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Preservice Teachers' Perceived Self-Efficacy in Selection of Teaching Methods and Techniques

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ABSTRACT

The aim of this research is to identify perceived efficacy of a group of preservice teachers regarding selection of teaching methods and techniques. It seems important for preservice teachers to benefit from teaching methods and techniques in terms of learning processes in different subjects as they practice their profession. As this is a descriptive study, the survey model was used. Data were collected with Preservice Teachers' Perceived Self-Efficacy in Selection of Teaching Methods and Techniques Scale, developed by Durdukoca et al. (2017). The study sample comprised of 321 fourth-year students in departments of Primary Teacher Education, Turkish Teacher Education, Social Sciences Teacher Education and Preschool Teacher Education in Buca Faculty of Education at Dokuz Eylül University during Spring Semester of the academic year of 2017-2018. Obtained data were analyzed with SPSS 22, ANOVA and t-test. Data analysis showed that the preservice teachers had high perceived self-efficacy in selection of teaching methods and techniques and that there was a significant difference between the participants from different departments.

Keywords: preservice teachers, perceived efficacy regarding selection of teaching methods and techniques, teaching methods and techniques

INTRODUCTION

Teaching methods and techniques utilized during teaching-learning processes are considered as one of the most effective factors in learning. The effectiveness of different methods and techniques used in various lessons are among research subjects studied frequently. Methods and techniques, which are dealt with under teaching strategies, can be defined as different ways (Bilen, 1996; Çalışkan, Karadağ and Çalışkan, 2010; Demirel, 2002; Gözütok, 2006; Sönmez, 2004; Taşpınar, 2016). Bilen (1996:55) defined the word technique as a special way used in teaching of a specific educational activity. Demirel (2002:82) defined the word method as "the shortest way followed and determined to reach a target beforehand". They defined teaching strategies, methods and techniques as the ways followed to achieve learning. Taşpınar (2016:18) said, "a teacher first decides the strategy she/he will use then chooses the methods suitable for this". After choosing the method, the route to be followed is determined. In other words, the technique is selected. However, effectiveness of these ways may be influenced by many factors. The factors such as suitability for the subject, aims and gains, education material, knowledge and competence of teachers, conditions of the learning environment, readiness of students and their other characteristics can be effective in whether these ways will bring success. Regional/local properties can play a role in selection of teaching methods and techniques. Mukwambo (2016:3-10) performed a study with 12 preservice teachers and found that using informal learning environments helped the participants to learn their traditional culture better. The researcher reported that contextualized teaching and learning are important in offering indigenous knowledge to preservice teachers.

Several studies have been carried out to determine effectiveness of teaching methods and techniques in different subjects. Also, there have been several studies about effectiveness of different methods and techniques in different education levels, especially in Science, Social Studies, Social Sciences, Math, Turkish and Foreign Language fields (Canbulat, 2016; Cantürk Günhan and Başer, 2008; Kuşçu, 2017; Memiş and Erdem, 2013; Özyılmaz, Akamca and Hamurcu, 2005; Özyılmaz Akamca and Hamurcu, 2009; Susar Kırmızı, 2007; Şahbaz and Hamurcu, 2012).

In addition, in studies about teachers' selection of methods and techniques in their lessons, generally the most frequently used methods and techniques were determined and the reasons for their selections were discussed. Doğan (2003) examined teaching techniques mostly preferred by class teachers and found out that the most common teaching technique was question-answer, followed by narration, discussion and problem solving methods and techniques.

Taşkaya and Muşta (2008) performed a study on 244 class teachers to examine their opinions regarding methods of teaching Turkish. One quarter of the teachers were reported to consider themselves insufficient in Turkish education whereas three quarters of them believed that the schools they graduated from were insufficient in education for teaching Turkish. The researchers found that the most commonly utilized methods by class teachers in Turkish education were "question-answer", "drama" and "direct instruction". They suggested that class teachers should be supported about this subject by in-service training.

Soylu (2009) conducted a study with preservice class teachers and obtained similar results to the ones reported by Taşkaya and Muşta. The researcher developed a perception scale to collect data about methods and techniques used in teaching Math by last-year students receiving education in the department of primary education. Most of the students considered themselves sufficient or partially sufficient in direct instruction, offering definitions, explaining rules and question-answer methods and techniques, while they considered themselves insufficient in constructivist methods, invention, cooperation, demonstration, games, case studies and asking and solving problems. The researcher suggested that teaching Mathematics could be a way to eliminate this insufficiency.

Şimşek, Hırça and Çoşkun (2012) studied the role of preference and implementation rates of teaching methods and techniques by science teachers. According to results of their study, teachers generally prefer traditional methods such as question-answer and narration instead of such teaching methods and techniques as projects, go-observe and such practices as computer and microscope usage.

Özer (2013) in his study concerning perceptions of 381 last year students in Faculties of Education in Mustafa Kemal, Fırat and Cumhuriyet universities concluded that the students are aware of most of the teaching methods and techniques very important in application of active education and constructivist learning approaches, but mostly prefer to use such methods as question-answer.

Şahin and Güven (2016) and Yıldırım, Köklükaya and Aydoğdu also (2016) obtained similar results to the ones reported by Özer. This situation is similar in preservice teachers receiving pedagogic formation education in Eskici's study (2018). Wang, attracting attention to advances in education models (2017), has emphasized order-oriented education and creating learning environments appropriate for employment needs. This will allow educating individuals in accordance with contemporary needs of the society.

In the above studies, it is clear that although both teachers and preservice teachers emphasize that the use of student-centered methods and techniques will be beneficial in forming of a good and entertaining learning environment (Eskici, 2018), they generally prefer traditional/behavioral methods and techniques, and they have difficulty in implementing new approaches. There may be many reasons for this situation; preservice teachers taking similar education can prefer similar methods when they graduate. Several researchers have studied this subject (Altıparmak and Nakipoğlu, 2004; Bozpolat, Uğurlu, Usta and Şimşek, 2016; İlter, 2014). However, so that preservice teachers can utilize appropriate teaching methods and techniques when they graduate, their perceived efficacy in selection of methods and techniques should be determined and they should be provided with guidance based on their self-efficacy.

The aim of this research is to reveal perceived efficacy of preservice teachers from different departments regarding selection of teaching methods and techniques. This study attempts to answer the following questions.

1. What is the level of negative and positive efficacy perceptions of preservice teachers regarding selection of teaching methods and techniques?

2. Is there a statistically significant difference between negative and positive efficacy perceptions of preservice teachers regarding selection of teaching methods and techniques in terms of gender, department and academic performance?

3. Is there a statistically significant difference between general efficacy perceptions of preservice teachers about selection of teaching methods and techniques in terms of gender, department and academic performance?

METHOD

This research had a survey model. This model is defined as a quantitative research approach that allows reaching numerical definitions by studying attitudes, tendencies or opinions of a research population based on a sample of this population (Creswell, 1998; Fowler, 2009). In a survey, study population and sample are determined and the aim is to obtain generalizable results as great importance is placed on sampling which helps represent the study population.

Population and Sampling

The study population included 450 fourth-year students receiving education in Departments of Primary Teacher Education, Turkish Teacher Education, Social Sciences Teacher Education and Preschool Teacher Education during daytime in Fall Semester of the academic year of 2017-2018, when the study was performed. Purposeful sampling was utilized to form the study sample. The primary inclusion criterion was to have had courses about teaching methods and techniques, which helps to acquire sufficient perceived efficacy in selection of appropriate methods and techniques. The reason for choosing the above mentioned departments in sampling is that they require similar knowledge at the university entrance exam. The students filled in the scale voluntarily in the last weeks of the semester and data obtained from 321 students were analyzed. It means that approximately 70% of the study population was accessed.

Measuring Instruments

Preservice Teachers' Perceived Self-Efficacy in Selection of Teaching Methods and Techniques Scale, developed by Durdukoca et al. (2017), was used to collect data. It is a five-point Likert scale and is composed of 22 items. The scale consists of two subscales. The first one, called positive efficacy perceptions, involves 15 items reflecting positive perceptions of preservice teachers regarding their efficacy in selection of teaching methods and techniques and the second one, called negative efficacy perceptions involves seven items reflecting negative perceptions of preservice teachers.

The highest and the lowest scores for the scale were 110 and 22 respectively. The scores 15-27, 27.1-39, 39.1-51, 51.1-63 and 63.1-75 for the subscale positive perceptions show very low, low, moderate, high and very high efficacy respectively. Similarly, the scores 29.5-35, 23.7-29.4, 18.2-23.6, 12.6-18.1 3 and 7-12.5 for negative perceptions show very low, low, moderate, high and very high self-efficacy respectively (Durdukoca et al., 2017:408). Since there are generally negative expressions in the second subscale negative efficacy perceptions, items are scored reversely. Score intervals for the scale in general are as follows: 22-39.5, 39.6-57.1, 57.2-74.8, 74.9-92.4 and 92.5-110.

According to results of the reliability analysis made by Durdukoca et al. (2017:407), Cronbach's alpha was .90 for the scale. It was found to be .91 in the present study as well. Cronbach's alpha for the subscales positive perceptions and negative perceptions was .92 and .89 respectively. It is clear that the scale is reliable. As Özdamar (1997) and Alpar (2003) also emphasized in their evaluation of Cronbach's alpha reliability coefficient by taking the whole scale into consideration, the scales having a Cronbach's alpha ranging from .60 to .80 are rather reliable and the scales having Cronbach's alpha ranging from .80 to 1.00 are very reliable.

Data analysis was made with Statistical Package Program for Social Sciences 22, descriptive statistics, ANOVA and t-test. Post-hoc comparisons for differences in variance analysis were made with Scheffe test. $p<.05$ was considered as significant.

RESULTS

This section deals with interpretations of obtained findings concerning research questions. The first question is "What is the level of negative and positive efficacy perceptions of preservice teachers regarding selection of teaching methods and techniques?". Descriptive statistics used to answer this question are given in **Table 1**.

Table 1. Results of Descriptive Statistics for the level of negative and positive efficacy perceptions of preservice teachers regarding selection of teaching methods and techniques

Variables	N	$\bar{x}$	SS	Mode	Median	Range	Minimum and Maximum values
Positive Efficacy Perception	321	62.41	8.42	60.00	62.00	58.00	17-75
Negative Efficacy Perception	321	27.71	5.47	28.00	28.00	28.00	7-35
Total Efficacy Perception	321	90.12	11.42	95.00	91.00	63.00	47-110

As seen in **Table 1**, positive efficacy perception scores ranged from 17 to 75. When the mean score for positive efficacy perceptions of preservice teachers ($\bar{x}$ =62.41) is taken into consideration, their positive efficacy perception levels regarding their selection of teaching methods and techniques can be said to be high. Scores 51.1-63 were reported to show high efficacy by Durdukoca et al. (Durdukoca et al., 2017:408).

The scores for negative efficacy perceptions regarding selection of teaching methods and techniques ranged from 7 to 35. When the mean score for negative efficacy perception of the preservice teachers ($\bar{x}$ = 27.71) is taken into consideration, they can be said to have low efficacy. Items in this subscale are scored reversely. Scores 29.5-35 show very low efficacy and 23.7-29.4 show low efficacy (Durdukoca et al., 2017:408). That means preservice teachers consider themselves sufficient in selection of teaching methods and techniques.

Total efficacy perception scores for selection of teaching methods and techniques ranged between 47 and 110. When the mean score for negative efficacy perceptions of preservice teachers ($\bar{x}$ =90.12) is considered, it can be suggested that their total perception levels are high. The scores 22-39.5 show very low efficacy, 39.6-57.1 low efficacy, 57.2-74.8 moderate efficacy, 74.9-92.4 high efficacy and 92.5-110 very high efficacy (Durdukoca et al., 2017:408). When the total score for the scale is taken account of, it can be understood that the preservice teachers considered themselves sufficient in selection of teaching methods and techniques.

The second research question is "Is there a statistically significant difference in negative and positive efficacy perceptions of preservice teachers regarding selection of teaching methods and techniques in terms of gender, department and academic performance?". In order to answer this question, t-test and one-way variance analysis were utilized for data analysis. However, as separate presentations of positive and negative perceptions were thought to be more explanatory, two different tables were prepared for them. To determine the distribution of efficacy scores by academic performance, the students having academic performance scores of 2.00-3.00 were assigned into Group 1 and those having academic performance scores of 3.01-4.00 were assigned into Group 2. Data from four students having academic performance scores of lower than 2.00 were not included into the analysis. Obtained findings are presented in **Tables 2-4**.

Table 2. t/F Test results regarding positive efficacy perception scores for selection of teaching methods and techniques of the preservice teachers

Variables		N	$\bar{x}$	SS	SD	t/F	*P*
Gender	Female	227	63.25	7.50	319	2.83	.00*
	Male	94	60.36	10.07			
Department	Primary	96	64.68	6.28	317	6.43	.00*
	Turkish	73	59.16	10.76			
	Social Sciences	85	62.10	8.55			
	Pre-school	67	63.07	6.92			
Academic performance	2.01-3.00	226	62.24	8.99	315	-.56	.57
	3.01-4.00	91	62.83	6.79			

*p< .05

Positive efficacy perceptions of the preservice teachers regarding selection of teaching methods and techniques were high and the female preservice teachers had higher positive efficacy perceptions than the males. Regarding departments of the preservice teachers, positive efficacy perceptions of the students from departments of Primary and Pre-school Teacher Education were significantly higher than those from Turkish Teacher Education. Positive efficacy perceptions did not differ between the preservice teachers in terms of their academic performance.

Table 3. t/F Test results regarding negative efficacy perception scores for selection of teaching methods and techniques of the preservice teachers

Variables		N	$\bar{x}$	SS	SD	t/F	*P*
Gender	Female	227	28.68	4.89	319	5.10	.00*
	Male	94	25.38	6.10			
Department	Primary	96	28.76	4.68	317	5.96	.00*
	Turkish	73	27.09	4.49			
	Social Sciences	85	25.98	7.46			
	Pre-school	67	29.08	3.63			
Academic performance	2.01-3.00	226	27.36	5.67	315	-1.85	.06
	3.01-4.00	91	28.61	4.86			

*p< .05

According to results of data analysis, negative efficacy perceptions of the preservice teachers regarding selection of teaching methods and techniques are generally low. In this subscale, the scores 29.5-35 show very low efficacy, 23.7-29.4 low efficacy and 18.2-23.6 moderate efficacy (Durdukoca et al., 2017:408). As presented in **Table 3**, the preservice teachers did not have a moderate or high level of negative efficacy et al. Female preservice teachers had lower negative efficacy perceptions than the males. According to results of an analysis with Scheffe test made to determine whether there was a significant difference in terms of departments, there was a significant difference between the preservice teachers from Primary Teacher Education and those from Social Sciences Teacher Education and between the preservice teachers from Pre-school Teacher Education and those from Social Sciences Teacher Education. Since high scores show positive efficacy perceptions, it can be said that the preservice teachers from Primary and Pre-School Teacher Education had lower negative efficacy perceptions. There was not a significant difference in negative efficacy perceptions in terms of academic performance, but the preservice teachers with higher academic performance had lower negative efficacy perceptions.

The last research question is "Is there a statistically significant difference in general efficacy perceptions of preservice teachers about selection of teaching methods and techniques in terms of gender, department and academic performance?" Results of analysis of data about this question are shown in **Table 4**.

Table 4. t/F Test results regarding total scores for efficacy perceptions about selection of teaching methods and techniques

Variables		N	$\bar{x}$	SS	SD	t/F	*P*
Gender	Female	227	91.94	10.26	319	4.56	.00*
	Male	94	85.74	12.84			
Department	Primary	96	93.44	9.38	317	7.54	.00*
	Turkish	73	86.26	12.91			
	Social Sciences	85	88.09	12.50			
	Pre-school	67	92.16	9.06			
Academic performance	2.01-3.00	226	89.60	12.01	315	-1.30	.19
	3.01-4.00	91	91.45	9.68			

*p< .05

As shown in **Table 4**, there were significant differences in scores for total efficacy perception about selection of teaching methods and techniques between the male preservice teachers and female preservice teachers. When the mean values are examined, it is clear that the difference resulted from female preservice teachers.

Post-hoc analysis with Scheffe test revealed that the preservice teachers from Primary Teacher Education had higher perceived efficacy than those from Turkish and Social Sciences Teacher Education. The preservice teachers from Pre-school Teacher Education had higher perceived efficacy than those from Turkish Teacher Education. It can attributed to content and duration of teaching methods and techniques courses taken by the preservice teachers. The possibility of having a job at state schools after graduation might have had a little effect on their perceived efficacy. Lately, Primary and Pre-school Education teachers have had the highest possibility of having a job at state schools.

Since there have been few studies about perceived efficacy about selection of teaching methods and techniques, findings obtained in the present study by using Preservice Teachers' Perceived Self-Efficacy in Selection of Teaching Methods and Techniques Scale, developed by Durdukoca et al., are important (2017:400). In addition, since the results of the study revealed perceived efficacy of the preservice teachers from departments of primary, pre-school, social sciences and Turkish teacher education, they can provide guidance for education in these fields. Although the findings showed that the students did not have low efficacy in selection of teaching methods and

techniques, it should be remembered that supporting learning processes of preservice teachers by newer and more modern teaching methods and techniques in the future will enhance their efficacy levels.

DISCUSSION AND SUGGESTIONS

This research was carried out to reveal perceived efficacy of preservice teachers studying in different departments regarding their selection of teaching methods and techniques. Obtained findings showed that the preservice teachers generally had positive efficiency perceptions about selection of teaching methods and techniques. However, as Soylu (2009) and Özer (2013) mentioned in their studies, although preservice teachers know teaching methods and techniques and consider themselves sufficient in their selection, they have difficulty in transferring their knowledge into practice and mostly prefer traditional methods (e.g. narration and question-answer). In the present study, perceived efficacy regarding selection of teaching methods and techniques differed between genders. The female preservice teachers had higher perceived efficacy than the male ones. In a meta-analysis made by Polat (2019) on 34 studies about attitudes of preservice teachers towards the teaching profession performed in Turkey between 2010 and 2015, similar findings were obtained. The meta-analysis revealed that gender had an impact (at the level of 0.323), though it was small. This impact level was in favor of the female preservice teachers. However, there was not a significant difference in attitudes between the preservice teachers from different geographical regions.

In the current study, the preservice teachers studying in departments of Primary and Pre-School teacher education had significantly higher perceived efficacy than those studying in departments of Turkish and Social Sciences teacher education. However, there was not a significant difference in perceived efficacy about selection of teaching methods and techniques between the preservice teachers in terms of academic performance.

Based on the results of this study, the following suggestions could be made.

1- Further studies should be carried out at universities offering teacher education to improve positive efficacy perceptions in preservice teachers. These studies should deal with new teaching methods and techniques in particular.

2- There have been very few studies about perceived efficacy about selection of teaching methods and techniques in the literature. Therefore, the results of this study can provide basis for further studies in this field.

3- It can be recommended that quantitative studies regarding perceived efficacy of preservice teachers about selection of teaching methods and techniques should be performed.

4- The sample of this study only included last-year students of one university. Further studies should include larger samples from different universities.

5- Universities offering teacher education should provide preservice teachers with environments in which they can practice their teaching skills and evaluate them. Contents of practicums should be evaluated and enhanced and duration of these courses should be lengthened.

6- Courses for general and special teaching methods and techniques should be revised in terms of content and duration.

END NOTE

A short summary of this study was presented at the XVI. European Conference on Social and Behavioral Sciences Congress held by International Association of Social Science Research (IASSR) between 10 and 12 May 2018. However, the study was not published anywhere else and some revisions were made.

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