Available online at www.sciencedirect.com

SciVerse ScienceDirect

Procedia - Social and Behavioral Sciences 69 (2012) 854 – 863

Procedia
Social and Behavioral Sciences

International Conference on Education and Educational Psychology (ICEEPSY 2012)

Pre-service physics teachers' intentions toward classroom assessment

Erol Suzuk[a*], Feral Ogan-Bekiroglu[b]

[a]*Erol Suzuk, Marmara University, Ataturk Faculty of Education,Istanbul 34722 Turkey*

[b]*Feral Ogan-Bekiroglu, Marmara University, Ataturk Faculty of Education, Istanbul 34722 Turkey*

Abstract

The purpose of this study was to investigate pre-service teachers' intentions toward classroom assessment. The participants of the study were 26 pre-service physics teachers who were in their last year of the teacher education program. Survey research design was implemented for the study. Before administration of the survey instrument, the participants successfully completed the assessment course. Intentions were mainly categorized as traditional, transitional, and constructivist to examine the participants' tendency. The participants' intentions were validated with a questionnaire composed of open-ended questions. The common results from the research pointed out that pre-service teachers valued performance-based assessment and could integrate their instruction with their assessment. Therefore, it can be concluded that pre-service teachers' intention toward classroom assessment was close to constructivist.

Selection and peer-review under responsibility of Dr. Zafer Bekirogullari of Cognitive – Counselling, Research & Conference Services C-crcs.

Keywords: classroom assessment; intention; pre-service teachers.

1. Introduction

Unlike traditional assessments that require students to choose their answers, performance-based assessments require students to construct their answers (Stiggins, 1995). According to Wiggins (1993), performance-based assessments guide improvement throughout the learning process, instead of waiting to give feedback at the end of instruction. Since these assessments engage students in learning and call for thinking skills, they are consistent with cognitive theories of learning and motivation as well as societal needs to prepare students for an increasingly complex workplace (Maeroff, 1991). The National Committee on Science Education Standards and Assessment (NCSESA) specifically called for performance-based assessments. Performance-based assessments do not only evaluate student learning but also highlight opportunities for learning and instruction (Baxter, Elder, & Glaser, 1996).

Teachers play a key role in making educational reforms successful. Therefore, the successful implementation of new assessments in science education requires science teachers to acquire expertise in their design, classroom use, and evaluation (Lawrence & Pallrand, 2000). That is, building the capacity of teachers to design, use and interpret student performance data becomes a focal point of reform efforts (Whittaker & Young, 2002). According to Haney, Czerniak, and Lumpe (1996), teachers' intentions to implement science reform recommendations are very important. Since knowledge, beliefs, intents, and actions of the assessment interpreter and user are the factors that affect classroom assessment, this study focused on pre-service physics teachers' intentions to assessment.

* Corresponding author. Tel.: +90 – 505 - 577 - 8148; fax: +90 – 216 – 338 - 8060.
E-mail address: erol.suzuk@marmara.edu.tr

1877-0428
Selection and peer-review under responsibility of Dr. Zafer Bekirogullari of Cognitive – Counselling, Research & Conference Services C-crcs.
doi:10.1016/j.sbspro.2012.12.008

2. Theoretical Framework

Theoretical framework of this study was based on Tittle (1994)'s work. Tittle developed dimensions to use in thinking about assessment. The dimensions are, a) epistemology and theories about teaching and learning, curriculum, development and change; b) the knowledge, beliefs, intents, and actions of the assessment of both interpreter and user; c) assessment characteristics, including regularity in practise, format and mode, scoring, evaluation, preparation, and feedback. Therefore, constructivist epistemology, reform movements, curriculum change, requirements of educational system, students' views, and teachers' knowledge and intentions should be taken into account if assessment is an issue. This research was rooted in the second dimension by considering only pre-service teachers. Hence, this research study attempted to empirically identify pre-service teachers' intentions toward assessment.

3. Literature Review about Teachers' Intentions toward Assessment

Regarding Tittle (1994)'s dimensions, determination of teachers' intentions toward assessment is important. Frykholm (1999), for example, surveyed 26 pre-service mathematics teachers and found that one common intention was that assessment was simply another name for "grades". He added that ironically, despite their initial, general agreement that the evaluation process was fairly objective, later discussion in class revealed that the pre-service teachers held quite different views about grading when it related to their personal experiences. On the other hand, Rogers and Riedel (1999) stated that pre-service and in-service teachers thought that their purposes of assessment were to determine where a student was performing in the curriculum and in obtaining educational goals, and to enhance student performance. Lomax (1996) followed 57 elementary pre-service teachers from just before their assessment course through the completion of student teaching. His findings showed that most of these teachers relied more heavily on text-supplied tests and worksheets (66%) than on teacher-made tests (34%) and the assessments were mostly of the paper-pencil variety (85%) as compared to performance assessments (15%).

A substantial amount of research has been conducted to determine teachers' intentions toward performance-based assessments (Barko, Mayfield, Marion, Flexer, & Cumbo, 1997; Bushman & Schnitker, 1995; Cooney, Bell, Fisher-Cauble, & Sanchez, 1996; Culbertson & Wenfan, 2003; Graham, 2005; Harris & Curran, 1998; Kleinert, Kennedy, & Kearns, 1999; Kristin, Collins, Duschl, & Erduran, 1999; Lawrence & Pallrand, 2000; Lofters, 1998; Meyer & Tusin, 1999; Wolfe, Chiu, & Reckase, 1999). In order to present teachers' views about benefits and drawbacks of performance-based assessments in the international context, some research is described here with greater depth.

Bushman and Schnitker (1995), for instance, surveyed 29 professional teachers. Their findings indicated that although teachers saw portfolios as an effective means of addressing students' progress, strengths, and weaknesses, most of them identified practical problems with portfolio use, such as inadequate training and time management. By following 38 English secondary school teacher candidates across time, Graham (2005) discovered that although many pre-service teachers grew to accept performance-based assessments as valuable evidence sources indicating student learning, they recorded concerns that fell into the following five overlapping categories: designing goals; rubrics, grading and fairness; grading and motivation; validity of assessments; and time required to plan this way. After surveyed 331 teachers from Kleinert , Kentucky and his colleagues (1999) pointed out that teachers realized such benefits of performance-based assessments, and perceived positive changes in enhanced student outcomes. However, teachers expressed frustration with the amount of time required to complete assessment of portfolios. Furthermore, they had concerns over scoring reliability and the extent to which the alternative forms of assessment were more of a teacher assessment than a student assessment. Lofters (1998) conducted a study with 400 Jamaican primary school teachers and revealed that teachers had a favourable attitude towards assessment but most of them did not place enough importance on use of performance-based assessment methods in their science teaching.

The common results from the research point out that teachers value performance-based assessments for the benefits to their students and also state appreciation for the increased communication with their students. Nevertheless, teachers express frustration with the amount of time required to complete these assessment methods and concern about inadequate knowledge of how to assess their own students' learning. Crowded classrooms, lack of space, lack

of facilities and the structure of the curriculum emerge as factors that affect teachers' intentions to implement performance-based assessments.

4. Methodology

4.1 Participants and Setting

The participants of the study were 26 pre-service physics teachers who were in their last year of the teacher education program. Survey research design was used for the study. Before administration of the survey instrument, the participants completed the assessment course and passed. The assessment course was designed to cover the following main areas: diagnostic, formative and summative evaluations; curriculum alignment; reliability and validity; development and administration of teacher-made written tests; scoring rubrics and record keeping methods; and development and administration of alternative forms of assessment including informal observations and questions, performance assessments, and portfolios. Ages of the participants ranged from 22 to 24 years, and 21 were males. Anonymity was preserved by using codes for the participants (e.g., P-1 represents Pre-Service Teacher One).

4.2 Data Collection

Data were collected by using a valid and reliable instrument developed by the second author (see Ogan-Bekiroglu, 2009 for the instrument). The instrument consisted of three sections. Section I comprised 46 items distributed under the cognitive levels of assessments, such as application and reasoning; types of assessments, such as concept maps and portfolios; evaluation criteria, such as student effort and improvement; and grading subscales, such as homework. Section II measured pre-service teachers' instructional practices, such as lecture and collaborative learning with 11 items. There were 15 items in Section III assessing the internal difficulties that pre-service teachers experienced related to their assessment skills. A five-point Likert-type scale (1 = not at all, 2 = little, 3 = moderately, 4 = extensively, 5 = completely) was used in all the sections. Intentions were mainly categorized as traditional, transitional, and constructivist to examine the participants' tendency. Since some of the items in Section I represented traditional assessment intention (such as evaluation of performance compared with other students in the class, use examinations including short-answer questions, and assessment of recall of knowledge), the respondents' answers to these items were reverse scored. Hence, a high overall mean value in the scale of 1–5 represented a constructivist intention. The participants' intentions were validated with a questionnaire composed of five open-ended questions.

4.3 Data Analysis

Reliability values of the sections and the whole instrument were determined by using Cronbach's alpha formula.
Descriptive statistics were performed to determine the participants' intentions toward assessment based on the first instrument. Mean values for the items were calculated. In order to categorize intentions based on the rating scale in the Section-I, overall mean values for the subscales were calculated and then divided into five and named as follows; 1 – 1.8, traditional; 1.81 – 2.6, close to traditional; 2.61 –3.4, transitional; 3.41 – 4.2, close to constructivist; and 4.21 – 5.0, constructivist. A situation where neither traditional category nor constructivist category was dominant was considered as transitional. In other words, the notion of transition implied a movement from "traditional" intention to "constructivist" intention.

Qualitative analysis involved verbatim transcripts of the written responses. The collected data were analyzed inductively to identify themes that described the pre-service physics teachers' intentions.

4.3.1 Constructivist and Traditional Intentions toward Assessment

In order to define traditional and constructivist intentions toward assessment, it might be useful to mention how the assessment would be when it is based on traditional epistemology and constructivist epistemology.
According to Delandshere and Jones (1999), when learning is viewed as the acquisition of facts, rules, and skills, assessment is more likely to be seen as serving the function of sanction and verification: a student either has or has not learned the content. If, however, learning is thought of as a process of constant development enhanced by structured, purposeful and educational experiences, then assessment is more likely to be seen as providing

documentation and feedback. Moreover, assessment in the latter case is more likely to be viewed as an intrinsic part of learning. Wilson (1994) describes assessment in both traditional and constructivist forms. She states that while in traditional model of assessment, the primary purpose is to rank order students according to certain traits; the purpose of assessment in constructivism is to determine the nature of a student's constructions

.

> *"Traditional form of assessment tends to ask this question: Did the student master whatever objectives were set for him? Rather, a constructivist must ask this question: Where is the student in the process of constructing his knowledge about this concept?" (Wilson, 1994, p. 6).*

Therefore, the goal of assessment from constructivist epistemology is to make ever more accurate models of student thinking. She adds that "in order to produce the most valid inferences about what a student knows or understands; the teacher must necessarily gather evidence from multiple sources" (Wilson, 1994, p. 7). "The idea of administering an externally set instrument composed of multiple-choice questions and, based upon that single instrument rank ordering students is anathema to a constructivist" (Wilson, 1994, p.9). Stiggins (1999) also emphasizes the importance of using varied assessment strategies by pointing out that "various assessment users need different information in different forms at different times to make their decisions", (p. 26). Furthermore, researchers (Pilcher, 2001; Sluijsmans, Brand-Gruwel, van Merrienbore, & Bastiaens, 2003; Wilson, 1994) agree that effective assessment approaches based on constructivist views promote integration of assessment and instruction.

5. Results and Discussion

5.1 Reliability of The Instrument

Since the instrument had a Likert-type scale, Cronbach's alpha coefficient for internal consistency reliability for the scale and the subscales was calculated. Cronbach's alpha coefficient of the whole instrument calculated as 0.93. It was 0.90 for Section I, 0.77 for Section II and 0.93 for Section III.

Three kinds of results will be presented in the subsections that follow. First, a basic quantitative description in terms of frequencies of the five types of intentions in the different subscales will be exposed. Second, we used Spearman's rho correlation coefficient to analyze the correlation between Section I and Section III. Third, a detailed qualitative analysis of some remarkable pre-service teachers written responses will be done.

5.2 Quantitative Analysis of Pre-Service Teachers' Intentions

Pre-service teachers' intentions were categorized based on the rating scale in the Section-I, overall mean values for the subscales were calculated and then divided into five and named as follows; 1 – 1.8, traditional; 1.81 – 2.6, close to traditional; 2.61 –3.4, transitional; 3.41 – 4.2, close to constructivist; and 4.21 – 5.0, constructivist. The results are below at Table 1.

Table 1.
Pre Service Teachers' Intentions Toward Assessment

Pre Service Teacher	Evaluation Criteria	Intention	Types of Assessments	Intention	Cognitive Levels of Assessments	Intention	Grading	Intention
P-1	3,94	Close to Constructivist	4,40	Constructivist	4,75	Constructivist	4,50	Constructivist
P-2	4,06	Close to Constructivist	4,13	Close to Constructivist	3,75	Close to Constructivist	4,50	Constructivist
P-3	3,88	Close to Constructivist	3,47	Close to Constructivist	4,50	Close to Constructivist	4,10	Close to Constructivist
P-4	3,30	Transitional	3,07	Transitional	4,75	Constructivist	2,80	Transitional
P-5	3,88	Close to Constructivist	3,93	Close to Constructivist	2,50	Close to Traditional	4,30	Constructivist
P-6	3,56	Close to Constructivist	3,27	Close to Transitional	4,25	Close to Constructivist	3,60	Close to Constructivist
P-7	4,24	Constructivist	4,00	Close to Constructivist	4,25	Close to Constructivist	3,50	Close to Constructivist
P-8	3,41	Close to	3,73	Close to	4,00	Close to	3,90	Close to

		Constructivist		Constructivist		Constructivist		Constructivist
P-9	3,70	Close to Constructivist	3,00	Transitional	3,50	Close to Constructivist	2,80	Transitional
P-10	3,41	Close to Constructivist	3,13	Transitional	4,00	Close to Constructivist	3,20	Transitional
P-11	4,18	Close to Constructivist	4,20	Close to Constructivist	5,00	Constructivist	3,60	Close to Constructivist
P-12	3,70	Constructivist	3,13	Transitional	4,75	Constructivist	4,10	Close to Constructivist
P-13	4,41	Constructivist	3,80	Close to Constructivist	5,00	Constructivist	4,80	Constructivist
P-14	3,76	Close to Constructivist	3,87	Close to Constructivist	4,50	Constructivist	3,80	Close to Constructivist
P-15	4,17	Constructivist	4,40	Constructivist	5,00	Constructivist	4,70	Constructivist
P-16	3,35	Transitional	3,73	Close to Constructivist	4,00	Close to Constructivist	3,80	Close to Constructivist
P-17	3,53	Close to Constructivist	2,93	Transitional	3,75	Close to Constructivist	3,40	Transitional
P-18	3,76	Close to Constructivist	3,47	Close to Constructivist	3,25	Transitional	4,30	Constructivist
P-19	3,94	Close to Constructivist	3,73	Close to Constructivist	4,25	Constructivist	4,10	Close to Constructivist
P-20	4,06	Close to Constructivist	3,80	Close to Constructivist	3,25	Transitional	3,50	Close to Constructivist
P-21	3,82	Close to Constructivist	3,27	Transitional	4,00	Close to Constructivist	2,30	Close to Traditional
P-22	3,76	Close to Constructivist	3,20	Transitional	3,25	Transitional	3,30	Transitional
P-23	3,58	Close to Constructivist	3,13	Transitional	4,00	Close to Constructivist	3,50	Close to Constructivist
P-24	4,41	Constructivist	4,20	Close to Constructivist	4,00	Close to Constructivist	4,60	Constructivist
P-25	3,64	Close to Constructivist	3,93	Close to Constructivist	4,00	Close to Constructivist	4,40	Constructivist
P-26	4,00	Close to Constructivist	3,73	Close to Constructivist	4,50	Close to Constructivist	3,60	Close to Constructivist
Class Average	3,82	Close to Constructivist	3,64	Close to Constructivist	4,11	Close to Constructivist	3,81	Close to Constructivist

Table 1 shows pre-service teachers' intentions toward assessment for each subscale. Results showed that the pre-service physics teachers' attitude towards assessment was close to constructivist, M= 3,82 for evaluation criteria, M=3,64 for types of assessment, M=4,11 for cognitive levels of assessment.

Below at Table 2, for each sub scale the number of pre-service teachers for each category is given.

Table 2.
Frequency Of Pre-Service Teachers At Each Category For Each Sub Scale

Intention Category	Evaluation Criteria	Types of Assessments	Cognitive Levels of Assessments	Grading
Traditional	0	0	0	0
Close to traditional	0	0	1	1
Transitional	2	9	3	5
Close to constructivist	21	15	10	12
Constructivist	3	2	12	8

Table 2 shows the frequency of the four intentions of related subscales resulting of the analysis. The columns show four subscales of Section I, namely evaluation criteria, types of assessments, cognitive levels of assessments and grading subscales. The rows show five types intention toward assessment. Finally, the table shows the distribution by student frequencies.

These results of Table 1 and Table 2 are descriptive in nature; therefore, they cannot be generalized. Some aspects of these distributions, however, deserve closer attention. First, it is remarkable that none of the teachers have no intention to use the traditional methods. Second, the most frequent intention is "close to constructivist". Third, except pre-service teacher P-5 and P-21, none of the pre-service teachers have "close to traditional" intention to assessment. Fourth, the pre-service teachers, P-4, P-9, P-10, P-17, P-21 and P-22 have transitional intention to assessment generally. Later, in this paper, those remarkable pre-service teachers' written responses will be examined qualitatively. Finally, the most remarkable subscales are "cognitive levels of assessments" and "grading" subscales. At "cognitive levels of assessments" scale, class average (4,11) is the highest one and the most pre-service teachers are constructivist in this scale with a number of 12 pre-service teachers. The second most pre-service teachers are constructivist in "grading" scale with a number of 8 pre-service teachers.

Concerning the first three aspects, every pre-service teacher now recognizes that traditional methods are inadequate. With respect to the last aspect, it can be said that assessment methods measuring student memorizing and remembering will not be used by the pre-service teachers mostly.

5.3 Correlation between Assessment and Instructional Practices

To do this, we calculate four coefficients, namely the correlation between evaluation criteria, types of assessments, cognitive levels of assessments, grading and instructional practices. Spearman's rho coefficients are shown at Table 3, 4, 5 and 6 below.

Table 3.
Spearman's rho correlation between Evaluation Criteria and Instructional Practices

Spearman's rho		Instructional Practices	Evaluation Criteria
Evaluation Criteria	Correlation Coefficient	1	0,34
	Sig. (2-tailed)		0,08
	N	26	26
Instructional Practices	Correlation Coefficient	0,34	1
	Sig. (2-tailed)	0,08	
	N	26	26

Correlation is not significant at the 0.05 level (2-tailed)

The Spearman's rho did not reveal a statistically significant relationship between intense to evaluation criteria and instructional practices of the pre-service students (Spearman's $\rho = 0,34$, $p = 0,08$, $\rho^2 = 0,12$).

Table 4.
Spearman's rho correlation between Types of Assessment and Instructional Practices

Spearman's rho		Instructional Practices	Types Of Assessment
Types of Assessment	Correlation Coefficient	1	0,59
	Sig. (2-tailed)		0,00
	N	26	26
Instructional Practices	Correlation Coefficient	0,59	1
	Sig. (2-tailed)	0,00	
	N	26	26

Correlation is significant at the 0.01 level (2-tailed)

The Spearman's rho did not reveal a statistically significant relationship between intense to types of assessment and instructional practices of the pre-service students (Spearman's $\rho = 0,59$, $p = 0,00$, $\rho^2 = 0,35$). The effect size of this relationship was medium (Cohen, 1988). Squaring the correlation coefficients indicated that 35% of the variance in instructional practices of the pre-service students was explained by pre-service teachers' intense to types of assessments. Similarly, 35% of the variance in pre-service teachers' intense to types of assessments was accounted for by instructional practices of the pre-service students.

Table 5.
Spearman's rho correlation between Cognitive Levels Of Assessments and Instructional Practices

Spearman's rho		Instructional Practices	Cognitive Levels Of Assessments
Cognitive Levels Of Assessments	Correlation Coefficient	1	0,44
	Sig. (2-tailed)		0,02
	N	26	26
Instructional Practices	Correlation Coefficient	0,44	1
	Sig. (2-tailed)	0,02	
	N	26	26

Correlation is significant at the 0.05 level (2-tailed)

The Spearman's rho did not reveal a statistically significant relationship between intense to cognitive levels of assessment and instructional practices of the pre-service students (Spearman's $\rho = 0,44$, $p = 0,02$, $\rho^2 = 0,19$). The effect size of this relationship was small (Cohen, 1988). Squaring the correlation coefficients indicated that 19% of the variance in instructional practices of the pre-service students was explained by pre-service teachers' intense to cognitive levels of assessments. Similarly, 19% of the variance in pre-service teachers' intense to cognitive levels of assessments was accounted for by instructional practices of the pre-service students.

Table 6.
Spearman's rho correlation between Grades and Instructional Practices

Spearman's rho		Instructional Practices	Grades
Grades	Correlation Coefficient	1	0,41
	Sig. (2-tailed)		0,04
	N	26	26
Instructional Practices	Correlation Coefficient	0,41	1
	Sig. (2-tailed)	0,04	
	N	26	26

Correlation is significant at the 0.05 level (2-tailed)

The Spearman's rho did not reveal a statistically significant relationship between intense to grades and instructional practices of the pre-service students (Spearman's $\rho = 0,41$, $p = 0,04$, $\rho^2 = 0,17$). The effect size of this relationship was small (Cohen, 1988). Squaring the correlation coefficients indicated that 17% of the variance in instructional practices of the pre-service students was explained by pre-service teachers' intense to grades. Similarly, 17% of the variance in pre-service teachers' intense to grades was accounted for by instructional practices of the pre-service students.

5.4 Qualitative Analysis of Pre-Service Teachers' Tendencies and Discussion

In this section, we will explore the pre-service teachers' written responses to open-ended questions for validation of the intentions and will discuss the findings.

First, if we look at Table 1, we see that only two pre-service teachers P-5 and P-21 have intention of close to traditional. These two pre-service teachers defined assessment as a traditional teacher at their written responses:

Assessment is a method to understand whether or not the act of learning occurs. (P-5)
Learning is a permanent change in behaviour.(P-21)

Pre-service teachers P-11 and P-23 have also defined learning as permanent change in behaviour at their responses to open-ended questions but they have average intention of close to constructivist toward assessment according to the instrument.

Second, if we look at Table 1, we see that P-4, P-9, P-10, P-17 and P-20 have intentions of transitional toward subscales of assessment two or more times (look at Table 7).

Table 7.
Pre - Service Teachers with Two or More Transtional Intention

Pre Service Teacher	Evaluation Criteria	Types of Assessments	Cognitive Levels of Assessments	Grading	
P-4	Transitional	Transitional		Transitional	3 times
P-9		Transitional		Transitional	2 times
P-10		Transitional		Transitional	2 times
P-17		Transitional		Transitional	2 times
P-22		Transitional	Transitional	Transitional	3 times

By assessing, student learning is questioned in short. (P-4)
Teachers do assessment to see how much their students have learned. (P-4)

Pre-service teacher P-4 has defined assessment in two ways at his/her written responses. The first definition is a traditional one whereas the second one is close to constructivist. Another example is P-10. P-10 has used "assessing knowledge" and "assessing performance" together.

While a student doing experiment, s/he gains the ability of setting up apparatus. With concept maps, a student relates concepts of own with each other…For example, we taught the concept of heat and then let the student make an experiment…(P-17)

In these examples, the pre-service students have a movement from "traditional" intention to "constructivist" intention. When answering open-ended questions, they respond sometimes within the framework of the traditional paradigm, sometimes within the framework of the constructivist paradigm.

Frykholm (1999), found in his study that one common intention was that assessment was simply another name for "grades". However, in this study it is not the case. Most of the pre-service teachers say that assessment and learning is related to each other. When being assessed, students see how much they have learned. Pre-service teacher P-25 have said that assessment is not just for grading but also for learning.

For example, Let students have a portfolio assignment. We wanted students to gather questions the most difficult for them. We also wanted them to determine relevant concepts of these questions. Thus while doing the homework, students see the shortcoming and learning takes place by the way. (P-25).

At this point, pre-service teacher think that type assessment affect student learning. If a teacher use only traditional exams, students will memorize knowledge. These finding is in line with Rogers and Riedel (1999).

On the contrary to Lomax (1996), in this study, pre-service teachers have intention close to constructivist toward grading subscale. Most of the pre-service teachers have said that they would use performance based assessment including written exams, essays, oral presentations, open-ended problems, hands-on problems, portfolios, scientific research articles and student behaviour and attitude toward class.

The time management problem related to the use of portfolio and project could be seen at the written responses of all pre-service teachers. Although pre-service teachers saw portfolios as an effective means of addressing students' progress, strengths, and weaknesses, most of them identified some other identical problems, such as difficulty in

scoring, crowded classrooms, lack of space, lack of facilities and the structure of the curriculum. These findings are usually in line with the study of Kleinert , Kentucky and his colleagues (1999).

Graham (2005) discovered that although many pre-service teachers grew to accept performance-based assessments as valuable evidence sources indicating student learning, they recorded concerns that fell into the following five overlapping categories: designing goals; rubrics, grading and fairness; grading and motivation; validity of assessments; and time required to plan this way.

On the contrary of Lofters' (1998) study, in this study, pre-service teachers have found performance-based assessment methods very useful. Below are some examples.

With performance based assessment, we assess what a student knows, not what s/he doesn't know. (P-13)

With performance based assessment, students' motivation increase. They learn meaningfully (P-19)

With performance based assessment, students will be assess full capacity. (P-2, P-8,P- 20)

With performance based assessment, students assess also themselves.(P-21, P-240)

However, in line with the study of Graham (2005), in this study per-service teachers stated that at the same time there were problems with performance based assessment methods such as lack of time, lack of space, grading and fairness, lack of motivation and experience.

In this study we investigated pre-service teachers' intentions toward classroom assessment. The research pointed out the general result that pre-service teachers valued performance-based assessment and could integrate their instruction with their assessment. Therefore, it can be concluded that pre-service teachers' intention toward classroom assessment was close to constructivist.

References

Barko, H., Mayfield, V. Marion, S., Flexer, R., & Cumbo, K. (1997). Teachers' developing ideas and practices about mathematics performance assessment: Successes, stumbling blocks, and implications for professional development. *Teaching and Teacher Education*, 13(3), 259-278.

Baxter, G.P., Elder, A.D., & Glaser, R. (1996). Knowledge-based cognition and performance assessment in the science classroom. *Educational Psychologist*, 31(2), 133–140.

Bushman, L., & Schnitker, B. (1995). Teacher attitudes on portfolio assessment, implementation, and practicability. (ERIC Document Reproduction Service No. ED388661).

Cohen, J. (1988). *Statistical Power Analysis For The Behavioral Sciences*. Second Edition. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Cooney, T. J., Bell, K. Fisher-Cauble, D., & Sanchez, W. B. (1996). The demands of alternative assessment: What teachers say. *Mathematics Teacher*, 89, 484-488.

Culbertson, L.D., & Wenfan, Y. (2003). Alternative assessment: Primary grade literacy teachers' attitudes and practices. (ERIC Document Reproduction Service No. ED479794)

Delandshere, G., & Jones, J.H. (1999). Elementary teachers' beliefs about assessment in mathematics: A case of assessment paralysis. *Journal of Curriculum and Supervision*, 14(3), 216–240.

Frykholm, J. (1999). Assessment in mathematics teacher education: Introducing preservice teachers to assessment reform. *The Teacher Educator*, 34(4), 244-258.

Graham, P. (2005). Classroom-based assessment: Changing knowledge and practice through preservice teacher education. *Teaching and Teacher Education*, 21, 607-621.

Haney, J. J., Czerniak, C. M., & Lumpe, A. T. (1996). Teacher beliefs and intentions regarding the implementation of science education reform strands. *Journal of Research in Science Teaching*, 33 (9), 971–993.

Harris, M.B., & Curran, C.M. (1998). Knowledge, attitudes, and concerns about portfolio assessment: An exploratory study. *Teacher Education and Special Education*, 21(2), 83–94.

Kleinert, H.L., Kennedy, S., & Kearns, J.F. (1999). The impact of alternative assessments: A state-wide teacher survey. *The Journal of Special Education*, 33(2), 93–102.

Kristin, N., Collins, A., Duschl, R., & Erduran, S. (1999, March). Changes in science teachers' practice and beliefs: Progress toward implementing standards-based reforms. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, Boston, MA. (ERIC Document Reproduction Service No. ED443697)

Lawrence, M., & Pallrand, G. J. (2000). A case study of the effectiveness of teacher experience in the use of explanation-based assessment in high school physics. *School Science and Mathematics*, 100(1), 36-47.

Lofters, P.E. (1998). An evaluation of primary school teachers' science teaching assessment methods. Unpublished master thesis, University of W.I., Mona, Jamaica.

Lomax, R.G. (1996). On becoming assessment literate: An initial look at preservice teachers' beliefs and practices. *The Teacher Educator*, 31(4), 292–303.

Maeroff, G.I. (1991). *Assessing alternative assessment*. Phi Delta Kappan, 73(4), 272–281.

Meyer, D. K., & Tusin, L. F. (1999). Preservice teachers' perceptions of portfolios: Process versus product. *Journal of Teacher Education*, 50(2), 131-139.

Ogan-Bekiroglu, F. (2009). Assessing assessment: Examination of pre-service physics teachers' attitudes towards assessment and factors affecting their attitudes. *International Journal of Science Education* 31, no. 1: 1–39.

Pilcher, J. K. *(*2001*)* The standards and integrating instructional and assessment practices. *Paper presented at the annual meeting of the American Association of Colleges for Teacher Education, Dallas.*

Rogers, S.F., & Riedel, P.B. (1999, November). Advocates for combining assessments and evaluation/ grading procedures: Practices benefiting new teachers. *Paper presented at the Annual Meeting of the College Reading Association, Myrtle Beach, SC*. (ERIC Document Reproduction Service No. ED428330)

Sluijsmans, D. M. A., Brand-Gruwel, S., van Merrienbore, J. J. G., & Bastiaens, T. J. (2003). The training of peer assessment skills to promote the development of reflection skills in teacher education. *Studies in Educational Evaluation*, 29, 23-42.

Stiggins, R. (1995). *Student-centred classroom assessment*. New York: Macmillan.

Stiggins, R. (1999). Evaluating classroom assessment training in teacher education programs. *Educational Measurement: Issues and Practice*, 18(1), 23-27.

Tittle, C.K. (1994). Toward an educational psychology of assessment for teaching and learning: Theories, contexts, and validation arguments. *Educational Psychologist*, 29(3), 149–162.

Whittaker, A., & Young, V.M. (2002). Tensions in assessment design: Professional development under high-stakes accountability. *Teacher Education Quarterly*, 29(3), 43–60.

Wiggins, G. (1993). *Assessing student performance: Exploring the purpose and limits of teaching*. San Francisco, CA: Jossey-Bass Publishers.

Wilson, L. (April, 1994). A Theoretical framework linking beliefs with assessment practices in school mathematics: Assessment reforms in search of a theory. *Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, L.A*. (ERIC Document Reproduction Service No. ED377215).

Wolfe, E. W., Chiu, C. W. T., & Reckase, M. D. (1999). Changes in secondary teachers' perceptions of barriers to portfolio assessment. *Assessing Writing*, 6(1), 85-105.