

Preservice teachers' assessment knowledge: Do teaching experiences make a difference?

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This study aimed to statistically compare preservice teachers' assessment knowledge in crafting assessment task and selecting assessment method in relation to their teaching experience. This study involved 397 preservice teachers' who were final year undergraduate students in a local university. The instrument of data collection consisted of eight superitems test. Data collected was analysed by using statistical method (SPSS version 22.0). The result showed that preservice teachers for all categories of teaching experience performed better in the selecting assessment method than crafting assessment task. However, there was no significant differences existed between the three categories of teaching experience of preservice teachers for both standards of assessment knowledge assessed.

Keywords: Assessment knowledge, preservice teacher, selecting assessment method, crafting assessment task.

Introduction

Classroom assessment has received increased attention from the professional educational assessment community in recent years (Nitko & Brookhart, 2014). Since school teachers are primarily responsible for assessing student learning, there is a widespread concern about the quality of classroom assessment. Additionally, in recent years, Malaysian government attention has shifted to the emphasis on school based assessment as the main determinant to the students' performance in learning, rather than depends solely on the result of standardized tests. Hence, there has been an increase in expectations regarding teachers' assessment knowledge and professional expertise.

While a number of researchers have argued that there are several fundamental and essential assessment principles that teachers should understand in order to develop the more quality and valid task (e.g. Calfee & Masuda, 1997; Cizek, 1997; McMillan, 2001; Nitko & Brookhart, 2014; Stiggins & Conklin, 1992), it continues to be relatively little emphasis on its application especially on the stage of crafting assessment task (Stiggins, 2000). Meanwhile, regarding the knowledge of selecting of assessment method, Stiggins et al (2004), Suah (2012), Romberg (2004) addressed some common problems faced by school teachers. Namely,

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- i. lack of knowledge in choosing the appropriate method of assessment
- ii. lack of the knowledge about the concept of assessment method
- iii. facing difficulties and challenges in selecting or adopting assessment task

Rudner and Schafer (2003) stated that a complete picture of what students understand and can do is put together in pieces comprised by different methods of assessment. Therefore, there is a need for teachers to ‘understand, select and apply’ the entire range of assessment techniques and methods appropriately, with the realization that each has advantages and limitations.

Currently, several previous studies had focused on investigating the comparison of assessment knowledge between inservice and preservice teacher. For instance, Campbell et al. (2002) and Metler (2003) revealed that the inservice teachers scored higher than their preservice counterparts. However, Rohaya and Mohd. Najid (2008) claimed that there was no significant difference between the in-service teachers’ assessment literacy level and their teaching experience. Less researched and concern, however, is the pre-service teachers’ basic assessment knowledge, namely pertaining to the competency in crafting assessment task and selecting assessment method in relation to their teaching experience. Therefore, this study examined pre-service teachers’ assessment knowledge pertaining to these both standards. Moreover, this study seeks to expand the current research on classroom assessment by examining their assessment knowledge in relation to their teaching experience.

Purpose of study

The purpose of this study was to statistically compare preservice teachers’ assessment knowledge in crafting assessment task and selecting assessment method in relation to their teaching experience.

Framework of assessing assessment knowledge

According to Nitko (2014), paper and pencil is the most common type of assessment method. It consists of selected response test and selected response test. When teacher crafting the paper and pencil test task, they need to understand the concept of various types of the test and follow the fundamental rules and standard guidelines. Therefore, in this study, the three main stages were assessed pertaining to the competency and knowledge in crafting assessment task, namely: [1] identify the type of paper and pencil test; [2] state the weaknesses of the task; and [3] revise the task

On the other hand, according to Stiggins, Arter, Chappuis, and Chappuis (2004), in all assessment development cycle, assessment planning stage involved four steps, namely, [1] determine the intended uses of an assessment, [2] identify the learning outcomes to be assessed, [3] select the proper assessment method, and [4] determine the relative importance of each learning target. They stated that the quality and valid assessments arise from clear, specific, and measureable learning outcome. In other words, the understanding of learning outcome is important because different learning outcomes require different assessment methods. At this point, teachers need to follow the three main steps as follows:

- a) List the major learning targets that the teachers will be teaching.
- b) Classify the learning outcomes into the appropriate domains.
- c) Deciding assessment method to be selected.

In this study, these three main steps of assessment planning were adapted to assess the preservice teachers' assessment literacy pertaining to the competence in selecting of assessment methods.

Methodology

This study involved 397 preservice teachers' who were final year undergraduate students. They did their education first degree program in a local university. They had completed their educational measurement and evaluation course and waited to be located to secondary schools for the teaching practical course.

In this study, the instrument of data collection consisted of eight superitems test. Combination of SOLO (Structure of the Observed Learning Outcome) model and superitem format had been developed (Collis, Romberg, and Jurdak, 1986; Lam & Foong, 1998; Wilson & Iventosh, 1988) to generate an alternative assessment framework for monitoring the growth of learner's cognitive ability in solving problems. In the superitem format, it consists of a problem situation and three different complexity levels of questions related to it. The problem situation is represented by text. While the questions represent the levels of cognitive reasoning defined by SOLO model which include unistructural, multistructural and relational. Thus, a right response to the specify level of question (three questions indicate three levels) within superitem would indicate the cognitive ability at a certain level reflected in the SOLO model.

Thus, each superitem comprised three items. All the three items in each superitem are in open-ended format. Open-ended item format might require the preservice teachers to respond with a word, a phrase, or they may require a long and complex response. Superitem 1 to superitem 4 with the total of 12 items (item 1a, 1b, 1c, 2a, 2b, 2c, 3a, 3b, 3c, 4a, 4b, 4c), assessed the samples' ability in identifying the types of paper and pencil test, detecting the weaknesses of the task and then revised it based on their knowledge of assessment fundamental principles. Superitem 5 to superitem 8 with the total of 12 items (item 5a, 5b, 5c, 6a, 6b, 6c, 7a, 7b, 7c, 8a, 8b, 8c), assessed samples' ability in identifying learning outcomes based on the information given, classifying the learning outcome into the appropriate domains and suggesting the appropriate assessment method to assess the particular learning outcomes. The data collection was administered by researchers. During the test, respondents were not allowed to talk and discuss with others. Time allocated for the test was an hour. Data collected was analysed by using statistical method (SPSS version 22.0) to investigate preservice teachers' assessment knowledge in relation to their teaching experience.

Result

Table 1 showed the mean scores of two standards of assessment knowledge investigated, namely crafting assessment task and selecting assessment method. The mean scores for each standard are based on the total of 24 scores where 0 equals the lowest score and 2 equals the highest score for each item. Result indicated that assessment knowledge of preservice teachers was demonstrated a mediocre level for both standards of assessment knowledge across the three categories of their teaching experience namely, no experience, 1 to 2 years of teaching experience and 3 to 4 years of teaching experience. On average, preservice teachers for all categories of teaching experience performed better in the second standards, namely selecting assessment method with the mean values were near to 12, compare with the first standard which the mean values were only 9.

Table 1: Rating of assessment knowledge by teaching experience

Assessment knowledge	N	Means score	Standard deviation
1. No teaching experience	78		
a. Crafting assessment task		9.13	4.33
b. Selecting assessment method		11.82	5.08
2. 1 to 2 years of teaching experience	137		
a. Crafting assessment task		9.15	3.05
b. Selecting assessment method		11.96	3.61
3. 3 to 4 years of teaching experience	182		
a. Crafting assessment task		8.96	3.07
b. Selecting assessment method		11.58	3.72

Based on the examination of the ANOVA results in Table 2, $F(2, 394) = 0.148$, $df = 2$, $p = 0.862$ for the standard 1, $F(2, 392) = 0.359$, $df = 2$, $p = 0.699$ for standard 2. It showed that $p > .05$ for both standards of assessment knowledge. The findings revealed that there was no significant differences existed between the three categories of teaching experience of preservice teachers for both standards of assessment knowledge assessed.

Table 2: One way ANOVA test between teaching experience and assessment knowledge

	Sum of Squares	df	Mean Square	F	Sig.
Standard 1					
Crafting task					
Between Groups	3.319	2	1.660	.148	.862
Within Groups	4413.230	394	11.201		
Total	4416.549	396			
Standard 2					
Selecting method					
Between Groups	11.388	2	5.694	.359	.699
Within Groups	6221.280	392	15.871		
Total	6232.668	394			

Note. * $p < .05$

Discussion and Conclusion

The preservice teachers' performance in selecting assessments method reflected the similar finding with the previous studies such as Campbell, Murphy and Holt (2002) and Melter (2003). In those studies, out of seven standards assessed, the highest mean value of preservice and inservice teachers' performance was selecting the appropriate assessment method. Nevertheless, it was obvious that the preservice teachers in this study demonstrated their poor performance in crafting assessment task. As stated by Rogers (1991) and Kahl, Hofman, Bryant (2013), generally school teachers are more concern about the day to day assessment process, less and less emphasize on the application of fundamental assessment principles in crafting the valid assessment task. Consequently, the lecturers who are expertise in this area should emphasize on the vital connection between these two standards in preparing the more quality assessment. With respect to the issue of assessment knowledge, Popham (2003) highlighted five main principles (includes both standards assessed in this study) that teachers should follow. However, research found that these principles are seldom met due to the insufficient time, less confident and public perception. On the other hand, previous studies reported that school teachers are unprepared to assess their student professionally. They often believe that they have not received sufficient training and knowledge in order to practice comfortably and confidently in school; couple with the fact that the preservice teachers demonstrated a mediocre level of their assessment knowledge in this study. Hence, the school of education or faculty of education in universities or teaching institutes may revise the appropriateness of educational assessment course in education program.

Meanwhile, comparisons of preservice teachers' assessment knowledge in relation to their teaching experience revealed no significant differences among the three categories of their teaching experience. This finding supported the research done by Rohaya & Mohd Najid (2008). Their study revealed that there was also no significant difference between the assessment literacy level and teaching experience among 501 Malaysian secondary school teachers (three categories: 1-5 years, 6-10 years and more than 10 years). These results shown that the implementation of classroom assessment in Malaysian school might predispose to rely on the traditional approaches that they had been exposed during their school life (Volante & Fazio, 2007; Popham, 2009). As Graham (2005) described that "preservice students are more likely to succumb to their apprenticeships of observation," in line with this, the school of education may seriously consider 'on job training' approach as suggested by Metler (2003). It means the preservice teachers will learn the assessment and skill through the classroom experience as a teacher. The lecturer then will be easier to guide and help the preservice teachers based on their problems and feedbacks given in the process of application of assessment knowledge.

The findings of the study enable the professional development program to be planned more effectively. Besides, the instrument can also be used by the organization under the Ministry of Education, namely schools and the State Education Department as a test of readiness in identifying the strengths and weaknesses of preservice teacher or in-service teachers' assessment knowledge in crafting assessment task and selecting assessment method. In addition, the findings can be referred to plan the measurement and evaluation course in teacher training programs.

Quality preservice teachers need to be equipped themselves with necessary skills and knowledge to correspond with the ever-changing and complexity of the school classrooms (Mohamad Termizi, 2014). The production of good quality teachers depend on the relevance and effectiveness of the current curriculum of teacher training. Hence, the curriculum must be revised and updated from time to time based on the feedback and research findings in

order to provide the quality knowledge and skills for the preservice teachers (Goh & Wong, 2015).

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