teachers took the tests while Grades 9 and 10 teachers were assessed in 2017.

The initial part of the results shows the overall mean percentage scores of the teachers and scores per subtests of the TEPT-PST. To show the significant differences between the performance of Grades 7 and 8 teachers with their Grades 9 and 10 counterparts, the last section provides a discussion on subtests and competencies that may hinder or improve the teaching effectiveness of Science and Math teachers.

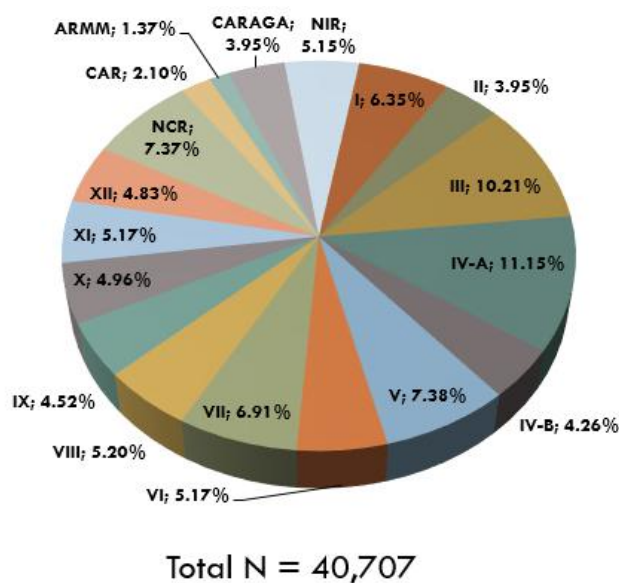


Figure 1. Percentage distribution of Grades 7 and 8 TEPT-PST Takers across regions

Figure 1 shows the percentage distribution of Grades 7 and 8 teachers who took the TEPT-PST in 2016. The highest representatives of teachers come from IV-A, III, V, NCR, VII, I, XI and NIR*, respectively. There was a total of **40,707** Grades 7 & 8 test-takers.

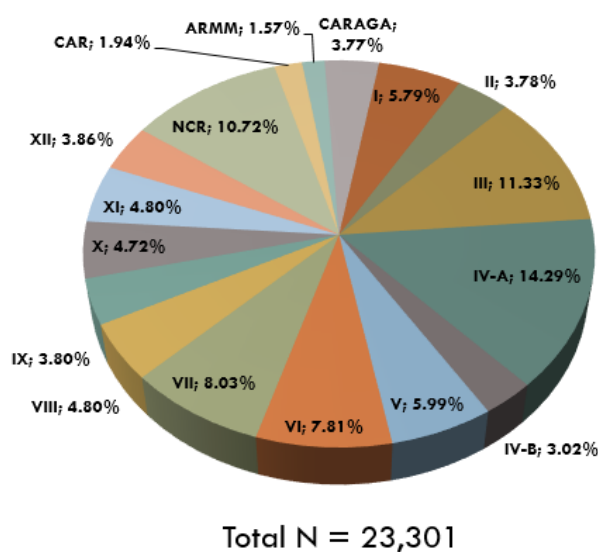


Figure 2. Percentage distribution of Grades 9 and 10 TEPT-PST Takers across regions

Figure 2 shows the percentage distribution of Grades 9 and 10 teachers who took the TEPT- PST in 2016. The highest representatives of teachers come from IV-A, III, and NCR, respectively.

There was a total of total of 23,301 Grades 9 & 10 test-takers.

* The Negros Island Region (NIR) was established as an administrative region and the 18th region of the Philippines. It existed from May 29, 2015, to August 9, 2017; thus covering the time frame of this study's data gathering. It was revoked by President Duterte under Executive Order No. 38 due to lack of funding

Table 1. Overall TEPT-PST Scores of Grades 7 & 8 Teachers

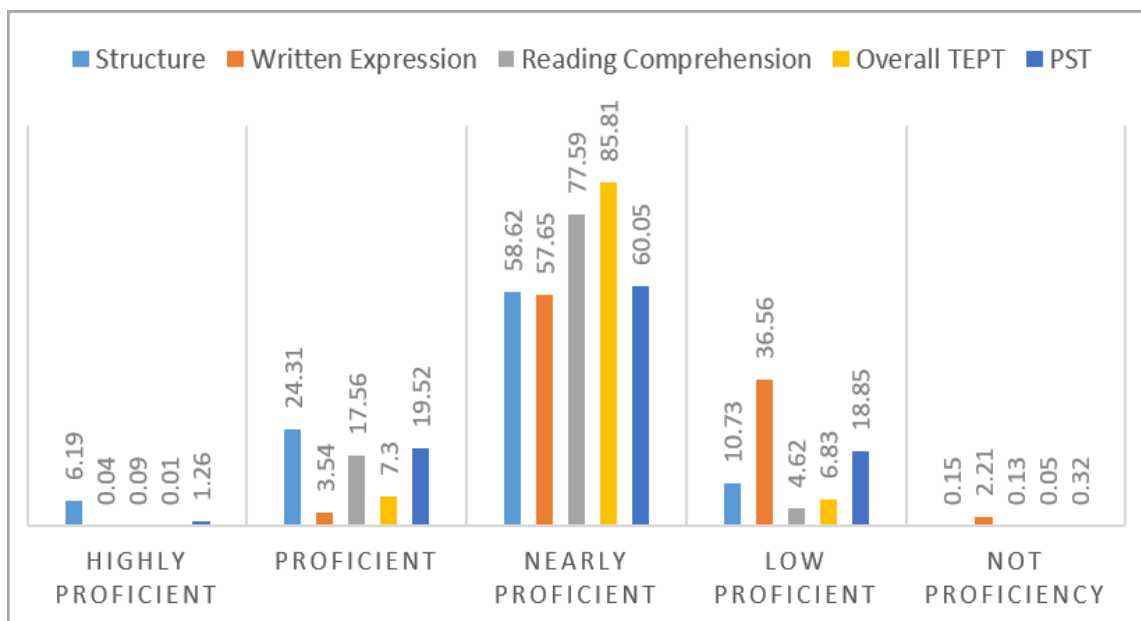


Table 1 shows the overall TEPT-PST scores of Grades 7 & 8 teachers in all subtests. It can be gleaned from the data that the majority of the scores fall under near proficient levels. For each subtest, assessed teachers gained high scores in Reading Comprehension and scored low in Written Expression.

Table 2. Overall TEPT-PST Scores of Grades 9 & 10 Teachers

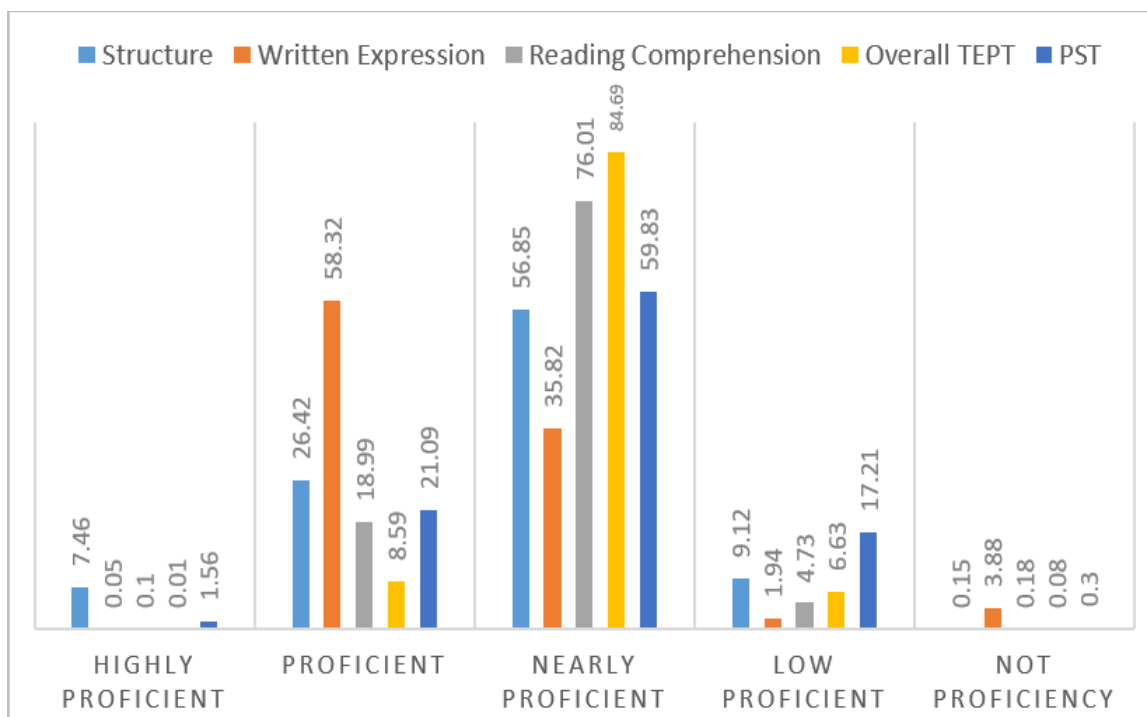
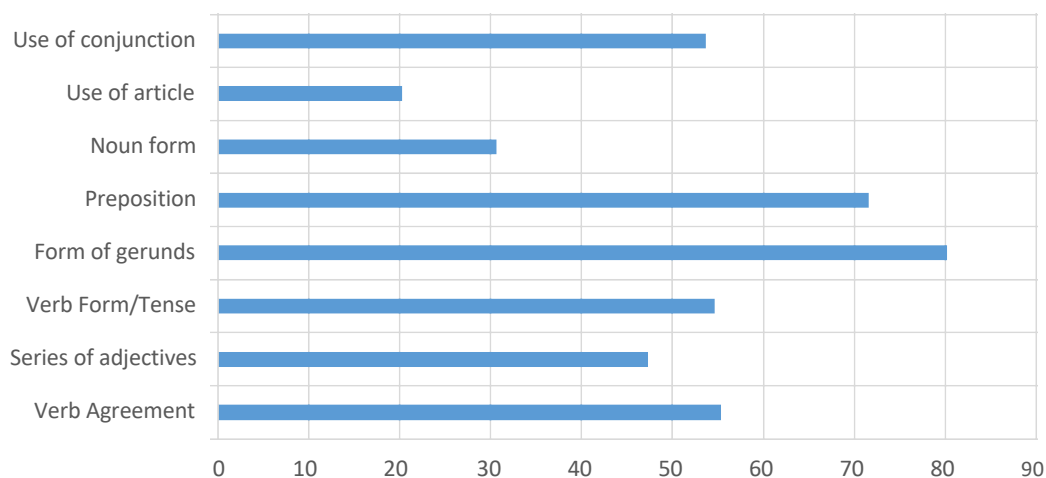


Table 2 presents the Overall TEPT-PST scores of Grades 9 & 10 teachers. The data reveal that assessed teachers gained nearly proficient level. For the subtests, teachers gained highest scores in Reading Comprehension (nearly proficient) and proficient level in Written Expression.

Table 3. TEPT-PST for Grade 7 and 8
Percentage of Correct Response in Written Expression



As can be gleaned from Table 3, Grades 7 and 8 teachers gained the highest scores in forming gerunds (80%) and lowest scores in the use of articles (20%) for the Written Expression subtest. Apart from article usage, data also show that teachers of these levels had difficulty in using noun forms (30%).

Table 4. TEPT-PST for Grade 7 and 8
Percentage of Correct Response in Structure

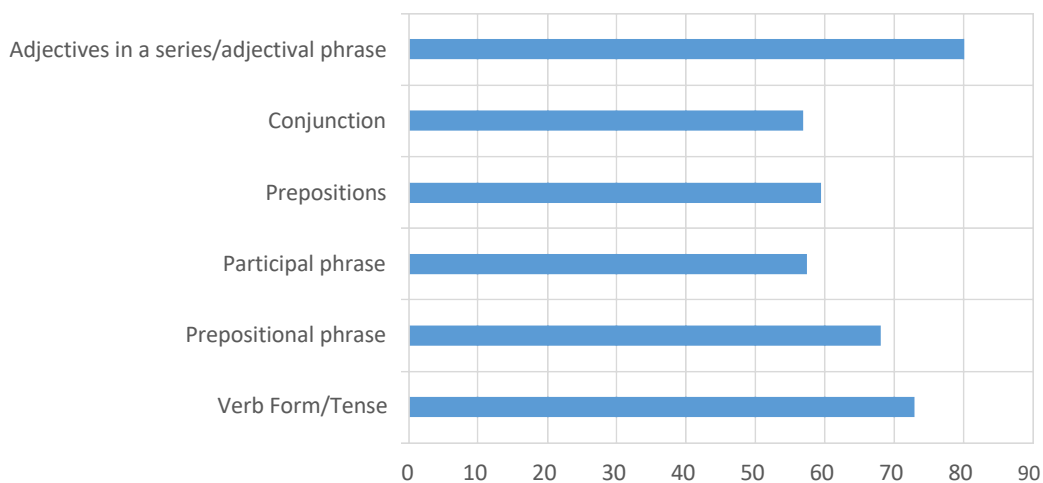


Table 4 indicated the TEPT-PST for Grades 7 & 8 percentage of correct responses for the Structure subtest. Data show that teachers gained the highest PCR for adjectives in a series/adjectival phrases (80%) and the lowest scores for conjunctions (58%).

Table 5. TEPT-PST for Grade 7 and 8
Percentage of Correct Response in Reading Comprehension

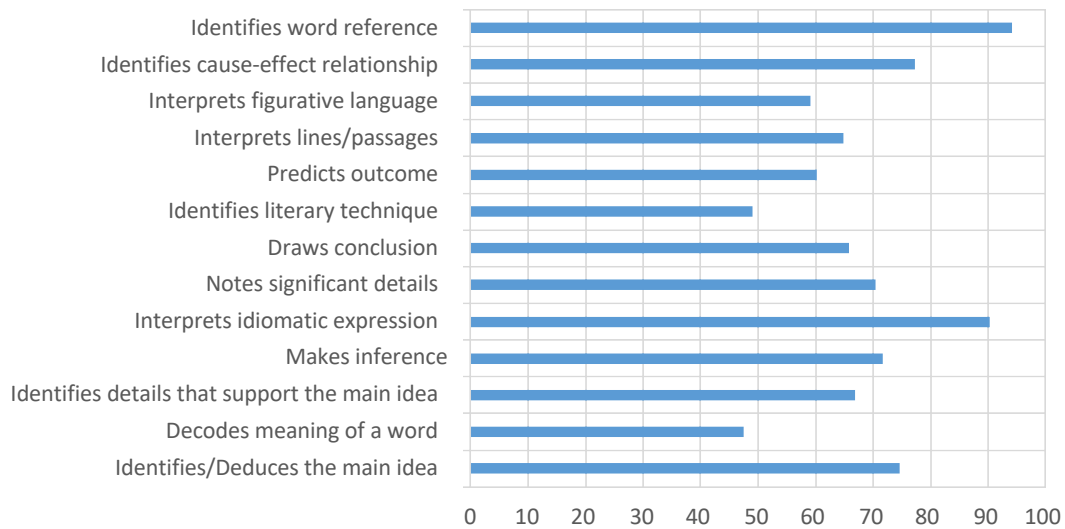


Table 5 presents the TEPT-PST for Grades 7 and 8 Percentage of Correct Response in Reading Comprehension. Analysis of the data point out to the lowest scores of teachers in Decoding meaning of a word (47%) and Identification of literary technique (49%).

Table 6. TEPT-PST for Grade 9 and 10
Percentage of Correct Response in Structure

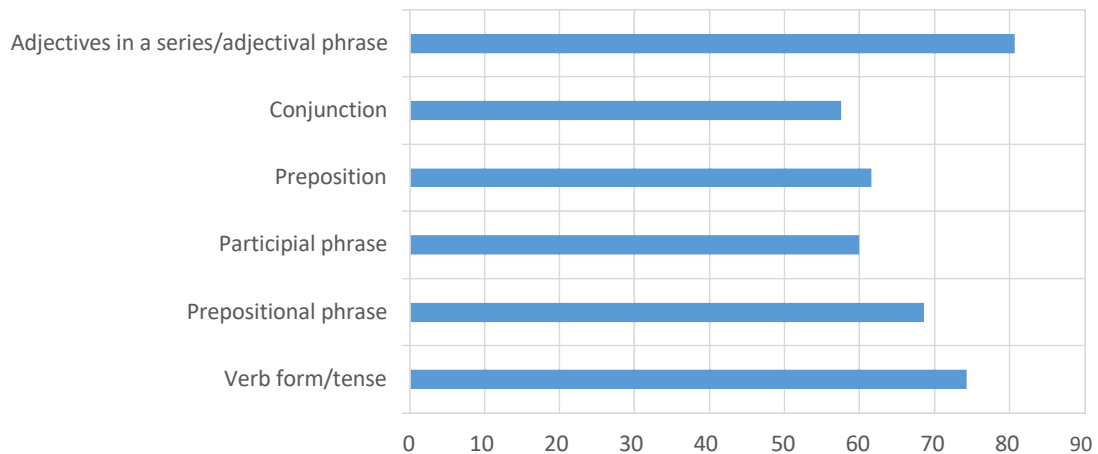


Table 6 indicated the TEPT-PST for Grades 7 & 8 percentage of correct responses for the Structure subtest. Data show that teachers gained the highest PCR for adjectives in a series/adjectival phrases (80%) and the lowest scores for conjunctions (58%).

Table 7. TEPT-PST for Grade 9 and 10
Percentage of Correct Response in Written Expression

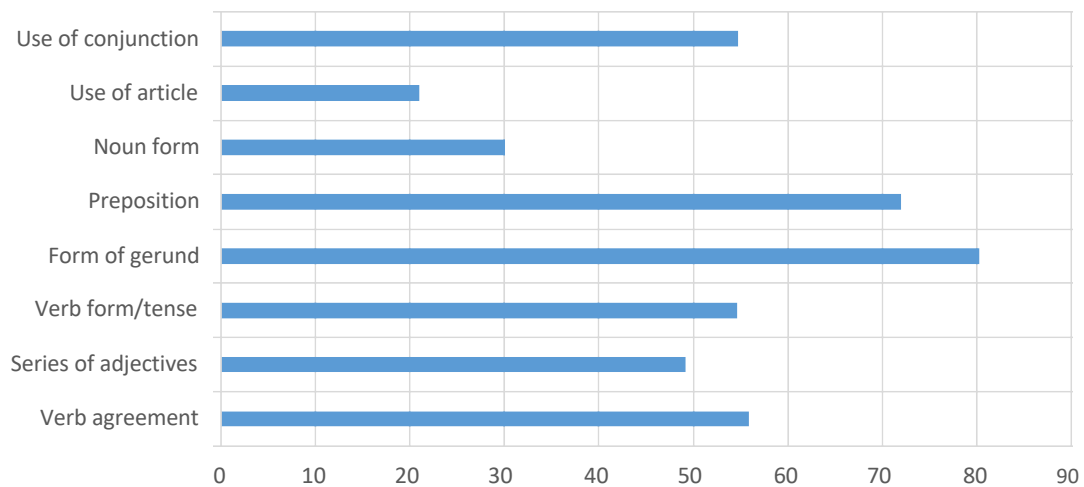


Table 7 presents the percentage of correct response in written expression of Grades 9 and 10 Science and Math teachers. Teachers are reported to perform considerably higher in forming gerunds (80%) and gained lowest scores in the use of articles (22%).

Table 8. TEPT-PST for Grade 9 and 10
Percentage of Correct Response in Reading Comprehension

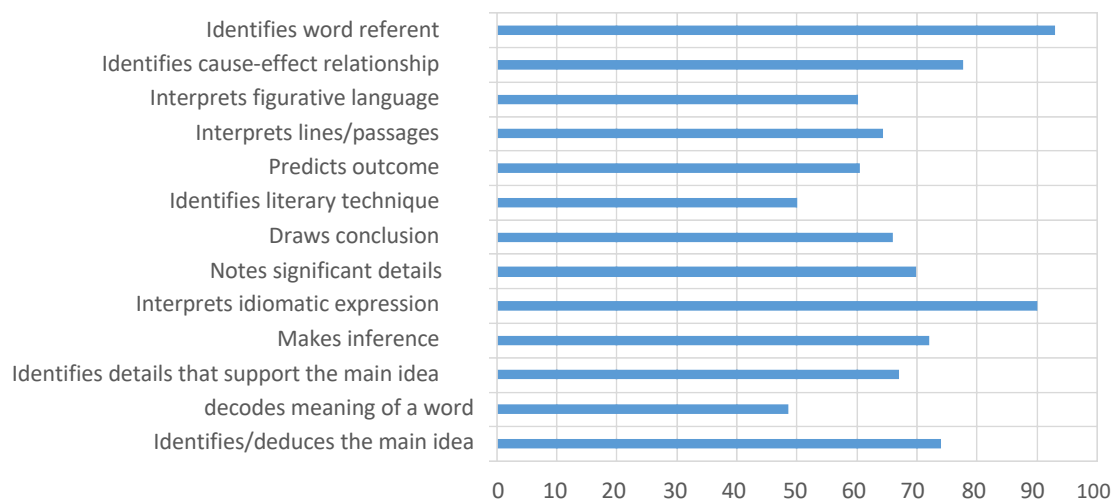


Table 8 shows the percentage of correct responses in reading comprehension of Grades 9 and 10 teachers in Science and Math. Data shows that teachers performed lowest in decoding meaning of a word (48%) and scored highest in identifying word referent (93%).

Table 9. TEPT-PST for Grade 9 and 10
Percentage of Correct Response in Process Skills

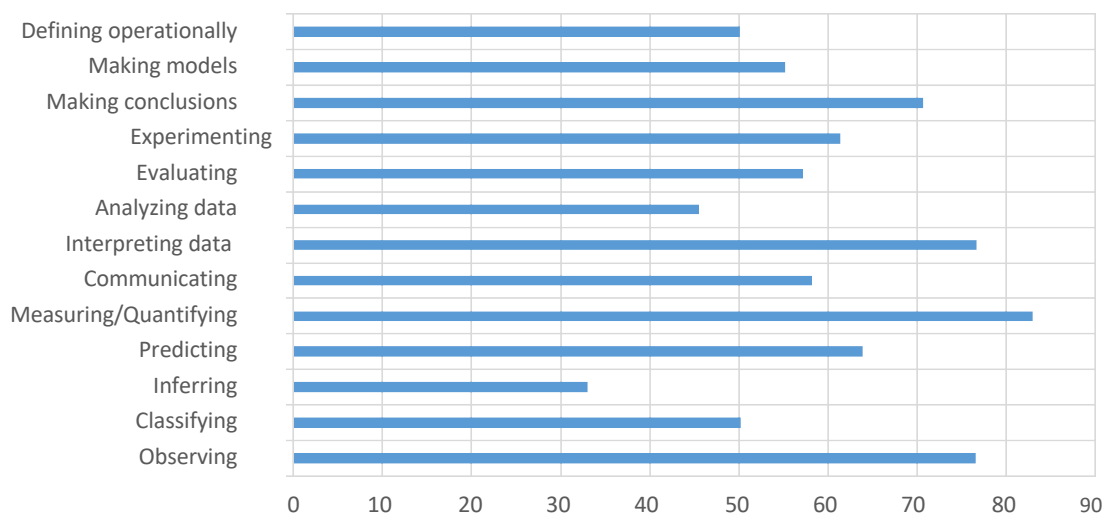


Table 9 presents the percentage of correct response in process skills of assessed teachers. Data reveal that teachers in Grades 9 and 10 perform lowest in inferring (34%) and scored highest in measuring/quantifying (83%).

This study aims to look into the teachers' scores as one measure of teacher effectiveness in the Philippine educational system. The following section discusses the results of the gathered data as regards to levels of proficiency, significant differences between performance of Grades 7-10 teachers and the pedagogical implications of these results in the Philippine education and in the ASEAN contexts.

Levels of proficiency of Grades 7-10 teachers in the TEPT-PST subtests

Sampled teachers are teachers of core subjects (English, Math, and Science), and it can be deduced that their ability to answer correctly in the TEPT-PST reflects their capabilities as effective teachers. Language plays a major part in a teacher's life. It is the instructional mechanism that makes or break teaching as constituted by language activities such as discussing to facilitate the teaching-learning process. Similarly, teachers who process information using critical thinking skills are more capable of delivering effective and quality teaching in the performance of their duties.

Significant differences between the performance of Grades 7 & 8 teachers with Grades 9 & 10 teachers in the TEPT-PST

Language facility is a teacher's best competency. Every teacher is expected to engage in communication activities including face-to-face interactions to communicate expectations of the school community members (Briscoe, Arriaza & Henze, 2009; cited in Yusof & Halim, 2014); to elicit relevant knowledge from students; to respond to things that students say; and to describe the classroom experiences that they share with students (Farrell, 2009).

In terms of language proficiency, sampled Grades 7 and 8 teachers— in general— have difficulty identifying parts of speech and using them in contexts (articles, conjunctions). For PST, Grades 7 and 8 teachers find it difficult to decode meaning of words but are proficient in interpreting idiomatic expression. Results show that teachers in the lower high school grade levels find identifying of basic parts of speech as difficult. While these encompass results with Grades 9 and 10 teachers, the ability to use language properly may be problematic in the

delivery of classroom lessons. Teachers need to revisit their foundational language lessons as corrective mechanisms in their usage of the English language.

Grades 7 and 8 teachers gained high scores in interpreting idiomatic expressions. These may be attributed to the context-dependent nature of idioms and are highly embedded in the Filipino culture. Teachers often use idioms in their teaching when they integrate values across subjects.

More often than not, results from standardized tests are not given considerable attention due to sampling issues, among others (Herman & Golan, 1993). But there are stories behind numerical data, despite big or small. Including reliability and validity of data, teacher assessment provides definite answers to some of the most trivial questions about teaching such as questions pertaining to the utilization of results and attributes of high-performing teachers.

Pedagogical implications of teacher assessment scores in relation to teacher effectiveness

The K to 12 Science and Math education in the Philippines is based on content, contexts, skills and processes, Mathematical tools and values and attitudes. Over the years, Science and Math curricula have amassed a number of challenges that compounded to its current state, including: inadequate and unavailable learning materials, shortage of specialized teachers, and downward trends in student performance in various assessment and survey reports (UNESCO, 2015). The instructional areas of language proficiency and process skills tested in the TEPT-PST provide an outlook of how teachers perform in these aspects.

In the pedagogical context, the job of a modern teacher is not constricted to the concept of knowledge. Besides teaching, modern teachers have several platforms to expose their students to a variety of context-based situations where they can do something about what they know. This is where 21st skills are best situated in which language proficiency and process skills align. In gaining low scores in written expression (subtest) and fundamental competencies such as identification of parts of speech and decoding of a meaning of a word, it can be determined that teachers need assistance. More too often, the offered perspectives to the curricula and training approaches that are far-removed from what classroom teachers actually need. It can be logically derived that the assessed Science and Math high school teachers also need intervention activities in delivering instruction. Science and Math are inquiry-based subjects, and they are heavily laden on critical thinking. For instance, in Mathematics, solving word problems with lacking skill in interpretation through written form is a "perceived disconnect between school mathematics and everyday life" (DOST-SEI, 2011). Academic subjects like Science, Mathematics, and English often requires the use of language functions (Racca & Lasaten, 2016). The challenge for 21st-century teachers is to provide their students with opportunities that are context-dependent and incorporates the idea of doing something productive about what one knows.

The current educational state in the ASEAN region, which includes the Philippines, forefronts on the language-in-policy efforts to provide media for the exchange of human resources within the region. Considering the results culled from this study, it can be gleaned that the majority of Filipino teachers have a lot of work to do in order to catch up. While we glorify our fluency in English as compared to our ASEAN neighbors, our education system needs to emphasize on matters of teacher effectiveness that derived quality and excellent results by alleviating the status of teacher quality in the Philippines.

References

- Archer, J. (1998). The link to higher scores. *Education Week*, 18(5), 10-21.
- Bacher-Hicks, A., Chin, M., Kane, T. J., & Staiger, D. O. (2015). *Validating Components of Teacher Effectiveness: A Random Assignment Study of Value-Added, Observation, and Survey Scores*. Society for Research on Educational Effectiveness.
- Boyd, D. J., Grossman, P. L., Lankford, H., Loeb, S., & Wyckoff, J. (2009). *Teacher preparation and student achievement. Educational Evaluation and Policy Analysis*, 31(4), 416-440.

- Department of Education-Bureau of Education Assessment. Report Card: Teacher's English Proficiency Test and Process Skills Test for Grade 1 to Grade 10. (2018).
- Department of Education. National Education Testing and Research Center. (2002). Teacher Effectiveness Indicators.
- Briscoe, F., Arriaza, G., & Henze, R. C. (2009). *The power of talk: How words change our lives*. Corwin Press.
- Cummins, J. (1984). Language proficiency and academic achievement revisited: A response. DOCUMENT RESUME ED 240 882 FL 014 259 AUTHOR Rivera, Charlene, Ed. TITLE Language Proficiency and Academic Achievement. *Multilingual Matters* 10., 400, 90.
- Department of Education Memorandum No. 127 s. 2016. Administration of Test of English Proficiency for Teachers and Process Skills Test in Science and Mathematics for Grades 7 and 8 Public School Teachers.
- Fong-Yee, D., & Normore, A. H. (2013). *The impact of quality teachers on student achievement*.
- Andrew, M. D., Cobb, C. D., & Giampietro, P. J. (2005). *Verbal ability and teacher effectiveness*. *Journal of teacher education*, 56(4), 343-354.
- Glazerman, S., & Protik, A. (2015). Validating value-added measures of teacher performance. Unpublished manuscript.
- Greenwald, R., Hedges, L. V., & Laine, R. D. (1996). *The effect of school resources on student achievement*. *Review of educational research*, 66(3), 361-396.
- Hanushek, E. (1971). *Teacher characteristics and gains in student achievement: Estimation using micro data*. *The American Economic Review*, 61(2), 280-288.
- Haycock, K. (1998). Good Teaching Matters: How Well-Qualified Teachers Can Close the Gap. *Thinking k-16*, 3(2), n2.
- Heck, R. H. (2009). *Teacher effectiveness and student achievement: Investigating a multilevel cross-classified model*. *Journal of Educational Administration*, 47(2), 227-249.
- Herman, J. L., & Golan, S. (1993). *The effects of standardized testing on teaching and schools*. *Educational measurement: Issues and practice*, 12(4), 20-25.
- Kane, R. G., & Francis, A. (2013). *Preparing teachers for professional learning: is there a future for teacher education in new teacher induction?*. *Teacher Development*, 17(3), 362-379.
- Kane, T. J., & Staiger, D. O. (2002). *The promise and pitfalls of using imprecise school accountability measures*. *Journal of Economic perspectives*, 16(4), 91-114.
- Pascual, N. T. (2014). *Impact of Mathematics and Science Instructional Practices, Curriculum and Academic Achievement to the Career Choice of Laboratory School Graduates of University of Rizal System-Morong*. *International Journal of Sciences: Basic and Applied Research*, 15(1), 397-415.
- Racca, R. M. A. B., & Lasaten, R. (2016). *English language proficiency and academic performance of Philippine science high school students*. *International Journal of Languages, Literature and Linguistics*, 2(2), 44-49.
- Rahman, F., Jumani, N. B., Akhter, Y., Chisthi, S. U. H., & Ajmal, M. (2011). *Relationship between training of teachers and effectiveness teaching*. *International Journal of Business and Social Science*, 2(4).
- Rotherham, A. J., & Mead, S. (2003). Teacher quality: Beyond no child left behind. A response to Kaplan and Owings (2002). *NASSP Bulletin*, 87(635), 65-76.
- Rowan, B., Chiang, F. S., & Miller, R. J. (1997). Using research on employees' performance to study the effects of teachers on students' achievement. *Sociology of Education*, 256-284.
- Sehgal, P., Nambudiri, R., & Mishra, S. K. (2017). *Teacher effectiveness through self-efficacy, collaboration and principal leadership*. *International Journal of Educational Management*, 31(4), 505-517.
- Strauss, R. P., & Sawyer, E. A. (1986). *Some new evidence on teacher and student competencies*. *Economics of Education Review*, 5(1), 41-48.
- UNESCO, G. (2015). Education for all 2000–2015: Achievements and challenges. EFA Global Monitoring Report, 500.
- Wayne, A. J., & Youngs, P. (2003). *Teacher characteristics and student achievement gains: A review*. *Review of Educational research*, 73(1), 89-122.
- Yusof, F. M., & Halim, H. (2014). *Understanding teacher communication skills*. *Procedia-Social and Behavioral Sciences*, 155, 471-476.