

The Alternative Assessment-Evaluation Approaches Preferred by Pre-Service Teachers and Their Self-Efficacy towards these Approaches

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Abstract

The present research is a survey study carried out on pre-service teachers in the Education Faculty at Celal Bayar University (n=174). The study employed a questionnaire consisting of close-ended and semi-open-ended questions administered to determine the opinions of pre-service teachers about the alternative assessment-evaluation approaches they prefer. Furthermore, the self-efficacy scale was used to determine the efficacy of pre-service teachers towards alternative assessment-evaluation approaches. As shown by the results of the analysis, the pre-service teachers stated that they would like to use frequently instruments such as portfolios, performance assessment, concept maps, observation, and concept cartoons in their future teaching careers. Moreover, the MANOVA results revealed a significant difference in the self-efficacy of pre-service teachers about alternative assessment-evaluation approaches according to gender, while it did not significantly differ with the variables of department and grade. On the basis of the obtained results, certain suggestions are made with regard to the use of alternative assessment-evaluation approaches.

Keywords: Alternative assessment-evaluation, self-efficacy, pre-service elementary teacher, pre-service science teacher.

Introduction

In parallel with the recent developments in information technologies, certain changes have also taken place in education environments and the elementary curricula in Turkey are now based on the constructivist approach. The introduction of the constructivist approach has brought to the fore learning environments that allow students to personally access unlimited information using numerous data collection instruments, instead of learning environments in which students can access to a limited amount of information they usually memorize. The former type of learning environments create opportunities to comprehend and express the world in many ways rather than a single way by presenting mental imbalances in the individual, and thus, realizing learning over and over again (Kurnaz, 2010). Therefore, in the constructivist approach, the teacher's role as a conveyor of information and students' role as passive listeners are transformed in such a way that now, teachers act as guides while students are individuals who actively learn by inquiry, research and by using their previous knowledge throughout the process. The rise of the constructivist approach has brought along significant changes in evaluative approach in parallel with the changes in teachers' and students' roles and learning environments. As noted by Korkmaz & Kaptan (2003), teachers are now interested in what their students learn and want to find out suitable evaluative methods to monitor their development. In parallel, the constructivist approach argues that it would not be healthy to assess students' learning by simply looking at their responses they provided for multiple-choice questions in a limited time frame, and that individual and group performance of students in learning process

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should also be taken into consideration (Birgin, 2008). Bay et al. (2010) note that today it is a commonly acknowledged method to use constructivist assessment-evaluation activities based on an authentic understanding, instead of an assessment system that measures unchanging truths and is based on learning by rote. Toward these objectives, there has recently been greater emphasis on alternative assessment-evaluation techniques that aim to reveal a student's overall performance and strength within the learning process, in addition to the conventional assessment-evaluation techniques attempting to measure the product to evaluate the learning-teaching process (Duban & Kucukyilmaz, 2008; Nazlicicek & Akarsu, 2008). Obviously, alternative assessment is an assessment approach based on constructivist principles (Maslovaty & Kuzi, 2002) and has recently regained importance and is frequently used in the curricula.

Alternative assessment-evaluation refers to the assessment-evaluation techniques developed to address the shortcomings observed and criticisms raised about the classical assessment-evaluation techniques (Aydin, 2005). In other words, alternative assessment involves new forms of assessment that underline the relationship with multiple choice tests, and knowledge and skills in real-life situations (Seyfarth, 1993). As opposed to the traditional assessment and evaluation methods, this type of assessment consists of process-oriented methods that monitor students' development as well, and consider assessment as a part of learning (Acar & Anil, 2009). Apparently, memorized shallow concepts and principles presented in standardized tests, written materials exactly quoted without any interpretation, and information that cannot be linked to daily life fail to provide sufficient information about development levels of students (Tatar & Sasmaz-Oren, 2009). On the other hand, in the constructivist assessment-evaluation process, the teacher uses assessment and evaluation as an instrument that helps him/her identify students' learning processes and what they already know, and contributes to students' ability to use their skills in daily life (Ozdemir, 2009). As Fourie & Niekerk (2001) claim, assessment in the constructivist approach is not an independent process, but an integral part of the learning process. In addition, the use of alternative assessment-evaluation in education allows identifying learning difficulties of students, constantly monitoring and evaluating their learning levels, and making improvements that help them learn better (Saglam-Arslan, Avci & Iyibil, 2008). In this context, traditional assessment usually employs a suitable method to find the answer by only focusing on the answer itself, while real assessment techniques more broadly require taking precautions (Suurtamm, 2004).

While conventional assessment and evaluation only considers cognitive behaviors, alternative assessment approaches monitor the development of affective and psychomotor behaviors as well (Caliskan & Kasikci, 2010). To put it differently, alternative assessments aiming to facilitate learning is records learning throughout the process and is used to assess cognitive, affective-psychomotor skills (Anderson, 1998). With a similar view, Adanali & Doganay (2010) explain the aim in alternative assessment as revealing knowledge and skills of students in cognitive, psycho-motor and affective domains in various ways. On the other hand, it is important to implement these new approaches so that the skills, knowledge, attitudes and performances recommended by the new elementary curricula in Turkey can be evaluated in a valid and reliable fashion (Birgin & Catlioglu, 2009). Furthermore, through alternative assessment methods, students find the opportunity for self-assessment with various measurements throughout a long study period, and thus, provide the teacher with more valid and reliable data for the assessment process (Tasdemir, Tasdemir & Yildirim, 2009). Clearly, alternative assessment-evaluation offers more reliable and valid assessment since it assesses the entire learning process and cognitive, affective and psycho-motor skills of students instead of their performance at a certain point.

By improving/evaluating higher-order cognitive skills of students (Dikli, 2003), alternative assessment-evaluation approaches allow them to see subjects and phenomena from a critical, creative and problem-solving perspective (Kutlu, Yildirim & Bilican, 2009). As argued by Bal & Doganay (2010), this notion of assessment consists of assessments based on a student's association of his/her higher-order skills with daily life in a learning-teaching environment. Moreover, another basic

characteristic of alternative assessment is that it ensures active participation on the part of students in the development of their reflective thinking skills and self-assessment of their perspective (Kavaliauskienė, Kaminskienė & Anusienė, 2007). This assessment approach not only directly examines creativity, thinking, and explanations of individuals, but it also attempts to make the education process more meaningful (Ak & Gündü, 2010). In brief, these alternative assessment approaches are based on reflecting linguistic development of students and evaluation of their own learning (Kavaliauskienė et al., 2007).

Alternative assessment-evaluation approaches arguably have many advantages to ensure efficiency for teachers, students as well as for a more efficient learning process. Some of the assessment instruments and methods serving this purpose in a curriculum based on the constructivist approach include performance assessment, progress files, scoring rubrics, concept maps, projects, diagnostic trees, structured grids, self-assessment, group and/or peer assessment, word association, drama, interviews, written reports, displays, posters (Acar & Anil, 2009). According to Senel-Coruhlu, Er-Nas & Cepni (2009) these approaches could be exemplified by student portfolios, drama, performance assessment and projects, while Pierce & O'Malley (1992) argue that such approaches may involve instructor observation, performance assessment and self-assessment. Furthermore, numerous researchers (Eshun & Abledu, 2001; Lawrenz, Huffman & Welch, 2001; Ocak, 2006; Oncu, 2009) claim that alternative assessment-evaluation approaches include portfolios, performance assignments, projects, observation checklists, student interviews and journals.

The reviewed literature involves research that investigates the effects of alternative assessment-evaluation approaches upon student success, conceptual understanding and levels of retention of information; which takes the opinions of in-service and pre-service teachers and students at different education levels; and which examines the attitudes and self-efficacy of in-service and pre-service teachers. Various studies have taken the opinions of students as well as in-service and pre-service teachers about assessment-evaluation, alternative assessment-evaluation approaches, and the types of assessment-evaluation in the curricula (Acat & Uzunkol, 2010; Aksu, 2008; Bay et al., 2010; Duban & Kucukyilmaz, 2008; Flowers, Ahlgrim-Delzell, Browder & Spooner, 2005; Gelbal & Kelecioğlu, 2007; Herman, Klein & Wakai, 1997; Metin & Birisci, 2011; Sasmaz-Oren & Tatar, 2007; Senel-Coruhlu, Er-Nas & Cepni, 2008; Tatar & Sasmaz-Oren, 2009; Toptas, 2011; Yildirim & Semerci, 2006). On the other hand, in certain studies (Aydin, 2005; Nazlicicek & Akarsu, 2008; Saglam-Arslan, Devencioğlu-Kaymakci & Arslan, 2009) researchers identified teachers' views/knowledge levels about alternative assessment-evaluation, the reasons for using or not using alternative assessment-evaluation techniques, the frequency of using such techniques, and the challenges faced in the process. In their study, Ak & Gündü (2010) identified the opinions of elementary teachers about their knowledge and use of alternative assessment and evaluation methods. Bal & Doganay (2010), on the other hand, demonstrated the perception levels of students and teachers about the alternative assessment and evaluation approaches used in the mathematics course as well as their feasibility levels. Metin & Birisci (2011) identified what elementary teachers of different branches think about alternative assessment. In a study, Caliskan & Kasikci (2010) examined the conventional and alternative assessment-evaluation instruments used by social studies teachers. Furthermore, Usta, Dikyol & Ince (2010) investigated the differences between the alternative assessment methods preferred by pre-service social studies and science teachers as well as the underlying reasons for such differences. Obviously, the literature includes research on the alternative assessment-evaluation approaches being used or planned to be used by in-service and pre-service teachers of various branches. However, the research is arguably limited for identifying the alternative assessment-evaluation approaches that pre-service science teachers and pre-service elementary teachers would like to use. Therefore, one of the main purposes of the present study was to reveal the alternative assessment-evaluation approaches preferred by pre-service elementary and science teachers.

Furthermore, the literature review also revealed certain studies carried out to determine the attitudes, perceptions and competency of students, in-service and pre-service teachers with regard to alternative assessment-evaluation approaches. In two of these studies, Wikström (2008) identified the teachers' and Watt (2005) identified mathematics teachers' attitudes toward the use of alternative assessment. DeMauro, Helpfrey, Schram & Spiekermann (2001), on the other hand, proposed a program to compare student attitudes toward the use of traditional and alternative assessment practices. Moreover, Cakan (2004) determined the differences between in-service elementary and secondary teachers in terms of how they perceived themselves in in-class assessment and evaluation applications. In their study, Kilmen & Cikrikci-Demirtasli (2009) identified self-perceptions of elementary teachers in terms of different variables towards their frequency of using student success monitoring and assessment applications based on assessment and evaluation principles. Furthermore, Yaman (2011) compared the perceptions of in-service science and technology teachers teaching elementary 4th and 5th grades towards assessment and evaluation applications on the basis of different variables (gender, seniority, participation in an in-service training course, and self-perception of competence).

The literature also contains studies aiming to identify the perceptions of in-service and pre-service teachers (e.g. pre-service elementary teachers, pre-service Turkish teachers, elementary teachers etc.) about their competence levels in alternative assessment-evaluation approaches and assessment-evaluation methods (Birgin & Baki, 2009; Kilmen, Akin-Kosterelioglu & Kosterelioglu, 2007; Nasri, Roslan, Sekuan, Bakar & Puteh, 2010; Sahin & Ersoy, 2009). Furthermore, in a study Banoglu (2009) revealed elementary information technologies teachers' attitudes, self-efficacy perceptions, and self-perceptions of their competence levels with regard to their frequency of using alternative assessment methods. Gok & Sahin (2009) determined the competence levels of 4th and 5th grade elementary teachers about using traditional and new assessment approaches, and how frequently they used these instruments in a multiple assessment process. The results of the study showed that the teachers lacked competence and had problems about using new assessment approaches. On the other hand, Buldur (2009) identified literacy levels and self-efficacy of pre-service teachers towards alternative assessment and evaluation approaches. In a study, Ogan-Bekiroglu (2009) identified attitudes of pre-service physics teachers towards alternative assessment, the problems they have in assessment, and their self-efficacy towards assessment. In their study, Gunes, Dilek, Hoplan, Celikoglu & Demir (2010) examined the science and elementary teachers' use of alternative assessment-evaluation methods and techniques, self-efficacy perceptions about the subject, and their opinions concerning relevant applications. Coklar & Odabasi (2009) evaluated self-efficacy of pre-service teachers about technology use in assessment and evaluation services, which they examined according to gender, the attended university and department. The literature review also showed that there has been a recent increase in the number of studies aiming to determine the self-efficacy of in-service and pre-service teachers about alternative assessment-evaluation approaches. This increase could be attributed to the fact that self-efficacy, which is defined as an individual's perceived capacity for performing any behavior (Khodarahimi, 2010), plays a significant role in ensuring an individual's performance of a desired behavior. In this context, determining self-efficacy of pre-service teachers about alternative assessment-evaluation approaches will arguably be effective in identifying the frequency of their use of these methods in their professional careers. Therefore, determining self-efficacy of pre-service teachers about alternative assessment-evaluation approaches and examining them according to certain variables is believed to be important and was identified as another main purpose for the study.

Study Purpose and Problem

The present study aimed to determine the alternative assessment-evaluation approaches preferred by pre-service teachers as well as their self-efficacy about these approaches. Thus, the study was conducted on the basis of two main problems, which are "What are the alternative assessment-evaluation approaches preferred by pre-service teachers studying in the departments of elementary teacher training and science teacher training?" and "Do the self-efficacy of the pre-service teachers studying in the departments of elementary teacher training and science teacher training about these approaches significantly differ according to the variables of gender, grade and department?"

Method

Study Design

This is a survey study carried out with junior and senior pre-service teachers studying in the departments of elementary teacher training and science teacher training in the Education Faculty at Celal Bayar University (n=174).

Participants

The study's participants consisted of the pre-service teachers studying in the Education Faculty at Celal Bayar University during the academic year 2009–2010 (n=174). The participants were deliberately selected from among the junior and senior students who had taken courses such as assessment and evaluation and special teaching methods, and thus, had general knowledge about alternative assessment-evaluation approaches. 47.1% (n=82) of the pre-service teachers studied in the department of science teacher training, while 52.9% (n=92) studied in the department of elementary teacher training. 59.8% (n=109) were juniors and 40.2% (n=70) were seniors. 13.2% (n=23) of the participants were in the 18–20 age range, 85.1% (n=148) in the 21–24 age range and 1.7% (n=3) were 25 or older.

Data collection instrument

As the data collection instrument, the study employed the "The Self-Efficacy Scale about Alternative Assessment and Evaluation Approaches" developed by Buldur (2009) and a questionnaire including close-ended semi-open-ended questions which was developed by the researcher and aimed to determine some demographic characteristics of the pre-service teachers and the alternative assessment-evaluation approaches they prefer to use in their teaching careers. In the analyses performed by the researcher about the scale, it was found that the scale consisted of three factors accounting for 47.72% of the total variance. These factors were named as self-efficacy in application, self-efficacy in dealing with challenges and self-efficacy for resource use. The Cronbach's alpha value for the scale was found to be .89 (Buldur, 2009). In the present study, the validity and reliability results for the scale were re-examined due to the difference of the study group. Thus, the factor structure determined by the researcher was tested through a confirmatory factor analysis performed on the data obtained from the study group of the application. The analyses revealed that, for the data obtained from the scale's application on the study group, the fit values were found to be RMSEA=.057, $\chi^2/df=1.56$, NFI=.94, NNFI=.97, CFI=.98, RMR=.043, SRMR=.062, GFI=.83 and AGFI=.80. Furthermore, the Cronbach's alpha for the scale was computed to be .93. In the light of the findings, it could be argued that the scale's factor structure relatively fits the study group. The questions in the questionnaire developed by the researcher as another data collection instrument were formulated through a literature review and in accordance with expert opinions.

Data analysis techniques

In analyzing the data obtained in the research, parametric statistical techniques were preferred by taking into account their distribution and variance homogeneity. Thus, in the statistically analyses, percentage-frequency analysis was used to investigate the preference of pre-service teachers for alternative assessment-evaluation approaches, while 2x2x2 factor MANOVA was used to examine their self-efficacy towards alternative assessment-evaluation approaches (overall scores and scores for the sub-factors), according to the variables gender, grade and department. Moreover, the overall self-efficacy scores of pre-service teachers and the scores they obtained in the sub-dimensions of the scale were examined through mean and standard deviation values.

Results

Alternative assessment-evaluation approaches preferred by the pre-service teachers

In order to solve the problems considered in the study, attempts were made to identify the opinions of pre-service teachers about the alternative assessment-evaluation approaches they prefer to use in their future professional careers. Therefore, a four-point (always, occasionally, rarely, and do not want to use) close-ended form was used to examine how frequently and which method and technique is preferred by the pre-service teachers. The results obtained are given in Table 1.

Table 1.

Percentage-Frequency Table about the Alternative Assessment-Evaluation Methods/Techniques and Instruments Preferred by the Pre-Service Teachers

Alternative assessment-evaluation methods/techniques and instruments	Want to use						Do not want to use	
	Always		Occasionally		Rarely			
Concept Map	110	63,1	61	35,1	3	1,8	-	0,0
Observation	103	59,3	58	33,3	12	6,9	1	0,5
Performance Assessment	102	58,6	57	32,8	13	7,5	2	1,1
Portfolio	101	58,1	51	29,4	20	11,4	2	1,1
Concept Cartoon	90	51,8	59	33,9	23	13,2	2	1,1
Self Assessment	88	50,6	64	36,8	21	12,1	1	0,5
Drama	81	46,7	74	42,5	18	10,3	1	0,5
Demonstration	79	45,4	75	43,2	19	10,9	1	0,5
Oral Presentation	78	44,8	73	42,0	21	12,1	2	1,1
Poster	75	43,1	72	41,4	25	14,4	2	1,1
Project	74	42,4	73	42,0	24	13,8	3	1,8
Group Assessment	67	38,6	85	48,9	20	11,4	2	1,1
Crossword Puzzle	67	38,5	82	47,1	21	12,1	4	2,3
Student Journal	64	36,8	68	39,1	34	19,6	1	0,5
Peer Assessment	58	33,3	81	46,6	33	19,0	2	1,1
Rubric	56	32,1	94	54,0	21	12,1	3	1,8
Word Association Test	55	31,6	69	39,7	42	24,1	8	4,6
Written Reports	54	31,0	67	38,5	44	25,3	9	5,2
Drawings	54	31,0	77	44,3	31	17,8	12	6,9
Science Stories and Story Maps	50	28,7	88	50,6	31	17,8	5	2,9
Diagnostic Tree	43	24,7	76	43,7	45	25,9	10	5,7
Vee diagram	43	24,7	72	41,4	50	28,7	9	5,2
Structured Grid	38	21,8	68	39,1	47	27,0	21	12,1
Interview	33	19,0	82	47,1	54	31,0	5	2,9
Attitude Scales	31	17,8	71	40,8	62	35,7	10	5,7
Prediction Charts	29	16,7	70	40,2	58	33,3	17	9,8
Check Lists	29	16,7	61	35,1	70	40,2	14	8,0
Flash Cards	24	13,8	71	40,8	55	31,6	24	13,8
Semantic Features Analysis	23	13,2	70	40,2	62	35,6	19	10,9
Know-Want-Learn Charts	19	10,9	58	33,3	73	41,9	24	13,9

The percentage-frequency analyses examined the methods, techniques and instruments most frequently preferred by the pre-service teachers in their future teaching careers. As a result, a majority of the pre-service teachers stated that they would always like to use in their courses elements such as portfolios (58.1%, $f=101$), performance assessment (58.6%, $f=102$), concept maps (63.1%, $f=110$), observation (59.3%, $f=103$), drama (46.7%, $f=81$), self-assessment (50.6%, $f=88$), project (42.4%, $f=74$), concept cartoons (51.8%, $f=90$), posters (43.1%, $f=75$), oral presentations (44.8%, $f=78$) and displays

(45.4%, f=79). On the other hand, a great part of the pre-service teachers stated that they would occasionally use instruments such as rubrics (54.0%, f=94), peer assessment (46.6%, f=81), group assessment (48.9%, f=85), journals (39.1%, f=68), interviews (47.1%, f=82), word association (39.7%, f=69), Vee diagrams (41.4%, f=72), semantic features analyses (40.2%, f=70), diagnostic trees (43.7%, f=76), structured grids (39.1%, f=68), drawings (44.3%, f=77), attitude scales (40.8%, f=71), interpretation cards (40.2%, f=70), flashcards (40.8%, f=71), scientific story maps (50.6%, f=88), puzzles (47.1%, f=82) and written reports (38.5%, f=67). Finally, a majority of the participants noted that they would rarely prefer using information-demand-learning cards (41.9%, f=73) and checklists (40.2%, f=70).

Examination of the self-efficacy of pre-service teachers towards alternative assessment-evaluation approaches according to the variables of department, grade and gender

In order to resolve the second sub-problem of the study, self-efficacy of the participating pre-service teachers towards alternative assessment-evaluation approaches was examined according to the variables of department, grade and gender. 2x2x2 MANOVA was used as parametric assumptions were fulfilled in the analyses (variance homogeneity, normal distribution, sample size). Table 2 presents the descriptive statistics about the scores obtained by the pre-service teachers on the overall scale and its sub-dimensions according to independent variables.

Table 2.

Descriptive Statistics about the Self-Efficacy of the Pre-Service Teachers towards Alternative Assessment-Evaluation Approaches

Variables	Gender				Grade Level				Department			
	Male (n=72)		Female (n=102)		Junior (n=104)		Senior (n=70)		Elementary Teacher Training (n=92)		Science Teacher Training (n=82)	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
SEA	46.00	4.50	47.79	6.09	47.18	4.57	46.86	6.77	47.21	4.90	46.88	6.22
SEDC	35.32	6.74	37.91	7.71	37.82	5.93	35.39	9.04	35.47	7.35	38.38	7.22
SERU	16.29	1.74	16.90	2.15	16.56	1.67	16.79	2.44	16.43	1.98	16.89	2.02
SEAAEA	97.61	10.75	102.61	13.76	101.56	10.35	99.03	15.73	99.11	11.87	102.15	13.67

SEA= Self-efficacy in application, SEDC= Self-efficacy in dealing with challenges, SERU= Self-efficacy for resource use, SEAAEA= Self-efficacy towards alternative assessment and evaluation approaches

The study first examined the mean scores received by the pre-service teachers on the overall self-efficacy scale and its dimensions. Thus, the mean score of pre-service teachers on the overall scale was found to be 100.54 (SD=12.81). Furthermore, their mean score on the sub-dimension of self-efficacy in application was 47.05 (SD=5.55), their mean score in the sub-dimension of self-efficacy in dealing with challenges was 36.84 (SD=7.41), and their mean score in the sub-dimension of self-efficacy for resource use was 16.65 (SD=2.00). Given the mean score per item in five-point scales, values between 1-1.80 could be interpreted as strongly disagree, values between 1.80-2.60 as disagree, values between 2.60-3.40 as undecided, values between 3.40-4.20 as agree and those between 4.20 and 5.00 as strongly agree. Therefore, in the light of the results, the mean score of pre-service teachers on the overall scale corresponds to the "agree" category, their mean score in the dimension of self-efficacy in application corresponds to "strongly agree" category, their mean score in the sub-dimension of self-efficacy in dealing with challenges to the "undecided" category, and finally their mean score in the dimension of self-efficacy for resource use to the "agree" category. So the pre-service teachers arguably perceive themselves as efficient in all dimensions except for the dimension of dealing with challenges, and about alternative assessment approaches in general.

Examination of the pre-service teachers' self-efficacy towards alternative assessment-evaluation approaches

MANOVA was used to examine the scores obtained by the pre-service teachers in the study on the overall scale and its sub-dimensions. The results of the MANOVA indicates that their self-efficacy towards implementing alternative assessment-evaluation approaches did not significantly differ according to the gender variable ($F_{(1,166)}=3.21$, $p=.075$, $\eta_p^2=.019$). Nevertheless, their scores in the overall scale ($F_{(1,166)}=6.21$, $p=.014$, $\eta_p^2=.036$), in the sub-dimension of dealing with challenges ($F_{(1,166)}=5.84$, $p=.017$, $\eta_p^2=.034$) and that of resource use ($F_{(1,166)}=4.28$, $p=.040$, $\eta_p^2=.025$) were significantly in favor of the females.

Examination of the pre-service teachers' self-efficacy towards alternative assessment-evaluation approaches according to the grade level variable

In the study, the scores of pre-service teachers in the self-efficacy scale towards alternative assessment-evaluation approaches and its sub-dimensions were examined according to the grade level variable. The results of the MANOVA demonstrated that the grade level variable did not have any significant effect upon the total scores of pre-service teachers on the scale ($F_{(1,166)}=1.14$, $p=.286$, $\eta_p^2=.007$), their scores in the application sub-dimension ($F_{(1,166)}=.040$, $p=.841$, $\eta_p^2=.000$), those in the dimension of dealing with challenges ($F_{(1,166)}=3.67$, $p=.057$, $\eta_p^2=.022$) and those in the sub-dimension of resource use ($F_{(1,166)}=.420$, $p=.517$, $\eta_p^2=.003$).

Examination of the pre-service teachers' self-efficacy towards alternative assessment-evaluation approaches according to the department variable

In order to resolve the study problem, attempts were made to determine whether the pre-service teachers' total scores and their scores in the scale's sub-dimensions significantly differ according to their departments. The MANOVA results revealed no significant difference in the pre-service teachers' total scores on the scale ($F_{(1,166)}=1.88$, $p=.172$, $\eta_p^2=.011$), their scores in the application sub-dimension ($F_{(1,166)}=.547$, $p=.461$, $\eta_p^2=.003$), and in the sub-dimension of resource use ($F_{(1,166)}=1.95$, $p=.165$, $\eta_p^2=.012$) according to their departments. However, the scores they obtained in the sub-dimension of dealing with challenges significantly differed in favor of the department of science teacher training ($F_{(1,166)}=.6,80$, $p=.010$, $\eta_p^2=.039$).

Examination of the combined effects of gender-department, gender-grade and department-grade on the pre-service teachers' self-efficacy towards alternative assessment-evaluation approaches

Through the analysis, attempts were made to examine the combined effects of gender x department, gender x grade, and department x grade on the scores of pre-service teachers in the overall scale and its sub-dimensions. In the examinations of the combined effect of gender x department, no significant difference was found in the pre-service teachers' scores in the overall scale ($F_{(1,166)}=.386$, $p=.535$, $\eta_p^2=.002$), in the application sub-dimension ($F_{(1,166)}=.003$, $p=.959$, $\eta_p^2=.000$), in the sub-dimension of dealing with challenges ($F_{(1,166)}=1.33$, $p=.250$, $\eta_p^2=.008$) and in the sub-dimension of resource use ($F_{(1,166)}=.004$, $p=.952$, $\eta_p^2=.000$). Furthermore, the combined effect of gender x grade on the pre-service teachers' scores in the overall scale and its sub-dimensions were examined and no significant difference was found on total scores ($F_{(1,166)}=2.02$, $p=.157$, $\eta_p^2=.012$), on the application sub-dimension ($F_{(1,166)}=2.33$, $p=.129$, $\eta_p^2=.014$), the sub-dimension of dealing with challenges ($F_{(1,166)}=1.69$, $p=.196$, $\eta_p^2=.010$) and the sub-dimension of resource use ($F_{(1,166)}=.005$, $p=.945$, $\eta_p^2=.000$). Finally, in the examinations of the combined effect of department x grade, no significant difference was found in total scores ($F_{(1,166)}=.301$, $p=.584$, $\eta_p^2=.002$), in the application sub-dimension ($F_{(1,166)}=.803$, $p=.372$, $\eta_p^2=.005$), in the sub-dimension of dealing with challenges ($F_{(1,166)}=2.62$, $p=.107$, $\eta_p^2=.016$) and in that of resource use ($F_{(1,166)}=.035$, $p=.852$, $\eta_p^2=.000$).

Discussion

With the introduction of the constructivist approach as the basis for the curricula in Turkey, the use of process-based alternative assessment-evaluation instruments gained importance such as portfolios, projects, performance assignments, concept cartoons and puzzles, along with product-based conventional assessment-evaluation instruments. The effective and efficient use of such alternative assessment-evaluation instruments requires full knowledge and competence on the part of in-service and pre-service teachers. In this context, it is believed to be important to determine which methods, techniques and instruments within alternative assessment-evaluation approaches are preferred for use by and the extent of the self-efficacy of pre-service teachers who will employ the constructivist approach and thus, alternative assessment-evaluation approaches in their future professional careers. The present study conducted to this end attempted to determine the alternative assessment-evaluation approaches preferred by pre-service teachers studying in the departments of elementary teacher training and science teacher training along with their self-efficacy towards these approaches.

In the study, most of the participating pre-service teachers stated that they would like to use in their courses instruments such as portfolios, performance evaluation, concept maps, observation, drama, self-assessment, projects, concept cartoons, posters, oral presentations and displays. The results of the present study are similar to those of others in the literature on the alternative assessment-evaluation approaches preferred by in-service and pre-service teachers. In Gunes et al.'s (2010) study, science teachers stated that they always used performance evaluation, often used concept maps, and sometimes used methods such as word association, projects, drama, displays, posters, group-peer assessment, and self-assessment. In their study, the researchers reported that elementary teachers often used performance assessment, student portfolios, concept maps and self-assessment; while they sometimes used techniques such as word association, projects, drama, written reports, displays, posters, group- and peer-assessment. Saglam-Arslan et al. (2009) carried out a study through teacher interviews in which the participants noted that they employed mixed examinations, projects, performance assessment, portfolios, posters, drama, and concept maps. In a study, Banoglu (2009) concluded that performance assignments and projects are among the methods towards which teachers had the highest self-efficacy perceptions. On the other hand, in a study that examined the level of use for alternative assessment and evaluation methods by teachers, Ak & Guvendi (2010) concluded that the participants used performance assessments, concept maps and portfolios. In their study, Usta et al. (2010) identified the alternative assessment-evaluation techniques preferred by pre-service social studies and science and technology teachers. While pre-service science and technology teachers preferred projects, portfolios and concept maps; pre-service social studies teachers stated their preference for projects, portfolios and different question types. In their research carried out with elementary teachers from different branches, Metin & Birisci (2011) noted that the teachers most often used performance assessment, portfolio assessment, oral presentations, project evaluation, rubrics and self-, peer- and group-assessment among alternative assessment methods. Furthermore, Caliskan & Kasikci (2010) investigated the traditional and alternative assessment instruments employed by social studies teachers. In their study, the teachers always used projects and performance assignments as alternative assessment instruments and sometimes used portfolios, concept maps, self-assessment, interviews and observation. From a review of the literature on in-service and pre-service teachers, it is clear that the results of the studies in the literature are similar to the results of the present study with regard to the alternative assessment-evaluation approaches preferred by the participants. It is found that the participants prefer alternative assessment-evaluation approaches such as portfolios, performance assessment, concept maps, observation, drama, group- and self-assessment, projects, concept cartoons, posters, oral presentations, word association and displays. This is attributed to the fact that elementary and university curricula often involve these alternative assessment-evaluation approaches. The textbooks used in elementary curricula usually include these alternative assessment-evaluation approaches, and the textbooks recommended to university students often teach these

approaches and include activities about them. So there is a parallel similarity with the alternative assessment-evaluation approaches preferred by in-service and pre-service teachers.

Apparently, the mean score obtained by the pre-service teachers in the study on the self-efficacy scale for alternative assessment-evaluation approaches corresponds to the 'agree' category. Furthermore, the mean score of participants in the dimension of self-efficacy in application corresponds to "strongly agree" category, their mean score in the sub-dimension of self-efficacy in dealing with challenges to the "undecided" category, and their mean score in the dimension of self-efficacy for resource use to the "agree" category. This is probably because the pre-service teachers had learned about alternative assessment-evaluation approaches in the courses they took such as 'assessment and evaluation', 'special teaching methods' and 'science and technology teaching', and have sufficient knowledge about these subjects. Similar results were obtained in other studies in the literature. In Sahin & Ersoy's (2009) study, most of the responses by the pre-service elementary teachers about their competence levels in assessment-evaluation in the new elementary curriculum ranged between 'sufficient' and 'partly sufficient'. In their study, Coklar & Odabasi (2009) calculated the mean self-efficacy score for the alternative assessment and evaluation sub-dimension in the scale for determining education technology standards as 3.80, and the participants perceived themselves as competent. Furthermore, most of the teachers in Banoglu's (2009) study perceived themselves as competent (mean=3.25) about alternative assessment methods, while the pre-service physics teachers in Ogan-Bekiroglu's (2009) study had quite high self-efficacy toward assessment. Nevertheless, in certain studies, the participants were found to have low self-efficacy towards alternative assessment-evaluation approaches. Certain studies found that pre-service science and elementary teachers lacked sufficient knowledge about alternative assessment-evaluation methods and techniques (Gunes et al., 2010), while a majority of the pre-service Turkish and elementary teachers had low self-efficacy perceptions towards the assessment-evaluation approaches recommended by the new elementary curriculum (Kilmen et al., 2007). In an empirical study, Buldur (2009) concluded that as a result of the training process, the pre-service teachers' self-efficacy scores (in all self-efficacy factors concerning resource use, dealing with challenges and application) significantly increased.

In the study conducted with pre-service elementary and science teachers, the participants' self-efficacy towards applying alternative assessment-evaluation approaches did not significantly differ according to the gender variable, except for the sub-dimensions of dealing with challenges and resource use. Many studies in the literature also arrived at similar results (Banoglu, 2009; Coklar & Odabasi, 2009; Sahin & Ersoy, 2009). In their study, Bal & Doganay (2010) found that alternative assessment-evaluation approaches did not create a significant difference according to gender with regard to participating in causes and implementation. Furthermore, Ak & Guvendi (2010) found that elementary teachers' opinions about alternative assessment-evaluation methods did not significantly differ with gender; while Nazlıcicek & Akarsu (2008) concluded that the assessment instruments used did not vary with gender.

In the present study which examined the pre-service teachers' self-efficacy towards alternative assessment-evaluation approaches according to the grade level variable, no significant difference was found between the total scores obtained by the participants on the scale. This is attributed to the fact that the pre-service teachers in the study – both juniors and seniors – had been taught about alternative assessment-evaluation approaches in similar courses. In their study, Sahin and Ersoy (2009) investigated whether there was any difference between the mean perception scores of pre-service elementary teachers about their competence levels in assessment-evaluation in the new elementary curriculum according to their grade levels. As a result of their study, the authors found that the mean perception scores of senior pre-service teachers about their competence levels in assessment-evaluation in the new elementary curriculum was higher than that of junior pre-service teachers. Moreover, the present study carried out with pre-service elementary and science teachers examined the participants' self-efficacy towards alternative assessment-evaluation approaches according to the department variable. It was found that the pre-service teachers' scores in the overall scale and in the sub-dimensions of application and resource use did not significantly differ according

to their departments, while their scores in the sub-dimension of dealing with challenges significantly differed in favor of the pre-service science teachers. Among the pre-service teachers in the study, those studying in the elementary teacher training had taken the courses of “assessment and evaluation” and “science and technology teaching”; while those in the department of science teacher training had taken the courses of “assessment and evaluation” and “special teaching methods”. The contents of these courses demonstrate that both departments taught alternative assessment-evaluation approaches at similar levels. In parallel, it is an expected result that the pre-service teachers studying in both departments would have similar self-efficacy levels.

Conclusion

In the light of the study results, the pre-service teachers have moderate levels of self-efficacy towards alternative assessment-evaluation approaches. In order to enhance their self-efficacy, it is believed that the courses offered by the departments of elementary teacher training and science teacher training should dedicate more content to alternative assessment-evaluation approaches. In addition, it is suggested that universities could offer elective courses about alternative assessment-evaluation approaches. Thus, the pre-service teachers’ knowledge levels about the subject will be enhanced and there will be a parallel positive improvement in their self-confidence and self-efficacy. Moreover, apart from the pre-service elementary and science teachers, studies could be conducted to identify the preferences and to investigate the self-efficacy of pre-service teachers studying in other departments with regard to alternative assessment-evaluation approaches. In addition, it could be suggested that further studies can be carried out to compare the preferences and self-efficacy perceptions of pre-service teachers in other departments towards the methods, techniques and instruments involved with alternative assessment-evaluation approaches. Finally, instructors at universities could be offered seminars involving information and applications about alternative assessment-evaluation approaches.

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