Volume 14 • June 2020
Print ISSN 2244-1824 · Online ISSN 2244-1816
DOI:https://doi.org/10.7719/irj.v14i1.7802

JPAIR Institutional Research is produced
by PAIR, an ISO 9001:2008 QMS certified
by AJA Registrars, Inc.

The Pedagogical Content Knowledge of the School of Education Pre-Service Teachers in Test Construction

RONALD M. QUILESTE
http://orcid.org/0000-0002-6388-1445
ronald.m.quileste@gmail.com
Xavier University – Ateneo de Cagayan
Corrales Avenue, Cagayan de Oro City, Philippines

LORIE ANNE SOCORRO R. MORENO
http://orcid.org/0000-0002-3817-5315
lorieannemoreno@gmail.com
Xavier University – Ateneo de Cagayan
Corrales Avenue, Cagayan de Oro City, Philippines

Originality: 100% • Grammarly Score: 95% • Plagiarism: 0%

ABSTRACT

Pre-service teachers, as part of their training, are called to demonstrate skills in selecting, developing, applying, using, communicating, and evaluating their future students' assessment information and assessment practices. The study sought to determine the pedagogical content knowledge of pre-service teachers in test construction. The study employed a descriptive research design and was conducted in the School of Education at Xavier University. The sampling method used is simple random sampling and made use of Cochran's formula of estimation for getting the sample size. The results showed that the pre-service teachers have "Fair" pedagogical knowledge in the essentials of test construction and need to improve in writing instructional objectives and constructing the

table of specifications. However, they have "Good" pedagogical knowledge in the majority of the objective-type tests, except in the construction of completion and multiple-choice test items. The results also showed that there is no significant difference between the respondents' pedagogical content knowledge in the preliminaries or the essentials of test construction when grouped according to their undergraduate program. Also, there is no significant difference with the respondents' pedagogical content knowledge in the construction of objective-type tests when grouped according to their Undergraduate Program.

Keywords **—** Assessment of learning, pedagogical content knowledge, essentials of test construction, objective-type test, descriptive design, Philippines

INTRODUCTION

One important aspect in the field of education is assessment. It is one of three areas in the teaching-learning process, along with learning objectives and teaching strategies. The significance of assessments in a school system is ample since it is the means by which any meaningful educational goals are achieved (Hamafyelto, Hamman-Tukur, and Hamafyelto, 2015). In Teacher Education Institutions (TEIs), pre-service teachers are trained not only in designing effective objectives and using appropriate teaching strategies but also in constructing efficient assessments. Teachers' competence is specified by standards for educational assessment of students as adopted by UNESCO (UNESCO, 1990). The standards express specific expectations for assessing knowledge or skills that teachers should possess in order to perform well in their evaluation effort (Ololube, 2005).

Assessment in Education has been part of the undergraduate program for teacher education in the Philippines. One of the two areas in assessment is the course Assessment of Learning 1, which covers equipping the pre-service teachers' pedagogical content knowledge on constructing pen and paper tests both taking Bachelor in Elementary Education and Bachelor in Secondary Education (CMO nos. 74 and 75, series of 2017). This is also classified as a prerequisite professional education course.

In the School of Education of Xavier University – Ateneo de Cagayan, for the past five years, there were limited studies conducted specifically on the pre-service teachers' pedagogical and content knowledge on test construction. In addition, there few records of the evaluation conducted to test the efficiency level

of the pre-service teachers in terms of test construction after the Assessment of Learning 1 course. Since these pre-service teachers are in the third year and the next school year will be their internship in real schools, it is vital to know their ability level in creating valid and reliable pen and paper tests. This will help to identify their strengths and weaknesses, so intervention can be applied. These reasons prompted the researchers to conduct the study.

FRAMEWORK

This study is anchored on Lee Shulman's (1987) theory on Pedagogical Content Knowledge (PCK). Pedagogical content knowledge is defined as a construct that represents a separate domain of knowledge for teaching. Constructed through the processes of careful planning, reflection, and teaching specific subject matter, PCK represents the knowledge that results from a transformation of other domains of knowledge – a summation that is more than the sum of its parts (Magnusson, Krajcik, & Borko, 1999). A teacher's pedagogical content knowledge is reflected in the teaching acts that represent a course's central concepts, skills, and recent advances through a variety of means, such as class discussions, activities, and learning assessments (Van Driel & Berry, 2010). According to the theory, teachers become more effective as they repeatedly engage in these teaching acts and find out what is easiest and most difficult for their students and modify their teaching accordingly.

In this study, if the pre-service teachers show favorable results in a given summative assessment of their learning, specifically on the essentials of test construction and objective type tests (after a certain period of topic discussion, demonstration, and facilitation), then they have established sufficient pedagogical content knowledge of those key concepts. Assessment of Learning 1 is offered as a third-year level course. The pre-service teachers will be the respondents of the study area in the mentioned level. The key concepts under the essentials of test construction (Assessment, Measurement and Evaluation, Principles of High-Quality Assessments, Writing Instructional Objectives, Classifying Instructional Objectives under the Cognitive Domain of the Bloom's Taxonomy, Classifying Instructional Objectives under the Affective Domain, and Constructing Table of Specifications) are topics taken from the existing course syllabus for Assessment of Learning 1. These are concepts that the pre-service teachers have to put in mind in preparation for test construction. Pre-service teachers have to master these so they will develop the reason, purpose for conducting, and selecting

appropriate assessments. The kinds of objective type tests introduced to the pre-service teachers are Completion and Short Answer Type tests, Multiple Choice tests, True-False/Alternate Choice tests, and Matching Type tests. These concepts were facilitated to them through lectures and discussion of the desired qualities in constructing them in classroom demonstration and portfolio entries (Raagas, 2015).

OBJECTIVES OF THE STUDY

This study determined the pedagogical content knowledge of the pre-service teachers in test construction: Specifically, this research is guided with the following objectives: 1) to identify the profile of the respondents according to their undergraduate program; 2) to determine the pre-service teachers' pedagogical content knowledge in the following Essentials of Test Construction, particularly: A) Assessment, Measurement and Evaluation, B) Principles of High Quality Assessments, C) Writing Instructional Objectives, D) Classifying Instructional Objectives Under the Cognitive Domain of the Bloom's Taxonomy, E) Classifying Instructional Objectives Under the Affective Domain, F) Constructing Table of Specifications; and Objective Type Tests concepts in test construction namely: G) Completion and Short Answer Type tests, H) Multiple Choice tests, I) True-False/Alternate Choice tests, J) Matching Type tests?; and 3) to determine the significant difference of the pre-service teachers' pedagogical content knowledge in test construction when grouped according to their Undergraduate Program.

METHODOLOGY

Research Design

A descriptive research design was used in this study. According to Best and Khan (2006), descriptive research involves some type of contrast and comparison and attempts to discover relationships between existing non-manipulative variables. In addition, it emphasizes what exists, such as current conditions, problems, situations, or any phenomenon. This method is appropriate for this research as it involves the determination of the pre-service teachers' pedagogical content knowledge in test construction. In addition, the descriptive research also deals with the relationships that exist between the independent variable: an undergraduate program of the respondents, and the dependent variables: pedagogical content knowledge on essentials of test construction and objective type tests.

Research Site

The research was conducted at Xavier University – School of Education. The School of Education is a PAASCU (Philippine Accrediting Association of Schools, Colleges, and Universities) accredited school with a Level IV Accreditation Status.

Participants

The respondents of the study are the third-year pre-service teachers of the School of Education at Xavier University – Ateneo de Cagayan. The sampling procedure employed in the study was simple random sampling. Given the population of 180 pre-service teachers aged 19-20 years old, a sample size of 48 was taken randomly using the Cochran formula. They will be selected from both from the two undergraduate programs, namely Bachelor in Elementary Education (BEEd) and Bachelor in Secondary Education (BSEd).

Instrumentation

The instrument used was a teacher-made test. The test paper is constructed with the support of a Table of Specifications. The test paper, along with the TOS, is approved by the Dean for pilot-testing. The main reference book used in the construction of the instrument is titled, Assessment and Evaluation of Student Learning (4th. ed.) by Dr. Ester Raagas. The objectives of the topics are taken from the course syllabi. The instrument has been pilot tested to third-year students who were not included in the list of respondents. The internal consistency reliability Kuder-Richardson 20 (KR20) was used for getting the reliability score (r-value). The r-value of the instrument is 0.84, which is described as "Moderate Reliability."

The researchers have submitted a letter of permission to the Dean of the School of Education to conduct the study, and it was approved. The researchers then submitted the Table of Specifications and research instrument to the Dean and were also approved. The researchers will inform ahead of the third year pre-service teachers and will set a one-hour schedule with each undergraduate program for the data collection. The researchers also prepared a consent form for the respondents patterned from the Institutional Research Ethics Board (IREB) of Xavier University. This will provide assurance of confidentiality of data and that the respondents' involvement in this study is voluntary; thus, they are free to withdraw consent anytime and to withdraw any unprocessed data previously supplied. Also, data access, storage, and security will be executed at the designated XU School of Education Research Faculty Area. The information

on the findings or outcomes of this proposed study will be disseminated to faculty and students, in particular of the third year pre-service teachers through the School of Education Undergraduate Research Summit 2018 in coordination with the Arrupe Center (SOE Office of Social Development). Furthermore, the participants had the option to be informed and referred to by pseudonyms in any publication arising from the research.

Statistical techniques

The following statistical treatments employed in the study are frequency and percentages for describing the test scores of the respondents in the given topic areas; and t-test for determining the significant difference of the pre-service teachers' pedagogical content knowledge in test construction when grouped according to the undergraduate program.

RESULTS AND DISCUSSION

Table 1 displays that there are more pre-service teachers enrolled under the BSED Program than the BEED Program. This shows that there are more pre-service teachers whose majors are varied, namely: English, Math, Filipino, Biological Science, and Social Science; while few pre-service teachers prefer to take Elementary Education major in either Preschool or Special Education.

Table 1. Profile of the Pre-service teachers according to their Undergraduate Program (n=48)

Program	Frequency	Percentage
Bachelor of Elementary Education (BEED)	14	29.17%
Bachelor of Science in Secondary Education (BSED)	34	70.83%
Total	48	100.00%

Table 2 shows that the pre-service teachers have Good pedagogical knowledge in the Essentials of Test Construction. Overall, the pre-service teachers scored "Fair" (m= 1.93) in their assessment of their knowledge of the essentials for test construction. The majority of the pre-service teachers scored "Good" (m=2.52) in the topic of Classifying Instructional Objectives in the Cognitive Domain. They have struggled most in the area of Writing Instructional Objectives and got a "Poor" score (m=1.27). It also shows the "Poor" results in the topics of Writing

Instructional Objectives (m=1.27) and Constructing the Table of Specifications (m=1.58).

Table 2. Pre-service teachers' pedagogical content knowledge in the Essentials of Test Construction (n=48)

	A		B		C		D		E		F		Overall
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	
VG (4)	9	18.75	16	33.33	2	4.17	21	43.75	10	20.83	9	18.75	
G(3)	26	54.17	16	33.33	11	22.92	22	45.83	19	39.58	17	35.42	
F (2)	11	22.92	13	27.08	32	66.67	2	4.17	13	27.08	22	45.83	
P (1)	2	4.17	3	6.25	3	6.25	3	6.25	6	12.50	0	0.00	
	48	100	48	100.	48	100.	48	100.	48	100.	48	100.	
Mean		2.00		2.06		1.27		2.52		2.13		1.58	1.93
SD		0.85		1.12		1.07		0.68		1.08		0.96	0.44
Description		Fair		Fair		Poor		Good		Fair		Poor	Fair

Table 2 shows that pre-service teachers have Fair pedagogical knowledge in the Objective Type Tests. Overall, the pre-service teachers scored "Fair" (m=2.36) in their assessment of their knowledge of constructing objective-type tests. The majority (43.75%) of the students scored (m=3.06) "Good" in the topic of Completion and Short – Answer Items. However, they scored "Poor" (m=1.44) in the topic of Constructing Multiple – Choice Test Items.

Table 3. Pre-service teachers' pedagogical content knowledge in the Objective Type Tests (n=48)

	G		H		I		J		Overall
	Freq	%	Freq	%	Freq	%	Freq	%	
VG (4)	21	43.75	2	4.167	19	39.58	11	22.92	
G(3)	9	18.75	21	43.75	13	27.08	18	37.5	
F (2)	2	4.167	24	50	13	27.08	5	10.42	
P (1)	16	33.33	1	2.083	3	6.25	14	29.17	
	48	100	48	100	48	100	48	100	
Mean	3.06		1.44		2.25		2.69		2.36
SD	0.84		0.87		0.93		1.06		0.70
Description	Good		Poor		Fair		Good		Fair

Table 3 shows the overall mean of the scores of the pre-service teachers' pedagogical content knowledge in test construction. The result shows that overall, the pre-service teachers have "Fair" (m=2.15) pedagogical content knowledge in their ability to construct tests. This can be attributed to the "Fair" scores of their pedagogical content knowledge in the essentials (m=1.93) and the Construction of Objective-Type Tests (m=2.36).

Table 4. Overall Mean of the Pre-Service Teacher's Pedagogical Content Knowledge on Test Construction

A - F	G - J	Overall
1.93 (Fair)	2.36 (Fair)	2.15 (Fair)

Table 4 shows the distribution of Test of Statistics on the Significant Difference in the pre-service teachers' pedagogical content knowledge in the Essentials of Test Construction when grouped according to their Undergraduate Program. The results in the table show that there is no significant difference with the respondents' pedagogical content knowledge in the Essentials of Test Construction when grouped according to their Undergraduate Program. Therefore, do not reject Ho. In the area of the introductory knowledge in Assessment and Measurement, there is a significant difference.

Table 5. Distribution of Test of Statistics on the Significant Difference in the pre-service teachers' pedagogical content knowledge in the Essentials of Test Construction when grouped according to their Undergraduate Program

Concept	Undergraduate Programs				T-value
	BEED	Desc	BSED	Desc	
A. Assessment Evaluation and Measurement	2.50	F	1.79	F	2.80 *
B. Principles of High Quality Assessment/Frames of Reference	2.00	F	2.09	F	-0.20 ns
C. Writing Instructional Objectives	2.00	F	1.79	F	0.78 ns
D. Classifying Objectives Under Bloom's Taxonomy (Cognitive)	2.64	G	2.47	F	0.79 ns
E. Classifying Objectives Under Bloom's Taxonomy (Affective)	2.50	F	1.97	F	1.56 ns
F. Constructing of Table of Specifications (TOS)	1.50	P	1.62	P	-0.40 ns
Overall	2.19	F	1.96	F	1.09 ns

*Note: p<0.001***

Table 5 shows the distribution of Test of Statistics on the Significant Difference in the pre-service teachers' pedagogical content knowledge in the Objective Type Tests when grouped according to their Undergraduate Program. The results in the table show that there is no significant difference with the respondents' pedagogical content knowledge in the Objective Type Tests when grouped according to their Undergraduate Program. Therefore, do not reject Ho. There is a significant difference in the area of Completion and Short- Answer Item Tests.

Table 6. Distribution of Test of Statistics on the Significant Difference in the pre-service teachers' pedagogical content knowledge in the Objective Type Tests according to their Undergraduate Program

	Undergraduate Programs				
Type of Test	BEED	Desc	BSED	Desc	T-value
G. Completion and Short- Answer Item Tests	3.43	G	2.91	G	2.01 *
H. Multiple-Choice Item Tests	1.57	P	1.38	P	0.68 ns
I. True or False/Alternate Choice or Binary Choice Tests	2.29	F	2.24	F	0.17 ns
J. Matching Type Tests	2.79	G	2.65	G	0.41 ns
Overall	2.52	G	2.30	F	0.44 ns

*Note: p<0.001***

To look into the pedagogical content knowledge of the pre-service teachers in test construction, this study is guided by the following objectives: 1) to identify the profile of the respondents according to their undergraduate program; 2) to determine the pre-service teachers' pedagogical content knowledge in the following Essentials of Test Construction, particularly: A) Assessment, Measurement and Evaluation, B) Principles of High Quality Assessments, C) Writing Instructional Objectives, D) Classifying Instructional Objectives Under the Cognitive Domain of the Bloom's Taxonomy, E) Classifying Instructional Objectives Under the Affective Domain, F) Constructing Table of Specifications; and Objective Type Tests concepts in test construction namely: G) Completion and Short Answer Type tests, H) Multiple Choice tests, I) True-False/Alternate Choice tests, J) Matching Type tests?; and 3) to determine the significant difference of the pre-service teachers' pedagogical content knowledge in test construction when grouped according to their Undergraduate Program.

Results of the study also show that the pre-service teachers are generally good in classifying objectives under the cognitive domain of Bloom's taxonomy, but poor in writing instructional objectives and table of specifications.

Results imply that students are good at factual, conceptual, procedural, and metacognitive knowledge. Labeled factual knowledge may include terminology of the discipline or knowledge of specific details, discrete facts, and basic elements that students are to know about a specific subject field. Conceptual knowledge is on classifications, categories, principles, generalizations, theories, models, and structure. It involves figuring the interrelationships out among the

basic elements within a larger structure, enabling them to function together. Procedural knowledge is about how to do something, and it includes methods of inquiry, criteria for using skills, algorithms, techniques, and methods. Lastly, metacognitive knowledge is on cognition in general as well as awareness and knowledge of one's own cognition. Knowledge about one's own thinking involves knowing tasks, conditions, and circumstances (Anderson, 2005).

This result is also attributed to the way the teacher allows learners to show comprehension of the meaning of information found in different learning materials that they encounter by paraphrasing it in their own words, classifying items in groups, comparing and contrasting items with other similar entities, or explaining a principle to others. Comprehension requires more cognitive processing than simply remembering, information, and learning objectives (Adams, 2015).

On the other hand, the Poor results in writing instructional objectives would contribute to the complication in writing instructional objectives, wherein some rules need to be followed such as the ABCD format, which refers to Audience, Behavior, Condition, and Degree; SMART Guideline, which means Specific, Measurable, Attainable, Realistic and Time-bounded; Integration of Bloom's Taxonomy, Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation; Classification of Objectives according to Knowledge, Skills, Attitude or Cognitive, Affective, Psychomotor.

In teaching students to write instructional objectives, the students are taught to identify specific goals and objectives for each subject or lesson, systematically gauge the extent to which these anticipated outcomes actually occur, and determine to what degree learning takes place. Students were shown the taxonomy pyramid and verbs associated with each level. They were also trained on verbs to avoid and give examples of SMART goals. To achieve SMART goals, students must be precise about desired outcomes, quantify objectives using Bloom's taxonomy, ensure realistic expectations, align with practice and/or organizational goals, and state when the goal will be achieved. It provides a means by which teachers can develop a more complete understanding of specific objectives and use this understanding to improve instruction and assessment (Anderson, 2005). In this study, students may not be given sufficient direction to make them capable of writing SMART learning objectives. In most cases, students struggled with writing measurable objectives. Thus, the practice of writing SMART learning objectives can lead students to form a habit of reflecting and planning prior to teaching demonstrations, which may eventually evolve

in their teaching practice after graduation (Tofade, Khandoobhai, & Leadon, 2012).

Also, the Poor result in Constructing Table of Specifications is attributed to the sequence, which requires a certain rigid process that involves counting the number of instructional hours, deciding on the total number of test items, and allocating the number of items adhering to the levels of difficulty and the topics covered for the semester (Raagas, 2015).

This is supported by Notar, Zuelke, Wilson, & Yunker (2004), noting that a Table of Specifications is developed before the test is written. It requires considerable time and effort to develop. While the process is time-consuming, the effort that goes into the development of a table of specifications also makes it much easier to prepare the test once the plan is developed.

Findings also show that pre-service teachers generally have Fair knowledge in constructing objective type tests. They have Good knowledge in Completion and Short Answer Type Test, but Poor in Multiple Choice Type of Test.

Research evidence indicates that pre-service teachers' competency in test construction is below expectations (Nenty, Adedoyin, Odili, & Major 2006). This result is supported by Voss (2014), wherein they found that levels of assessment skills remained relatively low for teacher candidates across the years of the teacher education programs.

This can be attributed to the prevailing teaching/learning environment, such as large class size (Ali, 2005; Wosyanju, 2005), which in turn puts pressure on the teachers, who operate within tight schedules. Asim, Ekuri, & Eni (2013) also attributes this to inadequate pre-service teacher preparation. They maintain that brief exposure to retraining for the purpose of improving testing skills may not adequately equip teachers to meet the challenges of assessment for learning and assessment of learning.

Moreover, the pre-service teachers in the study possess "Good" knowledge in Completion and Short-Answer Item Tests. This is the easiest to construct among the other Objective Type Tests, while Multiple-Choice Item Tests are one of the most difficult to construct Objective Type Tests that follow many guidelines (Raagas, 2015) and require a high level of reasoning (Nenty, Adedoyin and Odili, 2006). The results of the study indicated that students possess limited abilities to think at higher levels of cognition. This research finding tends to support the fact that students generally demonstrate a deficiency in tasks requiring high-level cognitive functioning, as evident in the knowledge construction of multiple-choice tests.

The use of short-answer tests is popular. Short-answer tests are used more often and are more effective with lower-level types of learning. They have certain qualities, such as they are relatively easy to prepare and scored more quickly. However, they are not objective like multiple-choice tests and cannot adequately test students who have read the subject well (Ramraje & Sable, 2011).

Multiple-choice questions are of three different types: incomplete-statement type (IQT), direct-question type (DQT), and best-answer type (BAT). In the IQT, incomplete statements are presented, and examinees are required to select the answer that makes the statement correct. In the DQT, the stem consists of a direct question that has just one absolutely correct answer. Here questions center on facts dealing with what, when, where, or who. However, the BAT requires finer discriminations among the alternative solutions to the problem posed in the stem Trammell, 2011), which essentially places a high premium on framing plausible distracters and ensuring that items focus on higher-order cognitive skills. By its nature, BAT measures complex learning outcomes and so tends to require high-level cognitive functioning. In this type, the examinee needs the understanding, application, or interpretation of factual information to be able to select the correct response. Thus, the teacher-examiner has to bear this fact in mind while constructing the BAT. Patience and commitment are required in successfully developing this item type. It is, therefore, more likely that these types of questions will pose difficulty in constructing (Asim, Ekuri, & Eni, 2013; Lynch, 2010).

For the Overall knowledge in Objective Type Test, results show the pre-service teachers' "Fair" knowledge in test construction despite completing courses in classroom assessment. Knowledge in Test construction is a vital part of pre-service teachers' preparation because it allows them to monitor student progress and document their effect on student learning. This deficiency in the test construction knowledge of Objective type test of pre-service teachers may be attributed to the lack of teacher preparation programs to optimize opportunities to promote the development of assessment-literate teachers (Alkharusi, Aldhafri, Alnabhani, & Alkalbani, 2012). These pre-service teachers are not well-prepared to assess student learning due to inadequate pre-service training in the area of educational measurement (Stiggins, 2001). In terms of testing the variation in the pedagogical content knowledge in the Essentials of Test Construction when grouped according to their Undergraduate Program, there is a significant difference in the area of the introductory knowledge in Assessment and Measurement. This may be attributed to the different approaches of these two groups of learners

towards the course, wherein the pre-service teachers under the BEED Program have higher scores due to their taking of notes in class, participating actively, or ask questions during discussions and practicing study skills. These skills help them retain information and be clarified with their confusion regarding the subject matter. These strategies may then have resulted in students' better learning in this area, while the pre-service teachers under the BSED Program have attacked the course in a different way.

Note-taking is the act of writing down key information for the purpose of preserving lecture points for later study (Boyle & Weishaar, 2001). Note-taking involves the acquisition, filtering, and organization of incoming sources. Note-taking skills are a specific teaching-learning strategy that requires the ability to distinguish between important and non-important information one hears during the lecture and the subsequent recording of such information for future review (Stroud & Reynolds, 2006). Also, students who had access to a good set of notes and spent their study time concentrating on studying these notes performed higher than students who had access to a good set of notes but spent their study time inefficiently and were unable to concentrate (Nonis, and Hudson, 2010).

Lastly, in terms of testing the variation in the pedagogical knowledge on test construction of the objective type of test when grouped according to their undergraduate program, there is a significant difference in constructing Completion and Short Answer type oftest. The purpose of this type of test is for memory enhancement, which belongs to lower-order thinking skills in Bloom's Taxonomy. This doesn't mean that BEED pre-service teachers are only good in this aspect. It means that the nature of assessments in the field of preschool and elementary education falls under mastery, drills, and memory tests. The latter is applicable for short-answer and completion type tests. This then resulted in pre-service teachers under the BEED Program creating tests that assess for low order thinking skills such as reading skills, simple recall, knowledge level for basic concept mastery and comprehension; while pre-service teachers under the BSED Program no longer see the importance of these because the nature of their field is about creating tests for high order thinking skills of learners based on the difficulty level of the content knowledge of the subject matter they are teaching (Alfaki, 2014).

Pre-service teachers under the BEED Program are encouraged to develop the reading and comprehension skills of their learners, which may be measured using a Completion and Short Answer Type of Test. Reading comprehension skills is crucial for learners to develop. The lack of reading comprehension means

flawed reading. The basic aim of reading is to obtain data from the document being read. In order to do this, the reader needs to be able to deal with the script properly to elicit meaning from it. For achieving this, readers should use several comprehension skills to assist them in getting meaning from reading documents. In terms of teaching assessment, these pre-service teachers are exposed to more language books, typically to provide learners with reading passages. These passages present new vocabulary and try to improve reading comprehension skills by asking learners to read the document and then to answer some questions to see if they have comprehended the text (Alfaki, 2014).

Also, regardless of their undergraduate program, there is no significant difference in the pre-service teachers' pedagogical content knowledge in terms of both essentials of test construction and the construction of objective-type tests. The results imply that the pre-service teachers need more training and time to learn these concepts and also because of the rigidity of the nature of the course (Nenty, Adedoyin, & Odili 2006).

CONCLUSIONS

In conclusion, the pre-service teachers' pedagogical knowledge in the essentials of assessment and test construction of the objective type of test is below satisfactory. Relative to the theory of Pedagogical Content Knowledge (PCK), there is a limited time of engagement in the teaching-learning process. Furthermore, it can be concluded that in this study, Shulman's theory on Pedagogical Content Knowledge (PCK) is not fully manifested in practice at this particular teacher education institution.

LITERATURE CITED

Adams, N. E. (2015). Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association: JMLA*, *103*(3), 152. Retrieved from doi: 10.3163/1536-5050.103.3.010

Alfaki, I. M. (2014). Sudan English language syllabus: Evaluating reading comprehension questions using Bloom's taxonomy. *International Journal of English Language Teaching*, *2*(3), 53-74. Retrieved from https://goo.gl/Z1X4Cw

Alkharusi, H., Aldhafri, S., Alnabhani, H., & Alkalbani, M. (2012). Educational assessment attitudes, competence, knowledge, and practices: An exploratory study of Muscat teachers in the Sultanate of Oman. *Journal of Education and Learning*, *1*(2), 217. Retrieved from https://goo.gl/wxQCve

Anderson, L. W. (2005). Objectives, evaluation, and the improvement of education. *Studies in educational evaluation*, *31*(2-3), 102-113. Retrieved from Anderson, L. W. (2005). Objectives, evaluation, and the improvement of education. *Studies in educational evaluation*, *31*(2-3), 102-113.

Asim, A. E., Ekuri, E. E., & Eni, E. I. (2013). A diagnostic study of pre-service teachers' competency in multiple-choice item development. *Research in Education*, *89*(1), 13-22. Retrieved from https://doi.org/10.7227/RIE.89.1.2

Best, J. W., & Kahn, J. V. (2006). Research in education, 10th. *New Delhi: PHI Learning Private Ltd.* Retrieved from https://bit.ly/2STUWis

Boyle, J. R., & Weishaar, M. (2001). The effects of strategic notetaking on the recall and comprehension of lecture information for high school students with learning disabilities. *Learning Disabilities Research & Practice*, *16*(3), 133-141. Retrieved from https://doi.org/10.1111/0938-8982.00014

Hamafyelto, R. S., Hamman-Tukur, A., & Hamafyelto, S. S. (2015). Assessing teacher competence in test construction and content validity of teacher made examination questions in Commerce in Borno State, Nigeria. *Education*, *5*(5), 123-128. Retrieved from doi: 10.5923/j.edu.20150505.01.

Lynch, D. J. (2010). Motivational Beliefs and Learning Strategies as Predictors of Academic Performance in College Physics. *College Student Journal*, *44*(4). Retrieved from https://goo.gl/DCEnqp

Magnusson, S., Krajcik, J., & Borko, H. (1999). Nature, sources, and development of pedagogical content knowledge for science teaching. In *Examining pedagogical content knowledge* (pp. 95-132). Springer, Dordrecht. Retrieved from https://doi.org/10.1007/0-306-47217-1_4

Nenty, H. J., Adedoyin, O. O., Odili, J., & Major, T. E. (2006). Primary Teachers' Perception of Classroom Assessment Practices as Means of Providing Quality Primary Education by Botswana and Nigerian Teachers. In *African*

Conference on Primary/Basic Education, University of Botswana, Garborne. Retrieved from https://goo.gl/NDVTeS

Nonis, S. A., & Hudson, G. I. (2010). Performance of college students: Impact of study time and study habits. *Journal of education for Business*, *85*(4), 229-238. Retrieved from https://doi.org/10.1080/08832320903449550

Notar, C. E., Zuelke, D. C., Wilson, J. D., & Yunker, B. D. (2004). The table of specifications: Insuring accountability in teacher made tests. *Journal of Instructional Psychology*, *31*(2), 115-130. Retrieved from https://goo.gl/5bwjBZ

Ololube, N. P. (2005). Benchmarking the motivational competencies of academically qualified teachers and professionally qualified teachers in Nigerian secondary schools. In *The African Symposium* (Vol. 5, No. 3, pp. 17-37). Retrieved from https://goo.gl/pu2AUf

Raagas, E. (2015*). Assessment & Evaluation of Student Learning: Concepts and Applications (4th Ed.)*.DATStat Analysis Center, 1399 Zone 2, Kauswagan, Cagayan de Oro City 9000, Philippines. Retrieved from https://www.slideshare.net/RonaldQuileste/authentic-assessments-and-student-learning-experiences

Ramraje, S. N., & Sable, P. L. (2011). Comparison of the effect of post-instruction multiple-choice and short-answer tests on delayed retention learning. *The Australasian medical journal*, *4*(6), 332. Retrieved from 10.4066/AMJ.2011.727

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard educational review*, *57*(1), 1-23. Retrieved from https://doi.org/10.17763/haer.57.1.j463w79r56455411

Stiggins, R. J. (2001). The unfulfilled promise of classroom assessment. *Educational Measurement: Issues and Practice*, *20*(3), 5-15. Retrieved from https://doi.org/10.1111/j.1745-3992.2001.tb00065.x

Tofade, T., Khandoobhai, A., & Leadon, K. (2012). Use of SMART learning objectives to introduce continuing professional development into the pharmacy curriculum. *American journal of pharmaceutical education*, *76*(4), 68. Retrieved from https://doi.org/10.5688/ajpe76468

Trammell, J. (2011). Accommodations for Multiple Choice Tests. *Journal of Postsecondary Education and Disability*, *24*(3), 251-254. Retrieved from https://goo.gl/22W4qK

UNESCO Guidelines on Teachers' Competence Procedures (1990). Code of Federal Regulations, Title 29, Vol 4, part 1607, Revised as of July 2009. Retrieved from http://teachercodes.iiep.unesco.org/teachercodes/guidelines/Guidelines.pdf

Van Driel, J. H., & Berry, A. (2017). Developing pre-service teachers' pedagogical content knowledge. *The SAGE handbook of research on teacher education*, *2*, 561-576. Retrieved from https://dx.doi.org/10.4135/9781529716627.n32

Voss, T. (2014). Teachers' general pedagogical/psychological knowledge: Conceptualization and test construction. Retrieved from https://goo.gl/ibD5tg

Wosyanju, M. G. (2005, September). Assessment of large classes. In *31st Annual Conference of the International Association for Educational Assessment* (pp. 4-9). Retrieved from https://goo.gl/mRRPPD