

Full Length Research Paper

An analysis of teachers' perceptions through metaphors: Prospective Turkish teachers of science, math and social science in secondary education

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In this study, teachers' perceptions of prospective Turkish teachers (that is, those who have completed their undergraduate studies) in the fields of Science, Mathematics and Social Sciences are investigated through teacher metaphors. These perceptions were classified in accordance with their answers to two open-ended questions within a metaphoric structure used as the data collection tool. This classification employs the tripartite metaphorical classification developed by Martínez et al. and includes the following perspectives: Transmissive, constructivist, and situative. In the study, 58 different teacher metaphors were identified. As a result of the research, metaphors within the Transmissive class were observed predominantly in prospective teachers of both groups, followed by Constructivist in prospective Science and Math teachers, and Situative in prospective Social Science teachers. Findings from the study are also discussed within the scope of relevant literature.

Key words: Teaching perception, prospective teacher, teacher training, secondary education.

INTRODUCTION

Perceptions of teachers can effectively reflect their teaching practices within the classroom; therefore, it is important to identify the predominant beliefs and perceptions of prospective teachers during their education, through targeted studies. Fenstermacher (1994) and Richardson (1997) indicated that this is one of the most important objectives of teacher education.

In Turkey, changes in teaching philosophy began with the primary school curriculum in 2004, when a constructivist teaching approach (that is, a student-

centered approach) was adopted. During the 2008 to 2009 academic year, the change was also reflected in formal secondary education (Demir and Demir, 2012).

This change in the philosophy of education programs is the theoretical side of the issue, while teachers' responsibility to implement these educational programs in classrooms is the practical side. Teachers are the most important instruments in classrooms to reflect this change. If teaching perceptions of teachers and prospective teachers are different, this change is not

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reflected in classrooms. In this context, teachers and prospective teachers to determine the perception of teachers is very important.

According to Lakoff and Johnson (1980, 1999), metaphor is one of our most important tools of thought, and it identifies something as being the same or similar to an unrelated thing, thus highlighting similarities between the two. The analogical thinking mechanism used since early human history is turned into a metaphor when our last perception regarding something is created. In this context, according to Aubusson et al. (2006), all metaphors are analogies, but not all analogies are metaphors; similarly, metaphor is a reflection of deep perceptions of a person regarding a fact mentioned at that moment (Saban, 2010).

We symbolize our perceptions and understanding regarding a subject through metaphors. Martínez et al. (2001) called this "blueprint". All teachers have their own philosophies (or perceptions) that are shaped over time within the framework of their individual experiences as a result of their interactions with the social environment. However, it is difficult to reveal the ultimate philosophy understanding of teachers (Mellado et al., 2012). Many previous studies suggest that personal metaphors can be used to reveal the ultimate philosophy understanding of teachers (Leavy et al., 2007; Martínez et al., 2001; Mellado et al., 2012; Saban, 2004; Saban, 2010; Saban et al., 2007).

Schmitt (2005) considers metaphor as an important data collection tool in qualitative research. Metaphors present a holistic framework of perception because they provide an understanding of experience related to the subject of the metaphor (Wormeli, 2009). Prospective teachers can be aware of their real perceptions regarding their attitudes toward teaching, through metaphors. In this way, metaphors can be used more actively in training programs for teachers. As stated by Mellado et al. (2012), this self-realization will play a key role for prospective teachers in changing or improving their attitudes, perceptions, and beliefs as appropriate.

Metaphors allow us to replace a concept or an idea with another one to better explain the original idea with another. There is an interpretation and a relative similarity in question (Ortony, 1993), and Lakoff and Johnson (1980) state that metaphor tries to explain what is unknown with something else.

Metaphors are not just a means of expressing perceptions of people regarding something; rather, they are also thinking and interpretation tools used continuously and unintentionally in the process of analysis (Martínez et al., 2001). Saban (2010) likens metaphor to a pair of glasses, where the metaphor of a person regarding something is the last perception framework of that person related to that thing and he/she interprets other concepts or ideas regarding this thing through these metaphoric "glasses".

Teachers' and prospective teachers' metaphors in education

All people, including teachers, use a carefully structured language in accordance with established rules that may not fully reflect their true understanding and ideas. As such, metaphor is an important cognitive tool that can help teachers present important information regarding real teaching perceptions and classroom practices (Boujaoude, 2000; Boyd and Bloxham, 2014; Briscoe, 1991; Gurney, 1995; Tobin and LaMaster, 1995). According to Tobin and Tippins (1996), metaphors can be considered as a source of reflection of ideas that will develop in the future.

While perceptions and ideas of prospective teachers regarding teaching and learning improve during their academic lives (Briscoe, 1991), perceptions and statements of teachers also contain conflicts. For example, although they express their teaching perceptions as student-centered, their real perceptions may be teacher-centered (Simmons et al., 1999).

A metaphoric study conducted by Saban (2004) on prospective primary teachers, they consider themselves more student-centered than teacher-centered; however, they see their secondary school colleagues as being more teacher-centered. According to various studies, it is a time-consuming process to make changes in the teaching perceptions of teachers (Mellado et al., 2006; Wahbeh and Abd-El-Khalick, 2014). In addition, there is an inconsistency among perceptions, thoughts, and implementation methods in general. In fact, there are significant inconsistencies among the ideas and practices of new teachers and those of prospective teachers (Brown and Melear, 2006; Da Silva et al., 2007).

Teachers develop their metaphors consistent with changes in their perceptions that affect new lives and experiences (Russell and Hrycenko, 2006; Tobin et al., 1994). Thomas and Beauchamp (2011) have investigated changes in professional perceptions of primary and secondary school teachers during their first years through the use of metaphors. Although most prospective teachers consider themselves "ready to prove themselves" or motivated at the beginning of the year, this perception may turn into one of mere survival toward the end of the year.

Tobin and Fraser (1989) indicate that metaphorical vocational perceptions of prospective teachers are exposed to considerable changes during the course of their academic lives. Teaching and learning perceptions of prospective teachers change as they experience real teaching practice, achieve new theoretical knowledge, and live new teaching experiences. Furthermore, prospective teachers develop new metaphors consistent with their changing perceptions (Leavy et al., 2007; Pinnegar et al., 2011; Volkman and Anderson, 1998).

Several previous studies have investigated the

emotional perceptions of teachers and prospective teachers through self-created metaphors (Maxwell, 2015; Saban, 2011; Saban et al., 2014; Thomas and Beauchamp, 2011). From such studies, it is known that perceptions of teachers regarding their students affect their metaphors (Ben-Peretz et al., 2003; Saban, 2010).

Teaching practice serves as a real-world playing field for prospective teachers to implement their ideas in learning and teaching methods. Metaphor is an important tool that reflects perceptual changes of prospective teachers regarding teaching and learning during this teaching practice (Russell and Hrycenko, 2006).

Metaphors created by teachers tell us whether the perception of the teacher is student-, teacher-, or content-centered. In the curriculum of both National Science Education Standards (National Research Council, 1996) and the new secondary school curriculum of Turkey (MONE, 2013), a student-centered teaching environment is most desirable. For this purpose, a variety of activities and training programs are added to these curriculums; however, to what extent these changes made in the curriculum are perceived by students and teachers and their perceptions regarding these changes remained unanswered. Because teachers are responsible for applying the curriculum, the aim of this study is to determine the teaching perceptions of prospective teachers, who will be teaching in their own classrooms soon, through self-created teacher metaphors. The objectives of the research are as follows:

1. To determine the metaphors of prospective teachers regarding the concept of “teacher”.
2. To classify metaphors of prospective teachers regarding “teacher”.
3. To determine the distribution of “teacher” perceptions of prospective teachers by their gender
4. To determine distribution of “teacher” perceptions of prospective teachers depending on their length of teaching experience.

Criteria of metaphor analysis

According to Lorsch et al. (1992), metaphor studies cannot be evaluated without classification. In this regard, the triple metaphorical classification used by Martínez et al. (2001) is employed in this study, which uses transmissive, constructivist, and situative perspectives. These classification titles are explained below within the scope of the related literature.

Transmissive perspective

Metaphors that see teachers as information translators and / or sources of information in many studies have

been included in this classification (Gurney, 1995; Powell, 1994; Tobin and Espinet, 1989). In this group of metaphors, prospective teachers describe themselves as a “book” and students as “readers” of this book. In addition, the teacher is metaphorized as a person possessing more knowledge. Visual metaphors reflecting behavioral teaching characteristics, such as a source of light that illuminates the darkness, are included in this group (Mellado et al., 2012).

In this metaphor, light is considered to be the knowledge transferred from teachers to students. Expressions such as transparency, clarity, and reflection are used by teachers to explain this metaphor of teachers as sources of light. In some other students’ perceptions, the teacher is considered to be a “cook” and students are “food” that must be “prepared” (Leavy et al., 2007). In the studies of Ben-Peretz et al. (2003) and Mellado et al. (2012), the metaphor of a “fair judge” has emerged to highlight the objectivity of teachers.

Teacher is also metaphorized as “the sun” when describing a teacher-centered classroom. In this metaphor, “the sun” sheds light on all students (Buaraphan, 2012). In other words, the teacher transfers knowledge to students. These metaphors consider students as either “tabula rasa” (or “blank slates”), according to other researchers (Martínez et al., 2001; Mellado et al., 2012). In some studies, military metaphors such as “commander” or “training camp leader” are included in this classification (Bradford and Dana, 1996).

According to Saban (2010), clarifying the status of the teacher’s authority in the classroom is crucial because it determines the group (and, thus, the characteristics) of the metaphor. In this sense, metaphors emphasizing the dominant role of the teachers in the classroom are included in the transmissive class.

Constructivist perspective

Metaphors that promote teachers as facilitators of learning (Boujaoude, 2000; Buaraphan, 2011; Tobin and Lamaster, 1995) and students as individuals building their own knowledge (Mellado et al., 2012) are included in the constructivist class. Defining a teacher as “a bird everyone can see” in previous literature is included in this classification (Bradford and Dana, 1996).

According to Pinnegar et al. (2011), the guidance and counselling role of the teacher in students’ learning process refers to the secret support of the teacher; therefore, metaphors emphasizing the guiding and counseling role of the teacher are included in this group.

In determining which category to be included in the metaphor has been significant in the explanation of the second question, building a scaffolding of instruction, advocating opinions that have been included in this category. Only the teacher can modify the students’

existing knowledge, and add something to it. Metaphors like "Traffic signs" or "Conductor" have been included in this category (Buaraphan 2011). Also, "Trainer of the dance" has been included in this category (Leavy et al., 2007). Here the student is the "dancer". The instructor presents her work plan and the guidance does, however, the basic responsibility belongs to the student. No matter how good the trainer is the result is determined by the student.

Considering students as members of a team and the teacher as the "team leader" responsible for the organization and cooperation in the team is also included in this group (Mellado et al., 2012). In other definitions that fall within this class, teachers are considered "theater directors" or "dance instructors" (Leavy et al., 2007), in addition to the teacher as a "catalyst," as in chemical reactions (Boujaoude, 2000). Metaphors that involve the transformation and evolution of students are also included in this class (Gurney, 1995; Russell and Hrycenko, 2006).

Situative perspective

According to this perspective, the learning environment and life cannot be considered independently. Students' previous experiences and learning environment (friends, colleagues etc.) are effective for what? One of the most important points is the interaction in learning. Learning is done by doing and experiencing (Clancey, 1997; Lave and Wenger, 1991). In addition, the current culture and social environment has a significant share in learning (Brown et al., 1989).

According to Leavy et al. (2007), teaching is like a student's backpack on a camping trip fill. At the beginning of the trip, the student's prior knowledge and experiences are filled in the backpack. The teacher helps and guides the students to discover new things during the trip. "Tour guide", "Coach", "Conductor", "Coactor/Co-actress" as teacher metaphors, according to Buaraphan (2011), were in in this category.

Metaphors that consider the teacher as a guide for students and emphasize the socia-cultural sides of teachers and teaching are included in the situative group (Gurney, 1995). Describing teachers as "tour guides" who take students to new places are also included in this class (Whitcomb et al., 2008).

The teacher is the "northern star" included in this category. As students travel to new places, the teacher indicates the direction and the light source; the teacher will supply your needs (Leavy et al., 2007). Students "passengers" teacher "sign", students "flock of sheep", the teacher "shepherd" were also included in this category (Mellado et al., 2012).

Considering teachers as those who encourage students to explore new ideas and who guide them to unknown places (that is, new subjects and concepts) are

other metaphors included in this class (Boujaoude, 2000; Buaraphan, 2011; Ritchie, 1994).

METHODOLOGY

Participants

All the participants are secondary school prospective teachers. Also, all participants have completed their bachelor's degree in 9 different disciplines. The study group consisted of 112 prospective teachers of Science and Math among a total of 143 prospective teachers. The distributions of these prospective Science and Math teachers are as follows: 75 women (67%) and 37 men (33%); 58.9% of the prospective teachers were either 31 or older than 31 years old; 28.6% were between the ages of 26 and 31; and 12.5% were between the ages of 21 and 25. Twenty-four (16.8%) prospective teachers received their bachelor's degree in chemistry, 26 (18.2%) in physics, 42 (29.4%) in biology, and 20 (14%) in mathematics.

Thirty-one of the total 143 prospective teachers focus on social science. Their distribution is as follows: 16 women (51.6%) and 15 men (48.4%); 19.4% of the prospective teachers were either 31 or older than 31 years old; 38.7% were between the ages of 26 and 31; and 41.9% were between the ages of 21 and 25. Ten (7%) prospective teachers received their bachelor's degree in theology, 8 (5.6%) in Turkish language and literature, 4 (2.8%) in geography, 5 (3.5%) in sociology, and 4 (2.8%) in philosophy.

Prospective teachers were asked a question to determine whether they had previous experience in private schools. Sixty-seven (46.85%) had teaching experience that ranged from 1 to 11 years, while 76 (53.15%) had no previous teaching experience at all.

Data collection process

Although most of the teachers graduated from Education Faculties in Turkey, it is possible for graduates of other faculties to become a teacher after taking a two-semester pedagogical certificate program. This study was conducted in May 2013, and participants of the study were those receiving pedagogical training in a public university in the Mediterranean Region and had already completed their undergraduate studies. The data collection was initially conducted with a total of 175 prospective teachers in the last four weeks of their pedagogical training; however, only 143 of these 175 prospective teachers were included in the study because some of the answers given to the two open-ended questions were not usable. Thirty-two prospective teachers who did not answer the second question were excluded from the study. Prospective teachers in the sample group had 9 different branches. Since the branch distribution of the candidate teachers was high, a dual classification was preferred. The first one is the Science & Math Group and the second is Social Sciences.

Brief introduction was made to the participants about the measuring instrument used in the study. At first, it was told what the metaphor was. Secondly, several example of the metaphors were given. We were then given 30 minutes to respond to the questions on the questionnaire.

In the data collection form, credentials of prospective teachers were not requested. There was a beginning section asking their age, gender, and focus of their bachelor's degree in the beginning of the survey. In the remaining section, they were asked to answer the following questions:

Table 1. Level of consistency between classification of metaphors conducted by experts and the researcher.

Variable	Expert 1	Expert 2	Expert 3
The number of metaphors in agreement by both researcher and experts	130	132	129
Reliability	90.9%	92.3%	90.2%

1. Imagine yourself as a teacher in a secondary school. In this case, how do you metaphorize yourself as a teacher?
2. Can you explain the reason why you metaphorized yourself as above?

Data analysis process

In the analysis process of the prospective teachers' metaphors, the metaphor review systematics of Schmitt (2005) was taken into account. According to Schmitt (2005), metaphor analyses require a kind of qualitative content analysis methodology; thus, the following three-step process was conducted:

1. Naming metaphors/labelling
2. Classification of researchers, and
3. Determination of reliability rates between evaluators.

According to Roth (1993), some metaphors have a structure that is difficult to understand and is open to different interpretations, as it contains simple details based on different ideas. In this respect, capturing the actual meaning behind metaphors is the most important yet challenging issue. Two open-ended questions were asked to prospective teachers during the data collection process of this study to overcome this problem. The first question asked participants to metaphorize themselves as "teacher". The second question asked a reliability question that presents the actual reason of the metaphoric description given in the first question. It is inevitable, however, to receive metaphors that are difficult to classify or could be put into multiple categories. The level of compliance between the metaphoric classification created for this study was examined to increase the reliability of this issue.

Naming metaphors/labeling

In this step, metaphors created by prospective teachers about being a teacher were entered sequentially in a Microsoft Excel file. In this document, their demographic variables were also included. In addition, notes were taken based on explanations written by prospective teachers in response to the second question. Thirty-two data points were not appropriate for evaluation, and as such, were excluded from the study.

Classification of researchers

In this step, metaphors created by prospective teachers about the teacher were classified in line with answers given in response to two open-ended questions in accordance with the tripartite classification developed by Martínez et al. (2001).

Determination of reliability

In the classification of metaphors created by prospective teachers,

three different field experts were consulted for reliability of the study. Tripartite classification of Martínez et al. (2001) regarding teaching and learning was introduced to three different field experts with academic experience of 20, 18, and 12 years, respectively. These experts classified metaphors by considering the answer given in response to the two open-ended questions in a manner independent from each other and the researcher. Then, the level of consistency was determined by comparing the classifications done by the researcher and classifications done by the experts. The reliability analysis used the formula (reliability = agreement/agreement + disagreement × 100) created by Miles and Huberman (1994), and the consistency rate was found to be at least 90.2% (Table 1). Miles and Huberman (1994) consider a study reliable if the consistency rate is greater than or equal to 90% and is provided by comparing classifications conducted by two or more different field experts.

RESULTS

Metaphors are primarily seen in the transmissive class for both groups of prospective teachers and the most common include metaphors of "elder brother/sister," "gardener," "farmer," and "sun," respectively (Tables 2 and 3). Prospective teachers stated that elder brothers and sisters are more knowledgeable and experienced; and teachers transfer their knowledge to students just as an elder brother or sister does to his or her younger siblings. This metaphor is used. In the metaphor of "mother," students are considered children who need to be looked after. In the metaphors of "gardener" and "farmer," students are described as flowers, seeds, or seedlings to be grown. In the metaphor of "sun," students are depicted as treasure that has been hidden in the dark, or as plants in need of light. Although there is no significant difference between prospective Science, Math and Social Sciences teachers in terms of percentage distributions of metaphors within the class of transmissive, prospective Science, Math teachers have slightly more transmissive teaching perceptions compared to prospective Social Sciences teachers. (Figure 1)

While metaphors in the class of constructivist rank second in terms of prospective Science and Math teachers, these metaphors are in the last place for prospective Social Science teachers. Although there is no significant difference between these two groups, prospective Science and Math seem to have more constructivist teaching perceptions compared to prospective Social Sciences teachers. The most common metaphors in this class are the metaphors of "maestro,"

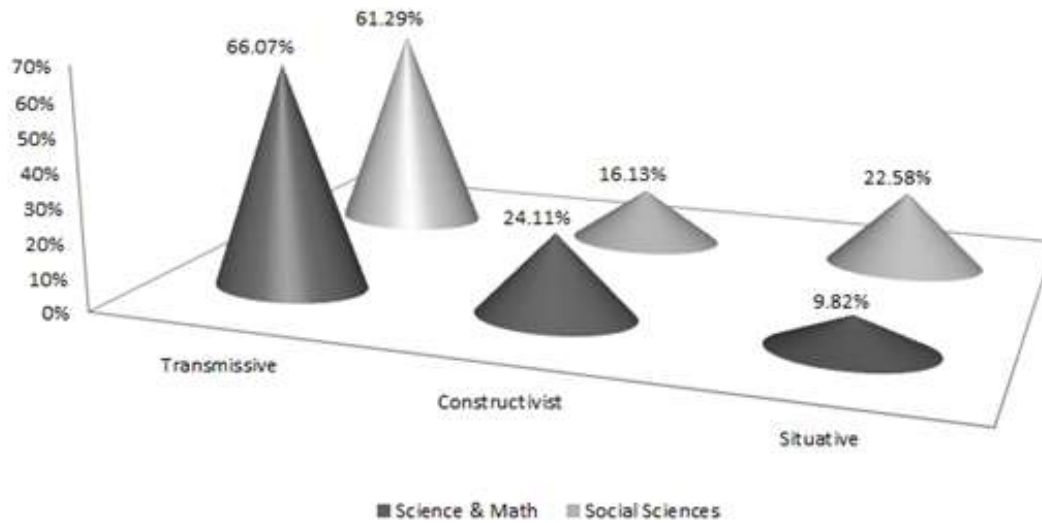


Figure 1. Metaphoric teaching perceptions of prospective science, math and social sciences teachers.

Table 2. Teacher metaphors expressed by prospective Science and Math teachers.

Transmissive	Constructivist	Situative
Elder brother/sister (10)	Maestro (6)	Bus driver (5)
Gardener (10)	Coach (6)	Guide (2)
Mother (6)	Flower (3)	President
Farmer (6)	Clerk (3)	Shepherd
Sun (4)	Bird open to observation (2)	Ocean
Cook (3)	Computer game	Compass
Water (3)	Auditor ant	-
Father (2)	Referee	-
Babysitter (2)	Shield	-
Cloud (2)	Leader of migratory birds	-
Sea (2)	Prism	-
Pencil (2)	Manager of a company	-
Oil lamp (2)	-	-
Candle (2)	-	-
Cake master (2)	-	-
Battery (2)	-	-
Open book	-	-
Fair judge	-	-
Crossword Solver	-	-
Potter	-	-
Doctor	-	-
Sculptor	-	-
Interior architect	-	-
Queen Bee	-	-
Puppeteer	-	-
Pianist	-	-
Chicken	-	-
Theatre player	-	-
Spring	-	-
Craftsman	-	-

Table 3. Teacher metaphors expressed by prospective social sciences teachers.

Transmissive	Constructivist	Situative
Elder brother/sister (2)	Flower	Compass (2)
Father (2)	Greengrocer	Guide (2)
Gardener (2)	Fruit-bearing tree	Map
Source of light (2)	Maestro	River
Mother	Traffic sign	Bus driver
Mirror	-	-
Babysitter	-	-
Farmer	-	-
Pencil	-	-
Tap	-	-
Cake master	-	-
Painter	-	-
Street lamp	-	-
Water	-	-
Chicken	-	-

“coach,” “flower,” “clerk,” and the “bird open to observation,” respectively. In the metaphor of “maestro,” students are explained as the members of an orchestra, and the maestro conducts a symphony by using abilities of each member of the orchestra. In the metaphor of “coach,” the teacher designs the game plans by knowing the skills of each team member and promoting cooperation to reach the goal of becoming champions. In the metaphor of “flower,” students are bees that produce honey by collecting the essence from all of the flowers.

In the metaphor of “clerk,” the idea of marketing a product to a customer and the concept of good advertising comes to the fore. As in the study of Bradford and Dana (1996), two prospective teachers metaphorized the teacher as a “bird that can be observed,” supporting this metaphor by indicating that students see some teachers as their role models, more or less. There are also some definitions given by prospective teachers who consider themselves as a “protective shield,” “auditor ant,” or “leaders of migratory birds,” the latter of which involves students as the migratory birds and emphasizing the guidance role of the teacher (Tables 2 and 3).

While metaphors in the class of situative are in the last place for prospective Science and Math teachers, these metaphors are in the second place for prospective Social Science teachers. The most important difference between the two groups of prospective teachers emerged in the class of situative teaching perception, as the number of prospective Social Sciences teachers that adopted the situative teaching perception is two times more than the number of prospective Science & Math prospective teachers (Figure 1). According to the findings of this study, “bus driver,” “compass,” and “guide” are the most commonly used metaphors in this class (Tables 2

and 3).

Whitcomb et al. (2008) and Gurney (1995) also reached similar findings. Some prospective teachers defined teachers as “rivers” or “oceans.” In these metaphors, students are regarded as fishermen. In another metaphor, teachers are regarded as “compasses” and “maps” that help students to find their way and explore new routes (Boujaoude, 2000; Buaraphan, 2011; Ritchie, 1994) (Tables 2 and 3).

The effect of prospective teachers’ teaching experience on their perceptions in line with the data is presented in Figure 2. Both prospective teachers with and without any teaching experience seem to adapt to transmissive teaching perceptions at high ratios. For example, 71.64% of experienced prospective teachers and 59.21% of prospective teachers without any teaching experience have adopted this teaching perception. The most important difference has emerged in the situative teaching perception, where 2.99% of the experienced prospective teachers and 21.05% of prospective teachers without any teaching experience have adopted this perception. According to this result, experienced teachers have seven times lower rates of having situative teaching perceptions compared to prospective teachers without any teaching experience. Therefore, it can be stated that teaching experience highly and adversely affects situative teaching perceptions of prospective teachers.

Differences in the teaching perceptions of prospective teachers based on genders are shown in Figure 3. Accordingly, teaching perception in the transmissive class is in first place for all prospective teachers, followed by constructivist and situative teaching perceptions, respectively. Transmissive teaching perception is almost identical for both genders; however, the number of male

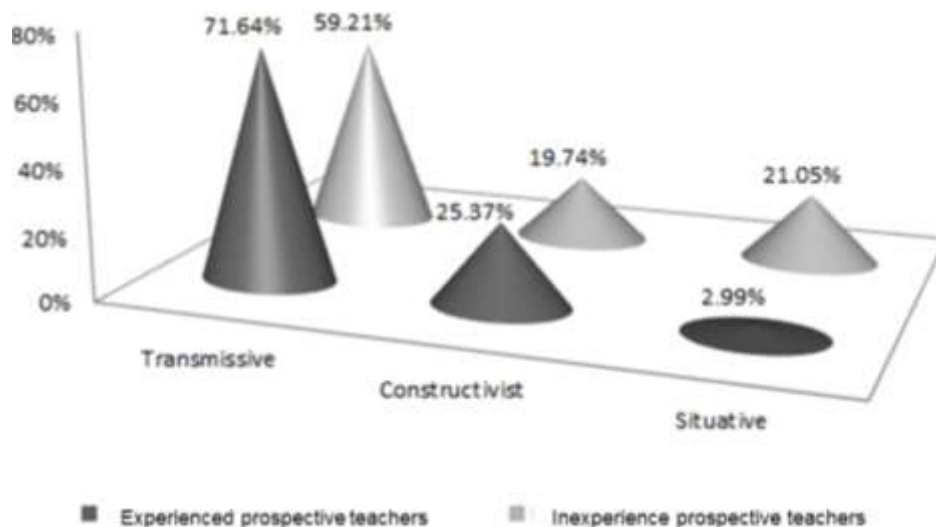


Figure 2. Metaphoric teaching perceptions of prospective teachers by their teaching experience.

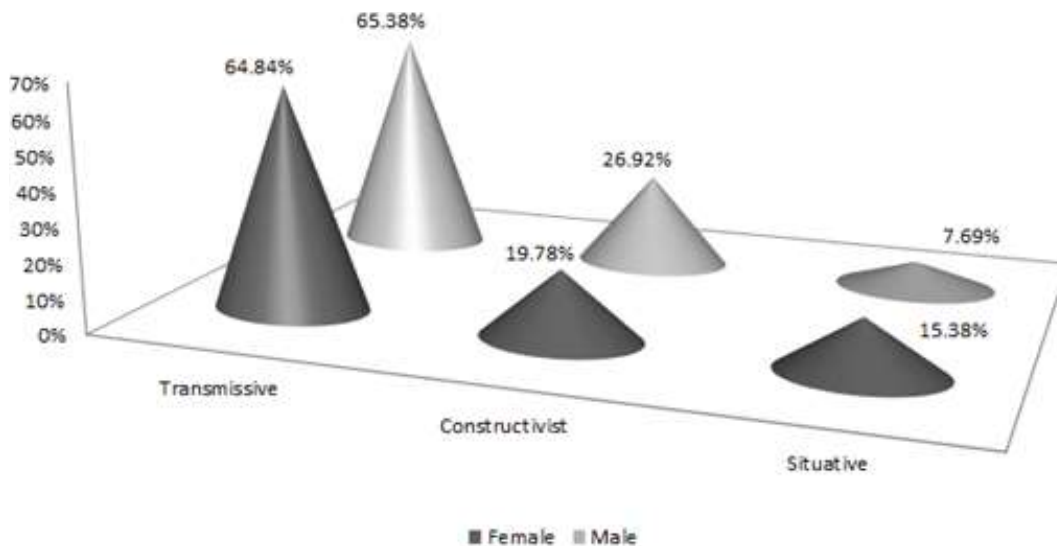


Figure 3. Metaphoric teaching perceptions of prospective teachers by their gender.

teachers who adopted constructivist teaching perceptions is quite high compared to female teachers. The highest difference has emerged in the situative teaching perception, where the ratio of female teachers who adopted this perception is double the ratio of male teachers.

DISCUSSION AND CONCLUSION

The results of this study indicate that most prospective secondary school teachers in Turkey have adopted the

transmissive perception, which consider teachers as a source of knowledge and students as the receiving party. Another important result is that the ratio of prospective Social Sciences teachers that adopted the situative teaching perception is almost twice than the ratio of prospective Science and Math teachers.

This result can be explained by the structure of the Social Sciences discipline, which requires more communication and social learning. On the other hand the low level of prospective Science and Math teachers' situative metaphors was not expected because the science discipline also requires social interactions. One

possible reason for this unexpected result might be teachers' preferences for teaching science course in school halls such as atelier, science lab etc.

According to the results of this study, both prospective teachers with and without any teaching experience seemed to adapt to the transmissive teaching perceptions at high ratios; however, prospective teachers with teaching experience had higher rates of transmissive teaching perception than those without teaching experience (Figure 2).

Prospective teachers with no experience had seven times higher rates of situative teaching perceptions compared to experienced prospective teachers. This is one of the most interesting findings of this study. Entrance exams for higher education are one of the most important factors in determining the quality of education in Turkey. These exams consist of multiple-choice questions and, according to İçbay (2005), these exams limit the thinking skills of students. Thus, these exams lead students and their teachers down the path of a transmissive teaching approach. This is probably why situative teaching perceptions of experienced prospective teachers are lower than these perceptions of prospective teachers with no teaching experience. They usually prefer to present course content and focus on preparation activities to university entrance exams based on multiple choice tests rather than contextual and discovery based teaching activities.

Leavy et al. (2007) state that teaching practices conducted by prospective teachers at the entry level increase teachers' transmissive teaching perceptions and reduce their situative learning perceptions. Similarly, in the study of Martínez et al. (2001), experienced teachers had quite higher levels of transmissive teaching perceptions compared to prospective teachers with no experience. Conversely, prospective teachers with no experience seemed to have higher rates of situative teaching perceptions compared to experienced teachers. This may be caused by that although it is stated that curriculums adopted the student-centered approach in Turkey and in other countries, no serious changes are conducted in class teaching practice and instrumental spaces and tools (for example, textbooks, materials, decoration and equipment) are unable to keep pace with these changes (Çubukçu, 2012; Öztürk, 2011; Thanh, 2010; Wang, 2011). Findings of both this study and those of Martínez et al. (2001) show that teaching experience adversely affects the situative teaching perceptions of prospective teachers. In this sense, further studies can be conducted to determine the factors that negatively affect situative teaching perceptions of both teachers with experience and prospective teachers.

Leavy et al. (2007) presented that teaching practices conducted by prospective teachers have positive impacts on their constructivist teaching perceptions; however, Martínez et al. (2001) stated that prospective teachers

have higher rates of constructivist teaching perceptions compared to experienced teachers. As a result of this study, it has been determined that prospective teachers with teaching experience have higher rates of Constructivist teaching perception. According to these results, teacher training that is mainly based on teaching practices will have positive effects on student-centered (that is, constructivist) teaching perceptions. For this reason, education faculties and pedagogical formation education programs in Turkey should be supervised in accordance with further student-centered education programs. It will also be useful to enhance teaching experience, including student-centered practices. In addition, addressing the teaching perceptions of instructors is also important. This is proposed as a subject of research for future studies.

Another interesting finding of this study is that the ratio of female prospective teachers who adopted situative-teaching perceptions is double the ratio of male prospective teachers who adopted this perception. One possible reason for this finding is that females are more prone to employing social teaching methods.

As in the case of most research studies, this study has also several limitations. First of all, the sample of prospective teachers was formed through convenience sampling from two specific state universities in Turkey. Thus, the findings may not be generalised to other populations. Second, in this study, the tripartite metaphorical classification developed by Martínez et al. (2001) is employed, even though some metaphors could be included in multiple groups. While this could be considered a limitation of the study, the consistency coefficient for classifying the metaphors by both researcher and experts has been checked in an attempt to overcome this problem.

Conflicts of interest

The authors have not declared any conflict of interests.

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