Opinions of Prospective Primary School Teachers about Methods and Techniques Suitable for Teaching Science: A Case Study from Turkey

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Abstract
The aim of this study was to determine opinions of a group of prospective Turkish primary school teachers about what teaching methods and techniques are more suitable to teach science. In addition, their perceived competence in selection of teaching methods and techniques was explored. In Turkey, primary school teachers offer various courses in the first four years of primary education. Their ability to benefit from teaching methods and techniques suitable for subjects and courses is considered important in terms of realization of learning. The study was also directed towards examining whether third-year university students having taken courses for methods and techniques used to teach different subjects felt competent about selection of suitable methods and techniques.

This is a case study using both quantitative and qualitative research methods. Quantitative data were gathered with Perceived Competence Scale for Selection of Teaching Methods and Techniques for Prospective Teachers, developed by Durdakoca et al. (2017). Qualitative data were collected through an open-ended question “What teaching methods and techniques do you think you want to use in the future”. All the participants answered this open-ended question and completed the scale. Data obtained through the open ended-question were analyzed with content analysis.

The study sample included 96 third-year students studying in the Department of Primary Education in Buca Education Faculty of Dokuz Eylul University in the spring term of the 2017-2018 academic year. Quantitative data were analyzed with SPSS v. 22 and t-test.

The prospective primary school teachers were found to plan to use student-centered methods and techniques and to have high perceived competence concerning selection of teaching methods and techniques. Their perceived competence did not differ between genders and students with different academic performance. Only having a positive perception of competence significantly differed between branches of students.

Keywords: prospective primary school teachers, methods and techniques of teaching science, perceived competence in selection of teaching methods and techniques

1. Introduction
Effectiveness of teaching methods and techniques in learning has been one of the issues dealt with in educational research. Studies on effectiveness of learning strategies, teaching methods and techniques in individuals’ learning have yielded different results. Most of the studies have revealed that using different methods and techniques creates positive effects on various factors. Teaching methods and techniques utilized in teaching science, Turkish and social sciences etc. have been found to be effective in predetermined variables (Canbulat, 2016; Cantürk Günhan & Başer, 2008; Kuşcu, 2017; Memiş & Erdem, 2013; Özyılmaz, Akamca & Hamurcu, 2005; Özyılmaz Akamca & Hamurcu, 2009; Susar Kırmızı, 2007; Şahbaz & Hamurcu, 2012, Sayan & Hamurcu, 2018).

Description and classification of teaching methods and techniques have been frequently studied issues in the literature (Çalışkan, Karadağ & Çalışkan, 2010; Demirel, 2002; Gözütok, 2006; Sönmez, 2004; Taspınar, 2016). Teachers should be able to select suitable methods and techniques after they decide what subjects they will teach and what gains they will attain. It is also known that students’ active involvement in the learning process is of importance.
students more frequently preferred traditional teaching methods and techniques such as direct instruction and the techniques they selected and to investigate causes of their selections in science units. They reported that the students in the Department of Science Education in Education Faculty of Gazi University to determine the methods and techniques, they generally select traditional/behavioral methods and techniques and do not adopt modern ones much. It can be explained by the fact that prospective teachers select methods and techniques similar to those they are exposed to in their preservice education (Altıparmak & Nakipoğlu, 2004; Bozpolat, Ügurlu, Usta & Şimşek, 2016; İlter, 2014).

It seems that although both teachers and prospective teachers point out to positive effects of using student-centered methods and techniques, they generally select traditional/behavioral methods and techniques and do not adopt modern ones much. It can be explained by the fact that prospective teachers select methods and techniques similar to those they are exposed to in their preservice education (Altıparmak & Nakipoğlu, 2004; Bozpolat, Ügurlu, Usta & Şimşek, 2016; İlter, 2014).

So that prospective teachers can implement different teaching methods and techniques after their graduation, the first thing to do is that causes of their preferences should be determined. In addition, it is important that perceived competence of prospective primary school teachers about their selection of teaching methods and techniques should be determined and that they should be recommended different activities based on their perceived competence.

The aim of this study is to reveal opinions of prospective primary school teachers concerning what teaching methods and techniques they will use and their perceived competence in selection of the methods and the techniques. Based on these aims, answers to the following research questions were sought:

- What teaching methods and techniques do prospective primary school teachers want to use more frequently in their prospective teaching career?
- What teaching methods and techniques do prospective primary school teachers use most frequently during their prospective teaching career?
- What teaching methods and techniques do prospective primary school teachers consider important to implementation of active and constructivist learning, but prefer to use such methods and techniques as direct instruction and question-answer?
- What teaching methods and techniques do prospective primary school teachers consider important to implementation of active and constructivist learning, but prefer to use such methods and techniques as direct instruction and question-answer?
1. What do prospective primary school teachers think about the methods and techniques they will prefer to teach science?

2. What are the degrees of general, positive and negative perceived competence of the prospective primary school teachers in selection of teaching methods and techniques?

3. Do prospective teachers’ positive and negative perceptions of competence in selection of teaching methods and techniques differ in terms of their gender, branch and academic performance?

4. Do prospective teachers’ general perceptions of competence in selection of teaching methods and techniques differ in terms of gender, branch and academic performance?

2. Methods

This is a case study, which allows noticing and describing details of a phenomenon (Büyüköztürk et al. 2008: 249-250). Variety in data was achieved by collecting both qualitative and quantitative data. Qualitative data were collected by asking an open-ended question and the students’ responses to this question were analyzed with content analysis. Quantitative data were obtained through the survey method. It is defined as a quantitative research method which allows making numerical descriptions of attitudes, tendencies or opinions of a population by studying a sample of that population (Creswell, 1998; Fowler, 2009). Therefore, a questionnaire was used for data collection.

2.1 Study Sample

The study sample included all third-year students studying in the Department of Primary Education in Buca Education Faculty in the spring term of 2017-2018 academic year (n=96). The fact that the researcher was working in the study setting facilitated data collection. Towards the end of the spring term, the students both answered the open-ended question and responded to the questionnaire voluntarily. Characteristics of the sample are shown in Table 1.

Table 1. Characteristics of the Study Sample

| Characteristics         | Number / Percentage | Total |
|-------------------------|---------------------|-------|
| Gender                  |                     |       |
| Female                  | 73 76%              | 96    |
| Male                    | 23 24%              |       |
| Branch                  |                     |       |
| 3 A                     | 46                  | 96    |
| 3 B                     | 50                  |       |
| Academic Performance    |                     |       |
| (GPA)                   |                     |       |
| Up to 3.00              | 73 76%              | 96    |
| 3.01 and higher than 3.01 | 23 24%           |       |

As shown in Table 1, the number of the female students was higher, which is consistent with the results of the studies conducted in the same study setting in previous years (Yaprak, Armağan & Hamurcu, 2014; Hamurcu, 2018). It may be that females more frequently prefer to become a primary school teacher in Turkey.

2.2 Data Collection Tools

Data collection was performed by using Perceived Competence Scale for Selection of Teaching Methods and Techniques for Prospective Teachers, developed by Durdükoca et al. (2017). It is a five-point Likert scale and involves two subscales and 22 items. One subscale is called positive perceptions about competence in selection of techniques and is composed of 15 items. The other subscale is called negative perceptions about competence in selection of techniques and involves seven items. The highest and the lowest scores for the scale are 110 and 22 respectively. Ranges of scores were determined to interpret mean values (Durdükoca et al., 2017:408). Ranges of scores for the first subscale were interpreted as in the following: 15-27 (very low), 27.1-39 (low), 39.1-51 (moderate), 51.1-63 (high) and 63.1-75 (very high). Ranges of scores for the second subscale were interpreted as follows: 29.5-35 (very low), 23.7-29.4 (low), 18.2-23.6 (moderate), 12.6-18.1 (high) and 7-12.5 (very high). The items in the second subscale were scored in the reverse order since it generally includes negative statements. Ranges of total scores likely to be obtained from the scale were similarly determined (22-39.5, 39.6-57.1, 57.2-74.8, 74.9-92.4 and 92.5-110).

According to results of a reliability analysis made by Durdükoca et al., who developed the scale (2017:407), Cronbach alpha was .90 for the scale. It was found to be .88 in the present study. Cronbach alpha was found to be .85
for positive perceptions of competence and .82 for negative perceptions of competence. These Cronbach values for the subscales seemed to be a little lower than those reported for the original scale. Hamurcu and Canpulat, who performed a similar study on 321 fourth-year students (2018), reported that Cronbach alpha was .91 for the scale, .92 for positive perceptions about competence and .89 for negative perceptions about competence. Decreased Cronbach alpha values in the present study can be due to the small sample size (n= 96). However, the scale can still be considered as very reliable. As Özdamar (1997) and Alpar (2003) reported, the scales having Cronbach alpha ranging between .60 and .80 are considered quite reliable and those having Cronbach alpha ranging between .80 and 1.00 are considered as very reliable. As a result, data obtained in the present study can be regarded as reliable.

Quantitative data obtained through the scale were analyzed by using SPSS 22 and t test and descriptive statistics. p<.05 was considered as significant.

In addition to administration of a scale, the students were also asked to answer an open-ended question "What methods and techniques will you, as a primary school teacher, use to teach science in the future? and why?”. They were asked to put the methods and techniques they will use in order from one to five and explain them briefly. Responses to this question were analyzed with content analysis (Yıldırım & Şimşek, 2000:162) by the researcher. The results of the analysis was checked by another lecturer and reliability of the analysis was achieved.

3. Results

This section presents the results of the analysis of data obtained through an open-ended question and the scale Perceived Competence Scale for Selection of Teaching Methods and Techniques for Prospective Teachers. The most frequently preferred methods and techniques based on the data from responses to the open-ended question and their frequencies are outlined in a table. The order of the students’ preferences was also documented during analysis; however, it was not given in the table due to difficulty in its tabulation.

Question 1. What do prospective primary school teachers think about the methods and techniques they will prefer to teach science?

As shown in Table 2, the participants classified the methods and techniques into different categories. It can be explained by the fact that the researcher utilized similar classifications in the courses Science and Technology I and II throughout the second semester. Several sources about teaching principles and methods have shown that some techniques are considered as schematized (e.g. concept mapping). As emphasized in the literature, concept maps (Novak, 1984; Korkmaz, 2004; Eskici, 2018), mind maps (Buzan, 2003, Evrekli & Balm, 2010) and concept cartoons (Kabapnar, 2005; Evrekli, İnel & Çite, 2006; Özyılmaz Akamca & Hamurcu, 2009; Naylor & Keogh, 2011) are used not only as teaching methods and techniques but also assessment and evaluation tools. How often the participants preferred to utilize these was also given in the table. In addition, two learning theories, i.e. constructivism and multiple intelligence were presented under the heading theories. The participants mentioning these theories noted that they would adopt them while conducting classes. However, they did not mention any specific teaching methods and techniques. It should be kept in mind that student-centered teaching methods and techniques have to be employed more frequently while both theories are put into practice (Saban, 2001; Şelçük, Kayiş & Okut, 2002). The orders in the table should be interpreted in light of the abovementioned explanations.

As shown in the table, the methods and the techniques most frequently preferred by the prospective primary school teachers to teach science were drama, experiment, cooperative learning, question-answer, tour and observation. This was a favorable finding. It is known that most of these methods and techniques are student-centered and enable students to be active. There have been several studies showing their importance in the educational process. Açık göz Ün (2002:131-145) noted that educational games, mind maps, conceptual network and brainstorming are active learning techniques. Similarly, Bilen emphasized the role of educational games (1996:148-165) and the teaching methods and techniques which can be implemented outside the class like tours and observations in the learning process. Açık göz Ün (1992: 115-117 & 2002:171-220) underlined positive effects of cooperative learning on the learning process. In addition, many sources based on theoretical work and results of interventional studies have shown benefits of drama in teaching (Üstündag, 2000; MEB, 2003; Önder, 2003; Susar Kirmizi, 2007; İcelli, Polat & Sülün, 2008; Adıgüzel, 2013). There have also been studies explaining characteristics of POE techniques, recently reported to be constructivist learning methods, and how they can be implemented (Atasoy 2004: 171-224) and investigating their benefits in practice (Özyılmaz Akamca & Hamurcu, 2009: 1186-1206; Köklükaya & Yıldırım, 2018).
Table 2. The Results of the Analysis of the Participants’ Preferences Concerning Methods and Techniques to Teach Science (N=96)

| Order | Methods and Techniques               | Branch 3A (f) | Branch 3B (f) | Total (f) |
|-------|--------------------------------------|---------------|---------------|-----------|
| 1     | Drama                                | 28            | 32            | 60        |
| 2     | Experiment                           | 20            | 34            | 54        |
| 3     | Cooperative learning                 | 26            | 23            | 49        |
| 4     | Question-Answer                      | 16            | 20            | 36        |
| 5     | Observation                          | 9             | 22            | 31        |
| 6     | Tour                                 | 5             | 18            | 23        |
| 7     | Discussion                           | 9             | 14            | 23        |
| 8     | Brainstorming                        | 7             | 15            | 22        |
| 9     | Problem-based learning               | 9             | 3             | 12        |
| 10    | Analogy                              | 9             | 2             | 11        |
| 11    | Direct instruction                   | 6             | 5             | 11        |
| 12    | Storifying                           | 0             | 11            | 11        |
| 13    | Argumentation-based learning         | 7             | 1             | 8         |
| 14    | Educational games                    | 1             | 5             | 6         |
| 15    | Project-based learning               | 4             | 1             | 5         |
| 16    | Presentations by using a computer    | 3             | 2             | 5         |
| 17    | Please talk and pass                 | 2             | 2             | 4         |
| 18    | Station Technique                    | 4             | 0             | 4         |
| 19    | Learning by doing and discovering    | 2             | 2             | 4         |
| 20    | TAGA/Prediction, Observation and explanation (POE) | 2 | 1 | 3 |
| 21    | Simulation                           | 0             | 2             | 2         |
| 22    | Writing a conclusion statement       | 0             | 2             | 2         |
| 23    | Group work                           | 1             | 1             | 2         |
| 24    | Socratic questioning                 | 0             | 1             | 1         |
| 25    | Learning window in the class         | 0             | 1             | 1         |
| 26    | BSB use                              | 1             | 0             | 1         |

| Order | Schematized tools                  | Branch 3A (f) | Branch 3B (f) | Total (f) |
|-------|------------------------------------|---------------|---------------|-----------|
| 1     | Structured grid                    | 11            | 8             | 19        |
| 2     | Concept map                        | 7             | 2             | 9         |
| 3     | Semantic analysis table (SAT)      | 0             | 8             | 8         |
| 4     | Mind map                           | 6             | 2             | 8         |
| 5     | Concept cartoon                    | 4             | 3             | 7         |
| 6     | Fishbone diagram                   | 5             | 0             | 5         |
| 7     | Conceptual network                 | 2             | 2             | 4         |
| 8     | Vee diagram                        | 2             | 0             | 2         |
| 9     | Information map                    | 0             | 2             | 2         |
| 10    | Diagnostic tree (DT)               | 1             | 0             | 1         |
| 11    | Venn diagram                       | 1             | 0             | 1         |

Theories

| Order | Theories                      | Branch 3A (f) | Branch 3B (f) | Total (f) |
|-------|-------------------------------|---------------|---------------|-----------|
| 1     | Multiple intelligence         | 14            | 3             | 17        |
| 2     | Constructivism                | 4             | 0             | 4         |

Tools and techniques classified as schematized tools have been shown to be utilized in learning processes. Concept maps, concept cartoons and mind maps have become widespread recently (Özyılmaz Akamca, Ellez & Hamurcu, 2009; Evreki, Inel & Balım, 2011; Yılmaz Korkut & Şaşmaz Ören, 2018).

Based on the information presented in the table, it can be suggested that methods, techniques and schematized tools are likely to be adopted by teachers to teach science in the future.

Question 2: What are the degrees of general, positive and negative perceived competence of the prospective primary school teachers in selection of teaching methods and techniques?
Results of descriptive statistics for the prospective primary school teachers’ perceived competence in selection of teaching methods and techniques are shown in Table 3.

Table 3. Results of Descriptive Statistics for Data from Perception Scale for Prospective Primary School Teachers’ Competence in Selection of Teaching Methods and Techniques

| Variables                        | N  | \( \bar{x} \) | SS  | Median | Range | Minimum and Maximum Values |
|----------------------------------|----|----------------|-----|--------|-------|----------------------------|
| Positive Perceptions of Competence | 96 | 65.89          | 5.64| 66.00  | 22.00 | 53-75                      |
| Negative Perceptions of Competence | 96 | 30.44          | 3.57| 30.00  | 15.00 | 20-35                      |
| Total Perceptions of Competence  | 96 | 96.32          | 7.97| 97.00  | 31.00 | 79-110                     |

As presented in Table 3, the scores for positive perceptions of competence ranged from 53 to 75. However, the range can be 17-75. The mean score (\( \bar{x} =65.89 \)) also suggests that the prospective primary school teachers had very high levels of positive perceptions about their competence. The scores 63.1-75 were reported to show high positive perceptions of competence (Durdukoca et al., 2017:408).

Scores for negative perceptions of competence may range from 7 to 35. As shown in the table, the participants got the scores 20-35. The mean score for negative perceptions of competence (\( \bar{x} = 30.44 \)) also suggests that the participants had low negative perceptions of competence. The items in the subscale negative perceptions of competence are scored in the reverse order and high scores indicate positive perceptions. The scores 29.5-35 were reported to show very low negative perceptions (Durdukoca et al., 2017:408). As a result, the prospective primary school teachers thought they were sufficiently competent in selection of methods and techniques.

Total scores for competence in selection of methods and techniques may vary from 22 to 110. The scores of the participants in this study ranged from 79 to 110. The mean total score was 96.32. It is clear that the participants got very high levels of perceived competence. The range of total scores 92.5-110 was reported to be very high (Durdukoca et al., 2017:408). It is clear that the prospective primary school teachers were quite competent in selection of methods and techniques.

Question 3: Do prospective teachers’ positive and negative perceptions of competence in selection of teaching methods and techniques differ in terms of their gender, branch and academic performance?

The results of t test used to seek an answer to this question are shown in Table 4 and Table 5 since it can be more appropriate to present the results about positive and negative perceptions of competence separately. The students were divided into two groups based on their academic performance, i.e. grade point average. Those with a GPA of 2.00-3.00 were assigned into Group 1 and those with a GPA of 3.01-4.00 were assigned into Group 2.

Table 4. Results of t Test for Positive Perceptions of Competence in Selection of Teaching Methods and Techniques

| Variables | Aritmethic Mean | N  | \( \bar{x} \) | SS  | Sd  | t test | p    |
|-----------|-----------------|----|---------------|-----|-----|--------|------|
| Gender    |                 |    |               |     |     |        |      |
| Female    |                 | 73 | 66.16         | 5.53| 94  | .863   | .390 |
| Male      |                 | 23 | 65.00         | 5.99|     |        |      |
| Branch    |                 |    |               |     |     |        |      |
| 3 A       |                 | 46 | 67.20         | 5.29| 94  | 2.23   | .028*|
| 3 B       |                 | 50 | 64.68         | 5.73|     |        |      |
| Academic  |                 |    |               |     |     |        |      |
| GPA of 2.00-3.00 | 73 | 65.50 | 5.60 | 94  | -1.637 | .226 |
| GPA of 3.01-4.00 | 23 | 67.13 | 5.72 |     |        |      |

*p<0.05 was considered as significant.

As presented in the table, the prospective primary school teachers had high levels of positive perceptions of competence regardless of all the variables. Although the mean values were close to each other, there was a significant difference between the branches (\( p=.028, p<.05 \)). This significant difference was in favor of the branch 3 A. This might have resulted from internal dynamics of the branch. There was not a significant difference in positive perceptions of competence in terms of gender and academic performance.
Table 5 shows findings concerning negative perceptions of competence.

### Table 5: Results of t Test for Negative Perceptions of Competence in Selection of teaching Methods and Techniques

| Variables          | Arithmetic Mean | N | \( \bar{x} \) | SS | Sd | t test  | p       |
|--------------------|-----------------|---|-------------|----|----|---------|---------|
| Gender             |                 |   |             |    |    |         |         |
| Female             | 73              | 30.62 | 3.54 | 94 | .874 | .385    |         |
| Male               | 23              | 29.87 | 3.68 |    |      |         |         |
| Branch             |                 |   |             |    |    |         |         |
| 3 A                | 46              | 30.65 | 3.41 | 94 | .575 | .563    |         |
| 3 B                | 50              | 30.24 | 3.74 |    |      |         |         |
| Academic Performance|                |   |             |    |    |         |         |
| GPA of 2.00-3.00   | 73              | 30.10 | 7.84 | 94 | -1.686 | .095    |         |
| GPA of 3.01-4.00   | 23              | 31.52 | 8.11 |    |      |         |         |

The data analysis showed that the prospective primary school teachers had very low levels of negative perceptions of competence in selection of teaching methods and techniques. Since the items are scored in the reverse order, the participants did not have negative perceived competence at moderate or high levels and their perceived negative competence did not differ significantly in terms of gender, branch, or academic performance. In fact, the mean values of all the groups were quite close to each other. As a result, the prospective primary school teachers felt competent in their selection of teaching methods and techniques.

Question 4. Do prospective teachers’ general perceptions of competence in selection of teaching methods and techniques differ in terms of gender, branch and academic performance?

In an attempt to answer this question, the total scores for the responses of the students to the scale for selection of teaching methods and techniques were analyzed and compared in terms of gender, branch and academic performance and general status was revealed. Obtained results are shown in Table 6.

### Table 6: Results of t Test for Total Scores for Perceptions of Competence in Selection of Teaching Methods and Techniques

| Variables          | Arithmetic Mean | N | \( \bar{x} \) | SS | Sd | t test  | p       |
|--------------------|-----------------|---|-------------|----|----|---------|---------|
| Gender             |                 |   |             |    |    |         |         |
| Female             | 73              | 96.78 | 7.72 | 94 | 1.003 | .319    |         |
| Male               | 23              | 94.87 | 8.74 |    |      |         |         |
| Branch             |                 |   |             |    |    |         |         |
| 3 A                | 46              | 97.85 | 7.57 | 94 | 1.819 | .072    |         |
| 3 B                | 50              | 94.92 | 8.14 |    |      |         |         |
| Academic Performance|                |   |             |    |    |         |         |
| GPA of 2.00-3.00   | 73              | 95.59 | 7.84 | 94 | -1.621 | .108    |         |
| GPA of 3.01-4.00   | 23              | 98.65 | 8.11 |    |      |         |         |

As seen in the table above, no significant difference was found in total scores for perceptions of competence in selection of teaching methods and techniques in terms of gender, branch and academic performance. The finding that the mean values were very close to each other can explain this lack of a significant difference. In general, the prospective primary school teachers had high levels of perceived competence in selection of teaching methods and techniques.

### 4. Conclusions and Recommendations

The present study was performed to reveal opinions of prospective primary school teachers about what methods and techniques they found suitable to teach science and to determine their perceptions of competence in selection of these methods and techniques. The participants thought that they would most frequently benefit from student-centered teaching methods and techniques like dramas, experiments, cooperative learning, question-answer, tours and observations, which is consistent with the results of a study by Eskici (2018). Similarly, in a study by Böyük et al., the science teachers emphasized that they could benefit from laboratory practices to encourage students to participate in classes (Böyük, Demir & Erol; 2010). In addition, Kaptan and Kuşakçı underlined effectiveness of brainstorming (2002). It has also been reported that educational games (Saracaloğlu & Karademir, 2009) and drama are effective in different aspects of the learning process (Başçı & Gündoğdu, 2011; Yılmaz, 2013). To sum up, prospective teachers’ adoption of student-centered teaching methods and techniques seems to be promising in terms of practices in the future.

The current study was also directed towards examining the prospective primary school teachers’ perceived
competence in selection of teaching methods and techniques. The results showed that they had high levels of perceived competence. These perceptions did not significantly differ between males and females and between students with different levels of academic performance. However, positive perceptions of competence were significantly different between the branches. Since there have not been many studies about this issue in Turkey, the results of the present study were compared with those reported by Hamurcu and Canbulat (2018). They performed a study with 321 prospective primary school, Turkish, social sciences and preschool teachers and reached similar results. All the prospective teachers had higher levels of perceived competence in selection of methods and techniques. Although academic performance did not create a significant difference, gender and branches caused a significant difference. This difference resulted from the female students and the students who would become primary school teachers. The reason for the lack of a significant difference in the present study might have been due to the fact that all the students belonged to the same branch and that the sample size was small.

Based on the results of this study, the prospective primary school teachers plan to utilize student-centered teaching methods and techniques in general and have high levels of perceived competence in selection of these methods and techniques. It is important that they reported to select teaching methods and techniques which will improve creativity, communication, collaboration and critical thinking considered as the skills of the 21st century.

The finding that the prospective primary school teachers preferred to adopt student-centered methods and techniques to teach science like drama, experiment, observation and cooperative learning is favorable since it can create positive effects on the learning environment. Their high perceived competence in selection of teaching methods and techniques can also be an indicator for these positive effects. The role of effective and positive interactions which can be created by teachers in learning make the results of this study more valuable.

In light of the results of the study, the following recommendations can be made:

1- Although the prospective primary school teachers want to adopt student-centered teaching methods and techniques, newly developed approaches such as STEM (Science, Technology, Engineering and Mathematics) should be incorporated into the learning process.

2- The prospective primary school teachers were found to have high perceived competence in selection of teaching methods and techniques. Attempts to improve their competence should be continued. Incorporation of alternative practices in the learning process could be more effective.

3- Due to recent regulations about education faculties, some restrictions are experienced in courses. In accordance with the new program to be initiated for the first-year students, the course Drama offered for four hours per week in the past will be given for two hours a week and the course Teaching Science, offered for two terms in the past, will be offered for one term only. As revealed by the responses to the open-ended question, the prospective teachers adopted drama as a teaching method and reported to implement it. However, decreased course hours may affect the content and effectiveness of the course. Likewise, forming the basis of the present study and given three hours weekly for two terms in the past, the course Teaching Science was limited to one term. This may have a negative effect on its content and practice and may remain insufficient. In fact, the weekly course hours had been reduced from four to three before, which had created problems. Offering the course only in a single term can cause difficulty in achieving the sequence of course contents. The new program has not been initiated for the third-year students yet and it is expected that these problems can be eliminated.

4- There have been few studies about perceived competence in selection of teaching methods and techniques. Therefore, the results of the present study could provide guidance for further studies.

5- The sample of the present study included prospective primary school teachers only at one university. It can be recommended that further studies having larger sample sizes, including students from several universities and using different research methods should be conducted.

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