What Kind Of "Teacher" Do I Want To Be? Part-I[*]

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ABSTRACT

The aim of this study is to reveal the images existing in the minds of the first year pre-service teachers about science teachers. The study was carried out with the 1st year students (72 students) studying at Department of Elementary Science Education at Faculty of Education in Muğla Sıtkı Koçman University in fall term of 2015-2016 academic year. The pre-service science teachers were asked the following questions in the study: "Draw yourself as a science teacher teaching in the class. Explain your drawing. What is the teacher doing? What is the student doing?" The pre-service teachers' drawings were analyzed via DASTT-C consisting of 13-item checklist. Moreover, semi-structured interviews were carried out with five pre-service science teachers with the intention of revealing their images about science teachers existing in their minds more clearly. Within the context of the study, when the pre-service science teachers' drawings were analyzed, it was observed that teacher-centred drawings and statements stood out.
Keywords: Pre service science teacher, DASTT-C, science teaching.

Nasıl bir "Öğretmen" olmak istiyorum? Bölüm-I[*]

ÖZET

Bu çalışmanın amacı, henüz öğretmenlik mesleğinin başında 1. sınıf öğretmen adaylarının, zihinlerinde var olan fen öğretmeni ile olan imajları ortaya koymaktır. Çalışma 2015-2016 eğitim öğretim yılı güz döneminde Muğla Sıtkı Koçman Üniversitesi Eğitim Fakültesi İlköğretim Fen Bilgisi Öğretmenliği ABD'nda öğrenim gören 1. sınıf öğrencileri (72 öğrenci) ile gerçekleştirilmiştir. Çalışmada fen bilgisi öğretmen adaylarına "Kendinizi bir fen bilgisi öğretmeni olarak derste çiziniz. Çiziminizi açıklayınız. Öğretmen ne yapıyor? Öğrenci ne yapıyor?" ifadesi yöneltilmiştir. Öğretmen adaylarının yapmış olduğu çizimler 13 maddelik ölçüt çizelgesi olan DASTT-C 'e göre incelenmiştir. Ayrıca öğretmen adaylarının zihinlerinde var olan fen öğretmeni ile ilgili imajlarını daha net ortaya koyabilmek amacı ile 5 öğretmen adayı ile yarı yapılandırılmış görüşme yapılmıştır. Çalışma kapsamında fen bilgisi öğretmen adaylarının yapmış olduğu çizimler incelendiğinde öğretmen merkezli çizimlerin ve ifadelerin ön planda olduğu gözlenmiştir.
Anahtar kelimeler: Fen bilgisi öğretmen adayı, DASTT-C, fen öğretimi.

INTRODUCTION

A teacher can be defined as a person who performs education services in line with educational purposes (Özdayı, 1990) or who is assigned to guide/facilitate or lead students' learning experiences in a public or private educational

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institution (Öncül, 2000). Considering learning-teaching activities, undoubtedly a teacher has an important place. A teacher takes place in every level of education system and it is important that the teacher must be trained well both in pre-service and in-service education.

Teaching as a profession is quite different from other jobs due to its nature. While Shulman states (1986) that teaching requires content knowledge, pedagogical knowledge, and pedagogical content knowledge, Beattie (1995) adds personal practical knowledge as one of the types of knowledge a teacher must have. Teaching is a profession which requires professionalism and also it is closely related to the personal opinions, beliefs and behaviours of the person who will perform teaching as a profession (Özbek, Kahyaoğlu and Özgen, 2007). Minogue (2010) states that beliefs are strong determinants of behaviours and they are more effective than the knowledge an individual has when making a decision, asking a question or encountering complex problems. Beliefs begin to occur in individuals at early stages and they change in time. Beliefs play an important role for an individual's knowing and understanding themselves and the world. Beliefs which teachers have about teaching shape their professional practices as well (Pajares, 1992). Teacher beliefs are a complex concept and it may involve a person's attitudes, motivation, self-confidence, self-efficacy, and perception of nature (Minogue, 2010). It is not easy to identify one's belief (Aldemir and Sezer, 2009), however, it is important that teacher beliefs should be determined because the students who study at the faculty of education have some beliefs about classes, students and teaching because of their experiences and moreover Raths (2001) note that these beliefs can be used as a criterion for admission to the faculty of education (cited in Decker & Kaufman 2008).

The positive and negative beliefs pre-service teachers bring with themselves when starting a university reflect not only their behaviours throughout their university education but also their behaviours in schools after their graduation (Akkuş 2013; Markic & Eilks 2008). Identifying the beliefs pre-service teachers have about teaching as a profession is important as they explain their beliefs towards teaching.

The Draw a Scientist Test (DAST) has been used to determine, examine and assess students and teachers' images of scientists for a long time (Miele, 2014). DAST was first used by Chambers in 1983 to investigate children's perceptions of the scientist. In 1995 Finson, Beaver and Cramond developed the DAST-C (Draw A Scientist Test-Checklist) to increase DAST's reliability and validity. In 2001 Thomas, Pederson and Finson developed the DASTT-C (Draw A Science Teacher Test-Checklist) (Miele, 2014) and it has been used in many research studies since then (Minogue 2010; Elmas, Demirdöğen and Geban 2011; Tatar and et al. 2012; Akkuş 2013). This checklist has three sections that focus on the teacher, the student, and the learning environment and each section contains sub-sections within itself. The teacher section is divided into two sub-sections with regard to his/her position in the class and the activities, similarly, the second section looks at the student's activity and position within the classroom, and the third section involves the learning environment in which the instruction occurs like arrangement of desks and a table, the position of the teacher's table, class

arrangement, black board, presence of teaching and scientific symbols. Each sub-section is scored considering whether or not the elements present in the checklist explain the drawings. Considering the assessment performed according to the checklist, scores may range from 0 (the minimum) to 13 (the maximum) points. Scores of 0-4 represent student-centred learning, 5-9 are representative of teacher-student centred learning, and 10-13 reveal teacher centred instruction (Thomas and et al; 2001).

In teacher-centred instruction, didactic methods are used (Whyte & Ellis, 2003). The teacher is the central image in learning and teaching process, the teacher is the source and transmitter of the knowledge and the classroom is designed to facilitate teacher's work (Thomas and et al, 2001). The teacher is usually in the centre of the circle surrounded by students or s/he stands in front of the class and uses the black board or the board. Too often, the teacher usually explains the subject matter to the students, the students take notes, and sometimes they raise their hands. What the students need to focus on is written on the board and they study with a course book or pen and paper (Whyte & Ellis, 2003).

Teacher-student centred instruction consists of both didactic and constructivist elements. The concepts are at the centre and while learning these concepts, investigation and exploration with materials and open-ended problem solving activities are used. Students work in small groups (Whyte & Ellis, 2003). In this instruction, the teacher is a facilitator and s/he chooses topics, introduces the subject matter, and offers the necessary background knowledge for their investigation. This is a laboratory and activity based instruction and students discover and construct the new knowledge (Martin 1997 as cited in Tatar and et al, 2012).

The focus is on student in student-centred instruction and the teacher is a guide leading students to the investigations and activities. The learning environment is unlimited and it pushes students to inquire and explore (Thomas and et al, 2001). The teacher is a person who explores, discusses with his/her students or helps students with their individual projects and follows his/her students' interests and questions. In this instruction, out-of-school settings can be used (Whyte & Ellis, 2003).

DASTT-C has been administered to different population in many countries by the researchers (Elmas and et al,. 2011; El-Deghaıdy 2006; Uner, Akkuş and Turan 2012; Al-Amoush, Markic, Abu-Hola and Eilks 2011). Some research studies attempted to determine pre-service science teachers' beliefs towards science education via considering some variables like gender (Tatar and et al,. 2012; Elmas and et al,. 2011), teaching method (Elmas and et al, 2011), class level (Tatar and et al, 2012; Yıldız Duban 2013). For example, Yıldız Feyzioğlu, Feyzioğlu and Küçükçıngı (2014) conducted a study to determine pre-service science teachers' cognitive models for science education with regard to class levels and to identify whether or not there was a significant relationship between their cognitive models and self-efficacy for science education. Tatar and et al (2012) in their study aimed at determining cognitive models which pre-service science teachers had about science education and revealing what kind of relationship existed between the cognitive models in terms of gender and class

level. The study carried out by Ambusaidi & Al-Balushi (2012) was a longitudinal study and DASTT-C was administered to pre-service teachers before the Science Teaching I course and after Science Teaching II course and applied practice course. The study aimed at identifying pre-service teachers' change of beliefs about science teaching in this process. When the research studies carried out in Turkey were examined, it was found that there was not a longitudinal study carried out using DASTT-C. The aim of this study is to reveal the images existing in the minds of the first year (freshman) pre-service teachers about science teachers. It is thought that this study can be replicated with the 2nd, 3rd, and 4th year pre-service teachers. The reason for the replication of the study is to determine whether or not the existing science teacher images/perceptions of the pre-service teachers changed during the process and also to present the sources of the change if a change has occurred.

METHOD

The study was carried out with the 1st year students (72 students) studying at Department of Elementary Science Education at Faculty of Education in Muğla Sıtkı Koçman University in fall term of 2015-2016 academic year. The pre-service science teachers were asked the following questions in the study: "Draw yourself as a science teacher teaching in the class. Explain your drawing. What is the teacher doing? What is the student doing?" In the study the pre-service teachers were reminded that the content was important with their drawings and thus, the pre-service teachers who did not want to do drawing saying that they were not good at drawing were encouraged. The pre-service teachers' drawings were analyzed via DASTT-C consisting of 13-item checklist. Moreover, semi-structured interviews were carried out with five pre-service teachers with the intention of revealing their images about science teachers existing in their minds more clearly. Within the framework of the semi-structured interviews, the pre-service teachers were asked questions like "What are the teachers and students doing? Why did you draw a classroom setting? Why didn't you draw a different setting like a laboratory?

FINDINGS

This study aimed at determining the images of 1st year students studying at Department of Elementary Science Education at Faculty of Education in Muğla Sıtkı Koçman University about science teachers. Table 1 presents the descriptive information belonging to the pre-service teachers' images about science teachers.
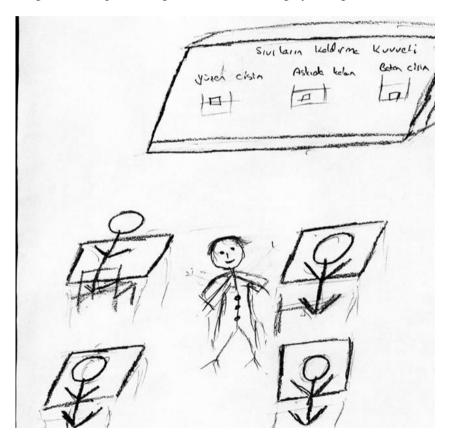
Table 1: *Pre-service teachers' images about science teachers*

Images about Science Education	N	%
Teacher-Centred	67	93,1
Teacher-Student Centred	5	6,9
Student-Centred	-	-

When Table1 is examined, it is found that nearly all of the pre-service teachers participating in the implementation held teacher-centred image about science instruction. Out of 72 pre-service teachers, only five of them held teacher-student centred image while there are no pre-service teachers holding student-centred image.

Students' Drawings:
67 pre-service teachers participating in the implementation held teacher-centred images. The sample drawings assessed in this category were given below:

Picture 1: A teacher-centred drawing sample
When the pre-service teacher's drawing is examined, it is observed that in teacher-centred instruction the teacher is standing in the middle of the classroom. The teacher does not use any technological tools but s/he uses a blackboard. Considering the image of the student, the students are sitting at their desks and they are passive, they listen to the teacher, and receive the knowledge. In terms of learning environment, the student desks are arranged in straight rows.

The pre-service teacher explained the statement "What is the teacher doing? Explain it." like that: "*I monitor the students who have second thoughts about what I write on the board or don't understand or follow the lesson and at the same time walking around the classroom, I make my students feel that I am in the classroom teaching and they are learning.*"

The pre-service teacher stated the following for the question "What is the student doing? Explain it."

"They copy down what is written on the board into their notebooks".

It can be understood from the pre-service teacher's written responses that the traditional classroom setting was maintained and a teacher-centred instruction was dominant.

The following quotes taken from the semi-structured interviews carried out with a pre-service teacher were presented below:

S3: In this drawing, after explaining the subject, I walk around the classroom in order to understand and determine their reactions, whether or not they grasp the subject and whether or not they are interested in the lesson and at the same time making them feel that we are in the classroom and I do have the control (I am the boss), I sometimes walk in the classroom to monitor whether or not they are listening to me or showing interest in the course. Moreover, we are in the classroom because I believe that explaining the theory first and then putting it into practice will be more effective.
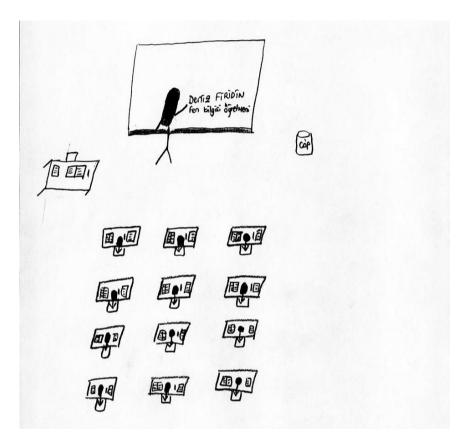
R: *What are the students doing?*

S3: *I give them some time to copy down what I wrote on the board and I walk around to answer their questions if there are any.*

R: *Why in a classroom environment but not a laboratory?*

S3: *In my education life, there were conditions which required me to be in the laboratory but I was always in the classroom. That's why when you say a lesson or a teacher-student relationship, classroom environment directly comes to our mind like blackboard, desks, table. Throughout my school life, I have never been to the laboratory with the intention of doing experiments. I just went to the laboratory in biology courses to write something on the bench.*

As understood from the quotation above, the teacher was defined as a person who transmits the knowledge and controls the class and the student was defined as someone who is passive and receives the knowledge. Moreover, the pre-service teacher stated that throughout his school life, he had never been to the lab for experimental purposes.

Picture 2: A teacher-centred drawing sample

Another drawing which was assessed in teacher-centred category exhibits that the structure of traditional classroom setting has been maintained. It is observed in the drawing considering the teacher that the teacher is positioned in front of the blackboard and the students sit in traditional seating arrangement style with their books and notebooks open on the desks and they are passive receivers of knowledge. When analysing in terms of learning environment, it is observed that the desks are arranged in lines one behind the other facing the blackboard and the teacher's table and the blackboard are drawn according to the conventional style.

The following quote taken from the semi-structured interviews carried out with a pre-service teacher was presented below:

R: *Why did you draw a classroom setting? Why didn't you draw a laboratory?*

S5: *Frankly speaking, I have never thought of using a laboratory in my drawing because a class is equal to a teacher (class=teacher.) Our desks were well-arranged like that both in elementary school and high school. We went into the laboratory for the sake of appearances, our classes were crowded and our teachers taught there, too.*

As understood from the quotation above, the pre-service science teacher stated that she had never thought of drawing a lab. Moreover, she added that they went into the laboratory with the intention of studying but not for doing an experiment.

The drawings and explanations of all the pre-service teachers analyzed in this category reveal that traditional classroom setting has been maintained. Considering the teacher dimension, the teachers usually gives a lecture in front of the blackboard. Regarding students, they sit in a traditional seating style and they passively receive the knowledge. No technological equipment and tools were encountered in any of the drawings and explanations assessed in learning environment category and it was observed that the drawings usually involved school furniture like teacher's table, desks, and blackboard.

Five pre-service teachers participating in the implementation hold teacher-student centred science teacher images. The drawings analyzed in this category were given as examples below:

Picture 3: A teacher-student centred drawing sample

When the pre-service teacher's drawing was analyzed, it was observed that conventional classroom setting was maintained to a large extent. Considering

teacher dimension, the teacher is not the central figure of the class, s/he is among the students and walks around the classroom to guide students. With regard to student dimension, it is observed that students work in groups doing experiments. Considering learning environment, the desks are lined up one behind the other and the lab equipment and tools are used by the students. The pre-service teacher made the following explanation about the questions "What is the teacher doing? What is the student doing? Please explain it":

"*We are doing a successful experiment here. My students and I continue our studies via understanding the lesson and learning by doing but not by memorizing it. We help our peers who cannot do it.*"

The following quote taken from the semi-structured interviews carried out with a pre-service teacher was presented below:

R: *Why classroom setting but not laboratory?*

S1: *I drew an experiment in the class because we never went into a laboratory in elementary school although we had a lab. They did not want us to go into the lab and it was locked so our teacher brought the materials of experiments to the classroom when I was in the 4th and 5th grades. In my drawing, I give special attention to my student who cannot do the experiment.*

R: *What are the students doing?*

S1: *In the meantime the students are trying to do the experiments because science is not a course which is based on listening. It is not like Turkish. I believe that science courses must involve hands-on training. I have never been to a laboratory. When I was in the 7th grade, our teacher had us made a catapult and that was all we did.*

As understood from the quotation given above, although the pre-service science teacher stated that science course was an applied course, she mentioned that she had not gone into a lab throughout her education life just like the other pre-service teachers and added that her teacher had just conducted easy experiments in the classroom. The pre-service teacher's drawing supports her experience which she had in the past.

All of the drawings and explanations in this category reveal that traditional classroom setting has been maintained and the experiments have been usually conducted in groups in the classroom environment with the materials brought from the lab. The importance of laboratories or experiments cannot be ignored for science courses. Whether they are conducted in the classroom or laboratory, experiments enable students to get first-hand information and also they provide an opportunity to develop such skills like making observation, forming an opinion, and questioning.

DISCUSSION and RESULTS

This study aimed at determining the images of 1st year students studying in the Department of Elementary Science Education in the Faculty of Education about science instruction in Muğla Sıtkı KoçmanUniversity. Within the context of the study, when the pre-service science teachers' drawings were analyzed, it was observed that teacher-centred drawings and statements stood out.   This result obtained is compatible with the results of the study carried out by Louca and et al (2003) and Yılmaz, Türkmen, Pedersen & Huyugüzel Çavaş (2007). The pre-

service teachers usually drew themselves giving a lecture in front of the blackboard in their drawings and explanations. At the same time, it was observed that students adopted traditional seating arrangements. Another point which draws attention with drawings is that school equipment and tools like blackboard and chalk stood out. Moreover, it was observed that technological equipment and tools were not included in drawings.

Considering the findings of the study, it was determined that only 6,9 % of the pre-service teachers held teacher-student centred image. It was observed that the pre-service teachers in this group included more experiments in their lessons and they conducted their experiments with their students but traditional classroom setting was especially maintained in drawings. The data obtained from the semi-structured interviews carried out with these pre-service teachers support this evidence. The age range of pre-service teachers is between 18- 20. Considering the changes made with Science and Technology curriculum in 2005 and 2013, it can be accepted that the pre-service teachers participating in the study got involved in a teaching-learning setting based on constructivist approach throughout their secondary school and high school education.

However, considering the findings obtained both from the drawings and the interviews carried out with pre-service teachers, the pre-service teachers were mostly involved in a teaching-learning environment based on traditional (or conventional) education. In a study carried out by Kana (2015), considering the findings obtained from the pre-service teachers as a result of their observations and implementations during the school experience and teaching practices courses, it was stated that the teachers in elementary schools did not know constructivist learning theory, they were dependent on course books, they were in a fear of falling behind the curriculum, the schools were not well-quipped, the classes were crowded, and the curriculum was not designed and developed according to the constructivist learning theory. When the research studies carried out about whether constructivist learning theory was implemented in schools or not were examined (Akamca, Hamurcu ve Günay, 2006; Ünal ve Akpınar, 2006; Ünsal, 2013), the teachers stated that they could not implement constructivist learning theory adequately. Considering these studies in literature, it can be implied that the curriculum changes did not reflect on pre-service teachers. This result was reported in the study carried out by Tatar and et al (2012) and Elmas and et al (2011). Considering the data obtained from the semi-structured interviews carried out with the pre-service teachers, it can be stated that pre-service teachers' cognitive models were affected from their previous experiences and teachers (Ambusaidi & Al-Balushi 2012; Al-Amoush, Markic & Eilks 2011; Elmas and et al, 2011, Yılmaz and et al, 2007; Akkuş 2013).

It is considered that this study will become a starting point especially for the faculty members working in the Department of Science Education. There are studies revealing that as the class levels increase, pre-service teachers' images about science teachers change from teacher-centred instruction to student-centred instruction (Uçar 2012; Tatar and et al, 2012). On the other hand, there are also research studies exhibiting that teacher education does not change pre-service teachers' perceptions of teaching profession and students create a teacher

prototype from their own learning experiences (Fajet and et al,2005 as cited in Murat and et al, 2010). Therefore, it must not be forgotten that the faculty members working in education faculties might become a role-model for pre-service teachers.

Kana (2015) in his study argued that the courses were generally theoretically-oriented in education faculty and an education based on constructivist learning theory was not carried out and added that constructivist learning theory was not implemented in elementary schools due to some reasons. Gür, Dilci and Arseven (2009) in their study carried out with pre-service teachers determined that pre-service teachers complained about using traditional education in constructivist teaching approach and asserted that there was a problem as faculty members in university could not adjust their teaching methods, and techniques to constructivist teaching approach even teaching the approach. Especially faculty members must show ultimate attention to use teaching methods and techniques which are student-centred and based on research and inquiry. In micro teaching implementations carried out in special teaching method courses, pre-service teachers must be helped to create constructivist learning environment. In addition, variety of teaching methods which activate students both physically and mentally like collaborative learning, project based learning, and problem based learning must be used.

This problem must not be perceived as an issue which could be solved only with faculty members teaching at universities. Another important issue which is as important as faculty members is the technical infrastructure of educations faculties (laboratory facilities, adequate number of classrooms, the condition of classrooms and etc;) and whether they are suitable for the implementations of constructivist approach. It is important to keep in mind that classroom environment should support learning in student-centred approach. It is known that traditional teaching classroom structure has been maintained and the classrooms are inadequate in terms of technological equipment and tools in many education faculties. Within this scope, education faculties' infrastructure and equipment expenditures must be met considering the structure of society and the necessities of time.

Pre-service science teachers' images of science teacher have been discussed with regard to some variables like gender and class level in our country. Moreover, other studies which will determine the relationship between the pre-service science teachers' qualities like their previous experiences about science education and learning styles and their images of science teacher can be carried out (Tatar and et al, 2012).

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GENİŞ ÖZET

Giriş

Öğretmenlik mesleği niteliği gereği diğer mesleklerden oldukça farklıdır. Öğretmenlik profesyonelliği gerektiren bir meslek olup aynı zamanda bu görevi yapacak kişilerin bireysel görüş, davranış ve inançları ile de yakından ilgilidir (Özbek, Kahyaoğlu ve Özgen, 2007). Minogue (2010)'a göre, inançlar davranışların çok güçlü bir belirleyicisidir ve bireyin karar vermesinde, soru sormasında veya karmaşık problemler ile karşılaştığında sahip olduğu bilgiden çok daha etkilidir. İnançlar bireylerde erken dönemlerde oluşmaya başlar ve zaman içerisinde modifiye olur. Öğretmenlerin öğretime ilişkin sahip olduğu inançlar, yaptıkları öğretimi de şekillendirmektedir (Pajares, 1992). Öğretmen inancı kompleks bir kavram olup, kişinin tutumu, motivasyonunu, güvenini, öz yeterliliğini ve doğayı algılayışını içerebilir (Minogue, 2010). Birinin inancını belirleme kolay bir iş değildir (Aldemir ve Sezer, 2009) ancak öğretmenlerin sahip olduğu inançların belirlenmesi önemlidir. Çünkü eğitim fakültesine gelen öğrenciler sınıf, öğrenci ve öğretim hakkında kendi deneyimlerinden yola çıkarak bir takım inanışlara sahiptirler ve ayrıca Raths (2001)'a göre bu inanışlar eğitim fakültelerine kabulde bir kriter olarak kullanılabilir (Decker & Kaufman, 2008).

Öğretmen adaylarının üniversiteye başlarken beraberinde getirdiği olumlu ve olumsuz inançlar sadece üniversite öğrenimleri boyunca değil, mezun olduktan sonra da okuldaki davranışlarına yansımaktadır (Akkuş 2013; Markic & Eilks 2008). Öğretmen adaylarının öğretmenlik ile ilgili sahip olduğu imajların belirlenmesi onların öğretime yönelik inançlarının açıklanmasında önemlidir.

DAST (Draw A Scientist Test / Bilim İnsanı Çizim Testi) çok uzun zamandan beri, öğrenci ve öğretmenlerin bilim adamına ilişkin görüşlerini belirlemek, analiz etmek ve değerlendirmek amaçlı kullanılmaktadır (Miele, 2014). DAST ilk olarak Chambers tarafından 1983 yılında çocukların bilim insanı imajlarını belirlemek için kullanılmıştır. 1995 yılında ise Finson, Beaver ve Cramond tarafından DAST'ın geçerlilik ve güvenilirliğini arttırmak için DAST-C (Draw A Scientist Test-Checklist / Bilim İnsanı Çizim Testi Kontrol Listesi) oluşturulmuştur. 2001 yılında ise Thomas, Pederson ve Finson tarafından DASTT-C (Draw A Science Teacher Test-Checklist / Fen Öğretmeni Çizim Testi-Kontrol Listesi) haline dönüştürülmüş (Miele, 2014) ve o tarihten günümüze pek çok çalışmada kullanılmıştır (Minogue 2010; Elmas, Demirdöğen ve Geban 2011; Tatar vd. 2012; Akkuş 2013).

Yöntem

Çalışma 2015-2016 eğitim öğretim yılı güz döneminde Muğla Sıtkı Koçman Üniversitesi Eğitim Fakültesi İlköğretim Fen Bilgisi Öğretmenliği ABD'nda öğrenim gören 1. sınıf öğrencileri (72 öğrenci) ile gerçekleştirilmiştir.

Çalışmada fen bilgisi öğretmen adaylarına "Kendinizi bir fen bilgisi öğretmeni olarak derste çiziniz. Çiziminizi açıklayınız. Öğretmen ne yapıyor? Öğrenci ne

yapıyor?" ifadesi yöneltilmiştir. Öğretmen adaylarının yapmış olduğu çizimler 13 maddelik ölçüt çizelgesi olan DASTT-C 'e göre incelenmiştir.

Ayrıca öğretmen adaylarının zihinlerinde var olan fen öğretmeni ile ilgili imajlarını daha net ortaya koyabilmek amacı ile 5 öğretmen adayı ile yarı yapılandırılmış görüşme yapılmıştır.

Bulgular

Uygulamaya katılan öğretmen adaylarının neredeyse tamamının, fen öğretmeni ile ilgili öğretmen merkezli imaja sahip olduğu belirlenmiştir. Bu kategoride değerlendirilen tüm öğretmen adaylarının çizim ve açıklamalarında geleneksel sınıf yapısının korunduğu gözlenmektedir. Öğretmen boyutunda öğretmenler genellikle tahtanın önünde ders anlatırken öğrenci boyutunda ise öğrenciler geleneksel oturma düzeni çerçevesinde bilgiyi pasif bir şekilde alırken resmedilmiştir. Öğretim ortamı boyutunda bu kategoride değerlendirilen hiçbir çizimde ve açıklamada teknolojik araç gereçe rastlanılmamış, çizimlerin genellikle öğretmen masası, öğrenci sırası, tahta vb. yapılardan oluştuğu gözlenmiştir. 72 öğretmen adayından sadece 5 öğretmen adayı öğretmen öğrenci merkezli fen öğretmeni imajına sahiptir. Bu kategoride yer alan tüm çizim ve açıklamalarda geleneksel sınıf yapısının korunduğu, sınıf ortamına getirilen deney malzemeleri ile deneylerin genellikle gruplar halinde gerçekleştirildiği gözlenmektedir.

Tartışma ve Sonuç

Çalışma kapsamında fen bilgisi öğretmen adaylarının yapmış olduğu çizimler incelendiğinde öğretmen merkezli çizimlerin ve ifadelerin ön planda olduğu gözlenmiştir. Öğretmen adayları çizimlerinde ve açıklamalarında, kendilerini genellikle tahtanın önünde ders anlatırken çizmiş ve ifade etmişlerdir. Aynı zamanda öğrencilerin oturma düzeni olarak geleneksel oturma düzenini benimsedikleri gözlenmiştir. Çizimlerde dikkat çeken bir diğer nokta ise geleneksel öğrenme ortamı ile özdeşleşen kara tahta, tebeşir gibi yapıların ön planda olmasıdır. Çizimlerde teknolojik araç gereç ve donanıma yer verilmediği gözlenmiştir. Elde edilen bu sonuç Louca vd. (2003) ve Yılmaz, Türkmen, Pedersen & Huyugüzel Çavaş (2007)'ın yapmış olduğu çalışma sonuçları ile uyumludur.

Çalışmadan elde edilen bulgulara göre, öğretmen adaylarının sadece % 6,9'unun öğretmen-öğrenci merkezli imaja sahip olduğu belirlenmiştir. Bu gruba giren öğretmen adaylarının derslerinde daha çok deneye yer verdiği ve deneylerini öğrencileri ile birlikte gerçekleştirdiği gözlenmiş ama aynı zamanda özellikle çizimlerde geleneksel sınıf yapısının korunduğu belirlenmiştir. Öğretmen adayları ile yapılan yarı yapılandırılmış görüşmelerden elde edilen verilerde bu durumu destekler niteliktedir.

Öğretmen adayları ile gerçekleştirilen yarı yapılandırılmış görüşmelerden elde edilen verilere göre öğretmen adaylarının zihinsel modellerinin daha önceki deneyimlerinden ve öğretmenlerinden etkilendiği söylenebilir(Ambusaidi & Al-Balushi 2012; Al-Amoush, Markic & Eilks 2011; Elmas vd. 2011 Yılmaz vd. 2007; Akkuş 2013). Bu çalışma ile özellikle Fen Bilgisi Eğitimi ABD'nda görev

yapan öğretim üyeleri için bir başlangıç noktası oluşturulduğu düşünülmektedir. Sınıf düzeyi ilerledikçe öğretmen adaylarının fen öğretmenine yönelik imajlarının öğretmen merkezliden öğrenci merkezliye doğru değiştiğini gösteren çalışmalar olduğu gibi (Uçar 2012; Tatar vd. 2012) öğretmenlik eğitiminin, öğretmen adaylarının öğretmenlik mesleğini algılayışlarını değiştirmediğini, öğrencilerin kendi eğitim tecrübelerinden bir öğretmen prototipi çıkardıklarını gösteren çalışmalar da mevcuttur (Fajet vd. 2005 akt: Murat vd. 2010). Bu nedenle eğitim fakültelerinde görev yapan öğretim üyelerinin öğretmen adayları için bir rol model olabileceği unutulmamalıdır. Özellikle öğretim üyeleri derslerinde öğrenci merkezli, araştırma ve sorgulamaya dayanan öğretim yöntem ve tekniklerini kullanmaya özen göstermelidir. Ülkemizde fen bilgisi öğretmen adaylarının fen öğretmeni ile ilgili imajları, cinsiyet, sınıf düzeyi gibi değişkenler açısından ele alınmış olup, fen bilgisi öğretmen adaylarının fen öğretimi ile ilgili geçmiş yaşantıları, öğrenme stilleri gibi özellikleri ile fen öğretmeni imajları arasındaki ilişkiyi belirleyecek çalışmalarda yapılabilir (Tatar vd. 2012).