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BIOLOGY TEACHERS' PERCEPTIONS ABOUT FIELD  
TRIPS AND THEIR PRE-SERVICE PREPARATION

A MASTER'S THESIS

BY

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THE PROGRAM OF CURRICULUM AND INSTRUCTION  
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*To my beloved parents*

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Biology Teachers' Perceptions about Field Trips and Their Pre-Service  
Preparation

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September 2018

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Curriculum and Instruction.

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## **ABSTRACT**

### **BIOLOGY TEACHERS' PERCEPTIONS ABOUT FIELD TRIPS AND THEIR PRE-SERVICE PREPARATION**

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Recent studies have shown that although being aware of the considerable supplementary benefits of field trips for biology lessons in high school, biology teachers complain about difficulties when planning and implementing field trips. In addition to these barriers, teachers indicate that their pre-service preparation for field trips is insufficient. Thus, the current study investigated biology teachers' ( $N=39$ ) perceptions about field trips and related pre-service preparation. Survey data was collected from 10 public and four private schools in Ankara. The significant findings showed that as the years of teaching increased, the teachers considered field trips more challenging especially for providing student safety and being supported by administration. Additionally, the results indicated that the biology teachers with an undergraduate degree considered field trips more challenging than teachers who had earned their Master's or doctorate. Furthermore, while private school teachers had higher confidence levels and considered field trips more beneficial, public school teachers focused more on the challenges. There were notable differences between male and female teachers regarding perceptions of financial constraints, parental support for field trips and confidence level. Moreover, the field trip activities in pre-service preparation were seemed they were restricted to participation level. Lastly, to

eliminate the challenges and include field trip related objectives to classroom lessons, this study suggests adding various field trip activities by teacher education institutions than participation.

*Key words:* field trip, public school, private school, environmental education, pre-service teacher

## ÖZET

### BİYOLOJİ ÖĞRETMENLERİNİN ARAZİ GEZİLERİ HAKKINDAKİ ALGILARI VE ARAZİ GEZİLERİNE DAİR HİZMET ÖNCESİ HAZIRLIKLARI

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Günümüzde yapılan çalışmalar, biyoloji öğretmenlerinin arazi gezileri düzenlerken bazı zorluklar yaşadıklarını göstermiştir. Zorluklara ek olarak, öğretmenler arazi gezileri için hizmet öncesi eğitimlerinin yetersiz olduğunu belirtmektedir. Bu sebeple, bu çalışmada biyoloji öğretmenlerinin ( $N = 39$ ) arazi gezileri ve hizmet öncesi eğitimlerindeki arazi gezileri için yapmış oldukları hazırlıklar hakkındaki algıları anket yoluyla araştırılmıştır. Çalışmanın verileri, Ankara'daki 10 devlet ve dört özel okuldan toplanmış ve veri analizi Sosyal Bilimler için İstatistik Programı (SPSS, v.24.0) ile yapılmıştır. Bulgular; öğretmenlerin, meslekte deneyimleri arttıkça özellikle öğrenci güvenliğini sağlama ve idare tarafından desteklenme açısından arazi gezilerini zorlayıcı bulduklarını göstermiştir. Buna ek olarak, yüksek lisans ve doktora mezunu öğretmenlere kıyasla sadece lisans derecesi alan biyoloji öğretmenleri için arazi gezilerinin daha zorlayıcı olduğu belirtilmiştir. Ayrıca, özel okul öğretmenleri arazi gezisi uygularken daha yüksek özgüvene sahipken ve arazi gezilerini daha faydalı bulurken, devlet okulu öğretmenleri zorluklara daha çok odaklanmıştır. Çalışma sonuçlarına göre; finansal problemler, arazi gezileri için ebeveyn desteği ve öğretmenlerin özgüven düzeyleri alanlarının erkek ve kadın

öğretmenlerin farklı düşündükleri alanlar olduğu ortaya konulmuştur. Son olarak, hizmet öncesi eğitimde arazi gezisi faaliyetlerinin, sadece katılım seviyesinde sınırlandırıldığı bu sebeple planlama ve düzenleme konusunda eksiklikler olduğu sonucuna varılmıştır. Verilen sonuçlar doğrultusunda bu araştırma, öğretmen yetiştiren programların çeşitli arazi gezisi aktivitelerini eğitimlerinin bir parçası haline getirmelerinin önemine vurgu yapmaktadır. Ayrıca geleceğin öğretmenlerini mesleğe başlamadan önce arazi gezilerine dâhil etmelerinin yaşanan zorlukların ortadan kaldırılması ve sınıf içi derslerle bağdaşan arazi gezilerinin düzenlenmesi için önemli bir adım olabileceğini ileri sürmektedir.

*Anahtar Kelimeler:* arazi gezisi, devlet okulu, özel okul, çevre eğitimi, hizmet öncesi eğitim

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## **CHAPTER 1: INTRODUCTION**

### **Introduction**

Biology as a branch of science is a crucial way of investigating the world and assembling general rules about why things happen by observing the specific situations in nature (Ajaja 2007; Johnson and Raven, 2001; Patrick, 2010). For this reason, being a part of nature and observation of nature, field trips are particular means of investigation in biology. In addition, according to Orion and Hoysein (1994) and Michie (1998) providing field trip opportunities for students is invaluable for providing first-hand experience, promoting interest and motivation in science, giving meaning to learning, observation and perception skills and personal social development. However, for the biology teachers implementing field trips have some difficulties such as relating the field trip to curriculum, entry and transportation costs of field trip areas (Anderson& Zhang, 2003), safety concerns (Anderson, Kisiel, & Storksdieck, 2006) and behavioral problems of students during field trip (Behrendt& Franklin, 2014). By cause of these and so on obstacles teachers may hesitate to conduct field trips in teaching biology although they consider the field trip as an opportunity to show students learning can happen beyond the school and promote life-long learning (Kisiel, 2005).

Biology teachers' perceptions about barriers in implementing field trips make the pre-service education programs a current issue because teachers cannot be expected to highly perform spontaneously in field trips without any support and education in

their pre-service preparation. Thus, this study focusses on the biology teachers' perceptions about their pre-service preparation for field trips.

This chapter is a general overview for the current study by covering background, information, problem statement, purpose, research questions, significance and definition of the key terms.

### **Background**

School field trips are one of the basic elements in biology education and with the help of field trips students can learn biology, make observations in a better way and make learning more meaningful (Ateskan& Lane, 2016; Farmer, Knapp &, Benton,2007a). In other words, as an improved learning example, students can interact the real world with what they are learning in classroom and through first-hand experience in fields they can participate in science physically (Ike et al., 2016). In addition to the views above, many researchers have investigated knowledge gain and learning that occurred during field trips (Behrendt& Franklin, 2014; Kisiel, 2006; Michie, 1998). These learnings can cover the observation, classification, experimentation, communication, measurement, data recording and raising questions (Patrick, 2010).

Furthermore, Franklin and Behrendt (2014) stated that students participating in field trip activities generate a more positive attitude about biology then they may acquire science for their carrier in the future (Behrendt& Franklin, 2014; Fries-Gaither & Lightle, 2011), when they actively participate in school field trips.

The benefits of field trips in biology education have the potential to be seen beneficial for the science according to every member in this area: students,

researchers and teachers. As a support for this idea and the studies above, Tal (2001) presented a study in which a considerable percentage of biology teachers reports three main benefits of field trips for teachers and students. These are content, activity and problem-solving based benefits. As a content benefit, field trips show the effects as following; creating personal interest, inter-disciplinary work, innovative learning and teaching environment and learning with real concepts related to content in natural settings. Moreover, according to the activities in learning environment the field trips encourage teachers to create their own teaching and learning activities then the students involve in learning, participate in hands-on experiences and work in group activities more. Lastly, the students and teachers not only participate in field trips but also exposure to problems and problem-solving skills by social interactions, accessing to various resources and supportive environment between the teachers and the students.

As it is seen the significance of field trips in biology education is highly valuable. However, there are some barriers in implementing field trips according to the biology teachers. These boundaries can be listed as follows: curriculum fit (Anderson& Zhang, 2003), financial constraints, time, transportation, planning, student behavior, maintaining safety (Ateskan&Lane, 2016; Kisiel 2006; Mitchie, 1998; Muse, Chaiarelott, &Davidman 1982; Orion & Hofstein 1994) communication in field (Ike et. al, 2016), the length of bureaucratic process and lack of suitable evaluation after the field trip (Bozdoğan, 2015). To eliminate these issues and for better implementation of field trips teachers' role should be considered significant because they may be the main decision makers and they may have many roles before, during and after the field trips in addition to their teaching position. To illustrate, the

teachers are the guides in field trips and can structure, organize, plan and implement field trips with an educational intent to non-school environments (Bozdoğan, 2015; Horasan, 2013; Demir 2007a). In order to supplement the teaching and learning taking place in and out of classrooms, teachers should structure field trips (Olson, Cox-Petersen& McComas, 2001) by considering their own importance for field trips. However, due to lack of school support and time, teachers may not include the field trips into their yearly plans.

In addition to in-service teachers' invaluable experiences and recommendations about field trips, pre-service teacher preparation programs remind us that the essential elements of field trips will be able to make the future teachers aware of their role in field trips because some researchers have found that the teachers are not well prepared for field trips or they perceive they are not prepared (Ateskan& Lane, 2016; Cox-Petersen & Pfaffinger, 1998; Kisiel, 2005; Mitchie 1998).

After all, biology teachers cannot show a high performance in field trips by themselves without any support and education in their pre-service preparation. Thus, it has been recommended that the field trip should be included in pre-service preparation programs to make future biology teachers more comfortable in implementing field trips (Olson, Cox-Petersen, & McComas, 2001).

The reason of this strong suggestion is that the teachers feel more comfortable during field trips when they experience a meaningful field trip during pre-service preparation. Additionally, helping teachers about the conduction of field trips make teachers more effective during field trips and positive towards field trips (Tal, 2001).

By having confidence, the boundaries during field trips can be invisible to biology teachers. In addition to the confidence level development and positive attitude, the teachers implementing field trips during pre-service education can improve the teaching (Anderson, Lawson, & Mayer-Smith, 2006) and learning skills in science because the real implementation of field trips have the potential to provide ideas for pedagogy, deeper development of teachers' science knowledge and awareness of teachers about field trips in profession and broaden thoughts about teaching and learning (Kisiel, 2013).

### **Problem**

Field trips are integral parts of biology education and for connecting inside and outside activities related to biology course. Moreover, field trips provide hands-on experience for students, spark students' interests, and encourage them to participate in science lessons, make students be aware of relevancy of science and nature, reinforce students' observation and perception skills and improve their social development (Behrendt & Franklin, 2014). In organization of field trips, biology teachers are responsible for most of the steps. Thus, the perceptions of biology teacher about field trips has an important role in conducting field trips. In addition to the perceptions of biology teachers about field trips, the biology teachers' perceptions about their pre-service preparation need to be considered because the preparation programs form a basis for future teachers' field trip activities. However, the perceptions of biology teachers about their pre-service preparation on field trips are not well known although there are a number of studies about teachers' perceptions about the importance of field trips. Moreover, teachers have little training or pedagogical knowledge relating to the process of field trip planning, preparation and running (Behrendt & Franklin, 2014; Michie, 1998; Tal & Morag,

2009) and pre-service teachers generally are not taught the pedagogy or methods necessary to plan and orchestrate a field trip (Behrendt& Franklin, 2014; Kisiel, 2006; Tal, 2004). Thus, a preparation program suggestions for pre-service teacher education will be helpful to prepare future teachers for field trips and by these suggestions what pre-service and in-service biology teachers need to know about field trip planning and implementation will be investigated. Similarly, Ferry (1993) noted that pre-service teachers, reluctant at first, gained an increased desire to participate with informal, experiential lessons after receiving instruction about field trip pedagogy (Behrendt& Franklin, 2014; Ferry, 1993).

### **Purpose**

The main purpose of this study is to find out the perceptions of biology teachers about field trips and their pre-service preparation. To this end, the study aims to explore and understand biology teachers' perceptions and attitudes about field trips in terms of planning and implementing. Besides that the biology teachers' perceptions and attitudes are compared according to their gender, the school types where they teach, their year of teaching, and their educational level. Moreover, the perceptions about their own pre-service preparation is determined. At the end of all comparisons and data analysis, an alternative means of preparation is suggested for biology teacher preparation programs about field trips.

### **Research questions**

This study addresses the following questions:

1. What are the perceptions of teachers about field trip challenges, benefits and their confidence level?

- a) What is the relationship between biology teachers' perceptions about field trips and their year of teaching experience?
  - b) What are the differences between biology teachers' perceptions about field trips according to their level of education?
  - c) What are the differences between public and private school biology teachers' perceptions about field trips?
  - d) What are the differences between biology teachers' perceptions about field trips according to gender?
2. What are the biology teachers' perceptions about their pre-service teacher education program regarding field trip preparation?
    - a) What are the differences between biology teachers' perceptions about field trips according to their level of participation?

### **Significance**

This study aims to assess the importance of teacher preparation programs about field trips by investigating the perceptions of biology teachers about field trips and pointing out their preparation programs when they were pre-service teachers. Additionally, the study seems to have a chance to describe the importance of preparation of future teachers for field trips and its effects on biology teachers' confidence levels when they structure field trips. For instance several studies show that that universities might be helpful for providing such support for teachers in the form of pre-service training (Anderson et al. , 2006a; DeWitt and Storksdieck, 2008; Kisiel, 2007;Kisiel, 2013; Olson et al. , 2001; Tal, 2001). Thus, it seems that this study may be a helpful for teacher education institutions to prepare future teachers for field trips. Moreover, investigation of teachers' perceptions about field trips may be helpful for better education in biology teacher preparation thus the curricula in

pre-service teacher preparation can be arranged according to the field trip planning and implementation needs. To sum up, at the end of this study the pre-service and in-service biology teachers and teacher education institutions may consider the good applications of field trip education during pre-service biology teacher preparation.

### **Definition of key terms**

Field trip: a field trip can be defined as an activity designed as first-hand observation of objects of study a trip by students and teachers to gain first-hand knowledge away from the classroom, as to a museum, factory, geological area, or environment of certain plants and animals (Zirkel, 2000)

Public school: a free tax-supported school controlled by a local governmental authority (Merriem-Webster's online dictionary, n.d.)

Private school: a school that is established, conducted, and primarily supported by a non-governmental agency (Merriem-Webster's online dictionary, n.d.)

Environmental education: process of teaching students to become "environmentally knowledgeable and, above all, skilled and dedicated citizens who are willing to work, individually and collectively, toward achieving and/or maintaining a dynamic equilibrium between quality of life and quality of the environment" (Hungerford, Peyton and Wilke, 1980,p. 43)

Pre-service teacher: a student who participated in pre-service training or education, a "course or program of study which student teachers complete before they begin teaching" (Richards & Schmidt, 2002, p. 416).

## **CHAPTER 2: REVIEW OF RELATED LITERATURE**

### **Introduction**

This study investigates the perceptions of biology teachers about their pre-service preparation for field trips. To advise the general aim of the study, this chapter provides a context for understanding school field trips in education, biology teachers' perceptions about field trips, pre-service teacher field trip preparation programs and field trip confidence with long-term effects. Moreover, in particular, each section considers some subsections. The first section is for the school field trips in education with the main topics; the types of field trips by covering the biology field trips and the importance of field trips. The second section covers the perceptions of teachers about field trips by mentioning about the benefits and challenges of field trips. The third section is about the pre-service teacher field trip preparation programs especially the missing parts, the contents, the methods of the current programs and the reasons of implementing field trips during pre-service education of teachers. The last section is mainly focusing on the field trip confidence and long-term effects about organizing and implementing field trips by in-service and pre-service teachers.

### **School field trips in education**

#### **Types of field trips**

Field trips are considered as the supplementary activities designed for better learning outside the classroom and they promote the student interest towards the classroom lessons (Olson, Cox-Petersen, & McComas, 2001). Because of the undeniable benefits of field trips in learning most of the studies on field trips show that they are

divided into categories based on the educational purpose, location, distance and duration of field trips.

Firstly, the educational purposes of field trips are creating interest among the students, participating in interdisciplinary work, being aware of innovations in teaching and learning, seeing difficulties in life and understanding contextual relationship between the classroom lessons and environment (Tal, 2001). Moreover, Tal and Morag (2009) add that other educational aims of field trips are providing first-hand experience, stimulating motivation in science, adding relevance to learning, strengthening observation and perception skills. For supporting the students in learning the reasons of field trips are summarized as having autonomy, active involvement, collaboration with classmates and teachers, interaction with the people in field trip locations for learning, effectiveness of learning and concretization of classroom lessons (Tal& Morag, 2009). Furthermore, the field trips are not only conducted for students but also for the teachers. To illustrate, the study of Kisiel in 2013 states that the field trips give opportunities to the teachers in pedagogy and deeper science knowledge through implementation and observation. This idea is supported by the study of Bennet and Heafner in 2004 which claims that the teachers implement field trips also promote the education about the environment since by being part of the environment in field trips they have inquiry and reflection on nature and the environmental issues. As another educational purpose category, when the school trips are designed by the schools or educational authorities in a well-planned way they are called formal field trips (Rennie,2007) because these types of field trips are in a documented format and students follow a structured trip for individual learning. However, when the field trips are not well structured or done with non-school related purposes they are called non-formal and informal field trips

respectively. School related non-formal field trips are less structured, done for just observation and not individual based learning activities while non-school related field trips are done by families or by learners just for intrinsic motivation (Rennie, 2007). The only disadvantage of these types of field trips may be the students do not understand the educational purpose of field trips and do it for just entertainment since the learning is not evaluated.

Secondly, a field trip can be implemented in different types of locations according to many studies hence the classrooms cannot provide all learning concepts in a closed area. Thus, the field trip areas act as classrooms according to the purposes. Some of the locations used as field trips areas are:

- natural places: pond, wetland, shade tree, valley, mountain of a valley and march habitat (Bennet& Heafner, 2004; Hofstein& Rosenfeld, 1996; Kisiel, 2013; NRC, 2009; Orion, 1993; Orion& Hofstein, 1994; Tal, 2001; Tal, 2004)
- semi-natural places: national park, wildlife park and gardens (Bennet& Heafner, 2004; Kisiel, 2005)
- museums: art, natural history/ history, cultural and science museums (Anderson& Zhang, 2003; Greene, Kisida, & Bowen, 2014; Kisiel, 2005; Kisiel, 2013; NRC, 2009; Tal, 2001)
- centers and galleries: science center, nature center, zoo, aquarium, theatres, art galleries and science galleries (Anderson& Zhang, 2003; Hofstein& Rosenfeld, 1996; Greene, Kisida, & Bowen, 2014; Kisiel, 2005; Kisiel,2013; NRC, 2009; Orion, 1993; Orion& Hofstein, 1994)

Thirdly, in addition to the locations of the field trips, the distance of them is another category. To illustrate, a field trip could be structured in or near to the schools, in the city and out of city as another city or another country (Zirkel, 2000). For example, a walking tour in the campus of the school and a tour to a country with students and teachers are both field trips. The field trips near to the school increase the awareness of students on their environment (Bennett & Heafner, 2004). However, as the distance between the school and the field trip areas increases, the transportation of students and planning of field trips need more attention and high responsibility. Thus, time-to-time teachers may hesitate to conduct long distance field trips. All in all by ignoring the distances, field trips reminds us that they increase children's knowledge and understanding of the world in which the students live (Nabors, Edwards, & Murray, 2009).

Lastly, for the duration of field trips, it can be said that there are two main categories for field trips a day-long and overnight field trips. This actually is based on the distance of field trips. Besides planning of the trip, pre-visit, on-site and follow-up preparation and activities (Bitgood, 1989), the accommodation, transportation and payment issues are included in longer and long distance field trips.

### *Biology field trips*

Biology is defined as the study of life (Raven et al., 2017, p.1) and in this manner it cannot be thought without nature. Although there is no only way for learning about the nature related to biology, biological investigations can be done through field trips in nature (Patrick, 2010) for biology lessons. Thus, a biology field trip could be arranged to aquatic habitats such as lakes, rivers, wetlands (Tal, 2004), aquariums and to terrestrial habitats such as national parks, forests, botanic gardens (Patrick,

2010). These areas can be included in biology teaching for the units in curriculum that specifically related to nature. Moreover, learning in nature is a strong medium for the improvement of students' insight about environment, environmental and ecological issues (Ballentyne& Packer, 2006).

### **Importance of field trips**

When talking about the biology lessons, field trips and lessons in the classrooms seem that they are conducted separately in schools. However, there are some mutual and complementary properties of both. To begin with the mutual features, one of them can be better learning and understanding of students and the role of the teacher in learning. To illustrate, in the study of Behrendt and Franklin (2014) they state that field trips may motivate students to understand classroom concepts and promote further learning with higher level thinking strategies. Similar to classroom lessons, teachers prepare field trips according to the needs of students because the field trips are not only based on experience but also based on comfortable learning environment and good reflections after the experience for better understanding (Behrendt& Franklin, 2014). According to Shakil, Faizi and Hafeez (2011) field trips may be helpful to develop more interest among students in learning. The aim of their study is to show the importance of field trips in education, society and professional life, real world experiences and long lasting learning, interest towards the lessons in classrooms and practical work. The study is conducted with 50 teachers and 100 students and shows that the majority of the teachers and students have a view that educational field trips are helpful to promote advance learning in several views. These views are effective learning, promotion of qualities among students, benefits of field trips for society and individuals and essentials of field trips. In the first place the impact of field trips in effective learning can be listed in many ways such as

practical approach for the curriculum, self-experience and observation to increase knowledge, promote interaction between students and teachers, overcome the teaching problems and provide opportunity to show individualities. In the second place the promotion of qualities among student can be listed as: creating cooperation and unity among students, developing leadership qualities, having sense of discipline and increasing self-confidence. In the third place the field trips are beneficial for society and individuals because the field trips are helpful for individuals to show better performance in studies and to achieve better results at higher level of education. With help of these benefits the individuals will be aware of their needs, roles and missions in the society. In the last place by the field trips, the students can learn through various techniques and develop more interest in learning by motivation. To sum up the study summarizes that the learning is not restricted to schools and books and there is a balance between theory and real practice by field trips (Shakil, Faizi, & Hafeez, 2011).

In addition, the complementary feature has many parts that support the learning since the importance of field trips as a complementary element is not restricted to learning of teachers and students. Furthermore, the field trips are a good means of teaching method. For instance, if the similarities between the scientific process and field trips are examined they both include the observations, hypotheses, predictions, experiments and lastly theories (Patrick, 2010). Thus, the field trips can be thought as they are the practical science work outside the classroom that acquire knowledge in science. After all, “Field trips are a type of experiential learning that gets children away from the traditional classroom setting and into a new mode of learning.” (Nabors, Edwards, & Murray, 2009, p. 661) is a good summary of the importance of field trips for the complementary part.

### **Perceptions of teachers about field trips**

As teachers have a significant role in structuring field trips, their perceptions should also be considered. Thus, there are studies high in number that have examined the teachers' perceptions about field trips so that the studies about their perceptions on field trip preparation in their pre-service education should be more. For this reason, learning benefits and challenges of field trips from teachers is a good way to learn their perceptions. The benefits are catalyst of field trips while the challenges are the areas need to be improved during pre-service education and implemented in a better way in in-service education. Firstly, the benefits mostly assemble in better learning by real life experience, increased academic performance (Ike et al., 2016), affective, cognitive, psychomotor and entertaining learning, motivation, awareness and thinking skills (Bozdoğan, 2015). Secondly, for the challenges, as a general view, as stated in 2003, and in 2006 Anderson and his colleagues agreed that teachers' perceptions are mainly related to preparation, curriculum fit, pre and post visit activities, logistics and venue and museum entry cost.

### **Benefits of field trips**

Coupled with the idea that the field trips are thought as a different means of learning for traditional classroom lessons then they have specific benefits for students and teachers.

In the study of Tal (2001), benefits of field trips according to the teachers for both themselves and students are stated by conducting interviews. For the teachers the field trips:

- create personal interest area even for boring lessons
- are a kind of holistic view with interdisciplinary work

- are innovative by creating new learning materials and not using the already prepared materials
- make teaching easier by narrowing the broader concepts
- learning the science concepts in real settings

For the students, by the field trips they:

- involve in learning both cognitively, physically and socially by being aware of what they are learning
- work in groups and take part in the chaotic environment
- have more interactions with their classmates, teachers and materials
- share their experiences more
- learn the scientific concepts in a more concrete way
- have problem solving skills about environmental education

Moreover, other studies claims the similar benefits of field trips. To illustrate, while a study, that is conducted through interviews and observations in three different cities, lists the benefits of field trips as exposing the students to new experiences and promoting interest and motivation (Anderson, Kisiel, & Storksdieck, 2006). Another study about the same issue concludes that the field trips are beneficial facilitators of learning and means of fostering students' creativity and practices (Maghoub& Alawad, 2014).

According to Greene, Kisida and Bowen (2014) taking students to museums improve their recalling and remembering skills about every detail of what they see in fields because the experience is not abstract or hypothetical. Then, field trips help to improve critical thinking and describing skills because the students are observing,

noticing and describing the details of their experiences. Moreover, the students have empathy and clearer perspectives since they may compare people and places in their time with the history.

Additionally, the teachers think the possible benefits such that field trips may motivate and connects students to appreciate and understand classroom concepts which may also boost students' knowledge foundation, promote further learning and higher thinking strategies (Behrendt& Franklin, 2014).

Mujtaba et al. (2018) , by focusing on the impact of natural history museums, concludes that the field trips provide better understanding in science, support the prior knowledge of students and contribute to the relating of science to real life by feeding intrinsic motivation.

To sum up the benefits of field trips under a title, according to the book of Palmer (1998), she created a model framework to guide the planning, teaching and learning of environmental education, such as field trips, and in this model there are three main approaches which are education about the environment, education for the environment and education in the environment. At the center of these three approaches there is an overlapping area which covers attitudes, skills, concepts and especially knowledge. Then it can be said that field trips help students to gain views about the environment, to experience real life observation, to understand the one way of learning in science and to gain knowledge about the related classroom lesson.

### **Challenges of field trips**

Although there is an endless list of the benefits of field trips, other related studies show that teachers consider some issues as challenges when implementing field trips. In general, these issues can be curriculum fit, costs and/or availability of organization

and the time spent in preparation and potential conflicts with school time tables (Anderson & Zhang, 2003). Then, Anderson and his colleagues, in 2006, claim that the teachers perceive the lack of fund, time for preparation, time in schedule, curriculum fit and communication among the teachers and with the people in field trip venues as the barriers of field trips. Firstly, the venue entry and transportation cost is a barrier because funding cannot be provided by the schools and parents. Secondly, time for implementing, fitting into the over-crowded curriculum, preparation of teaching materials for evaluation and timing during the school year can be a problem for teachers and schools. Thus scheduling is an arisen problem for field trips. Thirdly, connection of field trips with classroom lessons and structuring the field trips according to the curriculum can limit the teachers. Lastly, a human based issue is a problem because of some undeveloped systems of communications between teachers and staff in the venue. The field trips areas such may have poor communication sources via telephone and/or internet. Since some of the field trip institutions may not be supportive when the schools organize field trips.

Similar to the ideas above, Bozdoğan (2015) supports that field trips may be challenging when there is no curriculum fit with the classroom lessons, poor organization and planning, management problems during field trips, time constraints, long bureaucratic process and ineffective evaluation. For providing the benefits of field trips to students these powerful challenges should be eliminated (Anderson et. al, 2006).

Additionally, in the study of Olson, Cox-Petersen and McComas, when they ask the enhancing factors of field trips to in-service and pre-service teachers, only few of them consider the field trips have a close fit with existing curriculum. Then they add

the inhibitors of field trips as management problems in transportation, behavior and security of the students (2001).

For the security and the responsibility of students, teachers have important roles because the healthy arrivals of students back to home are really important. As a slight but important example, when talking about the safety keeping the students healthy during the field trip is not the only issue but also providing health related materials such as first aid kits, antiseptic creams and bandages is another barrier for field trips (Nabors, Edwards, & Murray, 2009).

### **Pre-service teacher field trip preparation programs**

When the roles of teachers about field trips are considered, the importance of pre-service preparation programs should not be ignored because the teacher education institutions prepare future teachers. Moreover to overcome the challenges of field trips, the pre-service teachers should experience the field trip organization before in-service teaching for their professional life.

The study of Bozdoğan in 2015 examines the level of knowledge of pre-service teachers about field trips and tries to find the self-efficacy of pre-service teachers to make the integration of field trips reasonable during their education time. According to his study, 90% of pre-service teachers did not participate in field trip experiences and 71% of them wants to take training about field trips. They want to be trained because they need to have information about organization, gain experience and facilitate learning in their own lessons. For this reason three main sections are asked to pre-service teachers. These are before, during and after the field trip. According to the pre-service teachers the things to do before trips are mostly about having information about the site, informing student about the trip, identify the purpose of

the trip, preparing plans and having permission from the parents and administrative authorities. They know little about the making connections with the curriculum, preparing teaching materials, finding a guide and pre-trip visits. They also think that providing concrete learning experience is really important during the trip but they mostly skip the having fun when learning, active participation, management of the class, exploring knowledge, long-term motivation, creating interest via free times, use of prepared teaching materials and developing additional skills. Moreover, they also consider the evaluation is the only crucial thing after the trip by ignoring the importance of checking the aims, writing reports after the trip and suggestion for the improvements. To be able to change the perceptions of pre-service teachers and get them well-prepared for field trips, the field trip preparation programs should be included to teacher education faculties and/or institutions.

Correspondingly some of the cases includes pre-service teacher preparation programs to see the impacts of implementing field trips during pre-service preparation. The first example is the study of Tal (2004). In this study a field trip to a wetland is conducted with the pre-service teachers for environmental education. One of the pre-service teachers is the focus of the study and according to her the field trips have a great educational impact in her affective and cognitive experiences. In her design, a trip implemented in a swamp with the guidance of the researcher of this study by including the scientific and physical activities as:

- climbing to a hill by using maps for identifying locations, then discussion about the environmental issues nearby
- sampling freshwater and doing quality analysis for salinity, pH, turbidity, dissolved nitrogen and phosphate levels
- flora and fauna observations and identification

- discussions about sustainable development

On the whole, her findings tells us that the pre-service teachers had a chance to see the swamp habitat with many species of plants and animals and perceive that the swamps are the wetlands to be preserved. Moreover, the participants had actual experience in field trips that cause better understandings, a chance to see many models and representations of nature and discussion sessions about environmental issue and about what they see. As a supportive idea for implementation of field trips, they are important for education because they result in conceptual development, having outdoor experiences related to environmental education and professional and personal development (Tal, 2004).

The study of Anderson et al. (2006) is the second example about a field trip that is conducted with pre-service teachers in an aquarium as a practice. In this study the interviews and observations were done with pre-service teachers and 10 themes are formed for education, teaching and learning. The learning activities with the themes are:

- experience of teaching and learning out of the classroom: broader views of education
- thinking about the general purpose of the learning and teaching: critical thinking about the ‘big picture’ in teaching
- seeing the concepts that cannot be seen in classrooms and having opportunities for spontaneous teaching and learning: increased understandings of the educational theory of constructivism and of ‘teachable moments’

- observing the students from various ages during their group work and observation: broader skills in teaching students from K-12
- being tolerant to dynamic behaviors, seeing students own interest and exploring new teaching techniques: enhanced skills in flexible pedagogy and increased sense of autonomy to try different pedagogical techniques
- communication with the experienced teachers, students and the people in the field area: deeper appreciation for the value of working collaboratively
- behaviour management and showing teaching abilities: gains in self-confidence and self-efficacy as teachers
- experiencing classroom management strategies and setting up rapport with students: awareness of and development of student management skills
- working with the equipment and visual and tactile data collection: recognition of the power of 'hands-on' experiences in learning science
- preparing students and integrating field trips into classroom lessons: improved preparation to take students on field trips

The third example can be given by the study of Ateskan and Lane (2016). In their institution they had opportunities for conducting a trip to a local lake and a five-day trip to a city in Southern Turkey as a part of their education programme. In local lake trip, the students from the high schools did macro invertebrate collection, quadrat sampling with plants, insect collection and identification of species by the guidance of pre-service teachers. In the trip conducted in another city, the high school students had opportunities to investigate water quality, estimating crab population, observe biodiversity and assisting in protection of the nests of *Caretta caretta*.

Based on the result of these studies, pre-service teachers may feel themselves sufficient enough to conduct field trips in their future professional life when they

participate in field trips during pre-service education. Field trips not only provide hands-on experience but also develop the future teachers by many ways.

According to the needs of pre-service teachers and the essential parts of the educational programs for future teachers, the field trips can be implemented in three stages according to Myers and Jones (2018). Through these stages the challenges can be visibly moved. During the pre-stage of field trips the administration and instruction component should be involved for organization of transportation, preparation for related curriculum and assigned roles of the students. During the field trip stage, the role of the participant and the roles of the organizer should be clearly addressed. Participants should be good observers and the organizers should be facilitators and have active roles for guiding and increasing student interest. After doing effective plans and organizations, skipping the evaluation would be a failure since the participants should show their learning via sharing feelings, discussing data and experiences. Thus a post-trip stage should include all of these actions.

To sum up field trip organization during pre-service education can be a great deal of work if pre-trip stage, trip stage and post-trip stage included effectively parallel to the purpose (Myers& Jones, 2018) and by that way learning can go beyond classroom settings for future teachers and their future students.

### **Biology teachers' field trip confidence and long-term effects**

In the light of conducted studies to increase teachers' efficacy and confidence in field trips, pre-service teacher education curriculum seems important because it may alter the teachers' attitudes towards environmental education and their expectation from the profession. By the experience of implementing field trips, the self-efficacy and the confidence levels of teachers may increase. Efficacy is about believing yourself

while the confidence is taking the action (Bandura, 1997). Thus, teacher education programs need to integrate field trips in their own curriculum for better preparation of teachers for field trips because according to Scarce “field trips can stimulate the new learning, increased attitudes towards science, trigger interest development, and provide many rewards to both the teacher and the students" (as cited in Behrendt& Franklin, 2014, p. 243).

The teacher education institutions that prepare future teachers for profession may include field trips in their curriculum and help them to structure and participate in field trip activities. In the study of Bozdoğan (2012), according to results of the semi-structured interviews and observation forms it is noted that after implementing field trips the pre-service teachers claim the level of their knowledge and self-confidence increased and also they are careful, joyful, willing to participate in the study and work in cooperation. Moreover, when pre-service teachers took environmental education as a part of their professional preparation programme, they became conscious of environment, environmental issues and environmental education, additionally they were predicted to supplement their future students during in-service teaching about environment (Tuncer et al., 2009).

On the other hand, implementation of field trips during pre-service teacher education should be effective in long-terms. To explain with an example study, in a seven-week time implementation of field trips there is no positive significant difference in the level of self-efficacy of pre-service teachers. This result is a cause of short-run of the field trip experiences (Moseley& Reinke and Bookout, 2002). At the end, they recommend longitudinal studies should be done about field trips for desired results.

For aiding the improvement of the long-term effects of field trip implementations, Ateskan and Lane conducted a study in 2016 by using a tool which was developed by them in 2014. They currently study at Graduate School of Education of a private non-profit university. This institution provides field trip implementation to pre-service teachers for 16 years. Thus they designed a survey and administered it to the alumni of the institution with a response rate of 72.7% ( $N=32$ ). This study is significant to see the long-term effects of implementing field trips in pre-service education. As a result of this study the confidence level of the teachers who had experiences in field trips in their pre-service education is high for programming other than involving the parents and guardians in the trip. The areas that the teachers show little confidence are networking, fundraising and obtaining equipment. Moreover, the areas that strongly need to be developed are managing budget, arranging meals, transportation and building partnership according to the teachers who were experienced on these in pre-service education (Ateskan& Lane, 2016).

Overall, schools may not take the risk of conducting field trips because of the challenges such as lack of money, time, preparation, evaluation of learning (Patrick, 2010), curriculum fit (Anderson& Zhang, 2003) and conflicts within the school and between the school and venue areas (Kisiel, 2005).

## **CHAPTER 3: METHOD**

### **Introduction**

In this study the biology teachers' perceptions about field trips and their pre-service preparation was determined by a survey that is designed by two instructors, from a non-profit university in Turkey. The researcher of this study collected the data by using the already developed tool, analyzed the data and suggested ideas for better development of field trips during pre-service preparation. Based on the purpose of the research the study was conducted with biology teachers from several private and public schools in Ankara.

This chapter presents the methods used in the study. Additionally, the participants of the study, the instruments and methods used for data collection and the methods used for statistical analysis are described.

### **Research design**

The purpose of this study is to investigate the perceptions of biology teachers on the benefits, challenges and their confidence level about field trips, in addition to their pre-service preparation for field trips. To draw a general conclusion in line with the aim of this study for the biology teacher population in Turkey, a quantitative research was designed. Thus, survey, as a type of quantitative research, is an adequate method to collect information from a sample to draw a general conclusion about the target population in order to investigate the attitudes or perceptions of the participants about a specific topic by asking questions and then by analyzing the answers of these

questions (Fraenkel, Wallen, & Hyun, 2012). For this reason, a survey was administered to the biology teachers from public and private high schools in Ankara, who have experience in the profession. Moreover, for the first research question, a correlational analysis was done by analyzing the relationship among the variables of year of teaching and teachers' perceptions about field trips. By that way, it is possible to show whether two or more quantitative variables are related. Then, for the second, third and fourth research questions the differences between the groups about the perceptions were analyzed by comparing the quantitative means of groups. This type of statistical analysis fit strongly to comparison analysis. Lastly, the perceptions of biology teachers about pre-service field trip preparation were presented by percentages and means as a significant way of descriptive statistics with a single and simple number instead of representing whole data. To sum up, the descriptive and inferential survey statistics were given since the main purpose of the study is to have a holistic view related to the perceptions of biology teachers about field trips for benefits, challenges, their confidence level and pre-service preparation according to their year of teaching, their level of education, types of schools where the participants work, their gender and their preparation level during pre-service education (Fraenkel et al., 2012). Based on the results, the hypotheses testing for the research questions are indicated by the survey analysis on teachers' attitudes towards field trips, what kind of trainings they had on field trips in their pre-service education and accordingly what are possible the suggestions to retrofit the field trip education of teachers during pre-service preparation.

## Context

In accordance with the aim of the study a survey was administered to the biology teachers from several private and public high schools between November, 2015 and May, 2016 in Ankara, Turkey. The four private and 10 public schools took part in this study from different towns were categorized as school type A and B respectively and each school was coded by numbers (Table 1).

Table 1  
The schools where the survey was administered to biology teachers

School type	Town	School	Number of biology teachers
Private (A)	Gölbaşı	School A1	19
	Çankaya	School A2	3
	Çankaya	School A3	2
	Gölbaşı	School A4	5
Public (B)	Çankaya	School B5	3
	Çankaya	School B6	4
	Çankaya	School B7	3
	Çankaya	School B8	5
	Çankaya	School B9	3
	Çankaya	School B10	4
	Çankaya	School B11	3
	Çankaya	School B12	4
	Çankaya	School B13	4
	Mamak	School B14	4

School A1, A2, A3 and A4 are private schools. These private schools have their own primary schools so they give chance for direct enrollment to their own students. On

the other hand, to be entitled to enter these schools, firstly the students from the other primary schools were chosen according to the ranking in transition from primary education to secondary education exam (TEOG, Temel Eğitimden Ortaöğretime Geçiş Sınavı; MoNE, 2014), presently named as LGS (Liselere Geçiş Sınavı; MoNE, 2017). In these exams the students are assessed on their Turkish, Mathematics, Religion and Ethics, Science, Revolution History and Kemalism and English (foreign language) lessons. The high achievers in this exam may have full or partial scholarship from the private schools depend on the school capacity and criteria. Then, alternatively, these schools may give their own entrance exam for full, partial or no scholarship. If the parents can afford the partial or total tuition fee they enroll their children to the school on the enrollment date that differs for each private school. The public schools are given from B5 to B14. The public schools' entrance criteria is determined only by the ranking of students in national exams. Especially, the high achievers had a right to choose the type of the public school where they wanted to study at. Types of public schools could be Vocational High School, Anatolian High School, Social Sciences High School, Science High School and İmam Hatip High School. Additionally, Arts High School and Sport High School are two types of school that assess students for school related talents (MoNE, 2018). In this study, the Anatolian and Science High School were chosen because these public schools were established for teaching at least one foreign language and select the students according to national exam similar to private schools. Thus, the public and private high schools participated in this study have similar properties about the educational missions and visions such as language education and teaching high achievers of entrance exam.

## Participants

The study was designed to explore the biology teachers' perceptions about field trips and their pre-service preparation. Thus the population of interest in this research included the all biology teachers in Turkey and the target population included the all biology teachers in Ankara, Turkey. Target population size was 1513 (1147 female and 366 male biology teachers) when this study is conducted in schools and there were 524 (377 female and 147 male) biology teachers in private schools and 989 (770 female and 219 male) biology teachers in public schools. However, in this research the sample is limited to 23 teachers from 10 public high schools and 16 teachers from four private high schools located in three different towns of Ankara ( $N=39$ , 36 female and 3 male biology teachers). The ratio of female and male biology teacher numbers of the sample did not represent the actual ratio. Table 2 below presents the sample with the numbers of the teachers from both type of schools and the response rates of the sample from the target population.

From all public high schools in Ankara, Science and Anatolian High Schools participated in this study were selected through cluster random sampling rather than selecting the teachers individually by simple random sampling from all public high schools (Fraenkel et al., 2012). By this way, the biology teachers were included in this study from certain kinds of public schools. Furthermore, the private schools were selected by convenience sampling method since they were available during the conduction of this study (Fraenkel et al., 2012). Since, some of the public schools are partnership schools of Graduate School of Education at Bilkent University where the pre-service teachers had teaching practice chances. Moreover, the only criteria for selection of biology teachers in the context that they had at least one year of teaching in biology lessons in high school. Therefore, the teachers from the selected schools

were in the best position to have the answers all of the research questions of this research.

Table 2  
Number of participants and response rates

School type	Number of biology teachers	Number of participant biology teachers	Response rate (%)
Public School	37	23	62.2%
Private School	29	16	55.2%

The survey was administered to 66 biology teachers from public and private schools with response rates of 62.2% and 55.2% respectively ( $N= 39$ ). Participants were asked to participate in the study or not thus only the volunteers were participated in this study. Moreover, the public school teachers could not be reached because they did not stay in the school after they finished their lessons. In addition, the private school teacher had too heavy time tables to complete the survey.

### **Instrumentation**

A survey (Appendix A) that consists of three sections with 32 questions (Table 3) in total was given to the all biology teachers who were in the schools on appointment time and who agreed to participate in the study. The tool for data collection was created by Ateskan and Lane in 2014. Moreover, they tested the validity of the tool by administering the tool to three alumni. Then they checked internal consistency for the reliability of with Cronbach's alpha derived as .937 with the whole sample (Ateskan& Lane, 2016). With their permission the tool was used in this study (Appendix B).

Table 3  
Information about the instrument

Section	Content of the section	Questions	Items
Section 1	Demographic information	1-9	
Section 2	General information about field trips in the biology department of the participant's current school	10-21	Challenge items (19) Benefit items (20) Confidence items (21)
Section 3	Information about the pre-service field trip preparation	22-32	Preparation (23) Effectiveness (24,25,26,27,28) Activities (29) Importance (30) Interest (31)

The questions in the survey consist of dichotomous scale (yes-no), multiple-choice, five-point Likert scale and open-ended type of questions.

In Section 1, there is an optional part for the contact information. Basically, the participants answered the questions about their:

- Education background
- Institution and year of the teaching certificate
- Gender
- Name and the city of the currently teaching school
- The lessons that they are teaching
- Year of teaching in current school
- Year of teaching in total

In Section 2, there are five open-ended, four multiple choice and three five-point Likert scale type questions with sub-questions respectively, they are related to participation levels of teachers to field trips with students and other teachers, current

situation of field trips in their school and the perceptions of teachers about the field trip challenges, benefits and their confidence level on field trips. In this section the five-point Likert scales are as following:

- 1= not sure, 2= strongly disagree,3= disagree, 4 = agree and 5= strongly agree
- 1= not sure, 2= unconfident,3= little confident, 4 =confident and 5= strongly confident

In general, for the challenges section reverse coding was done for scale type questions.

Moreover, there are some conditional questions that direct the participant to other questions. Thus, in this section the participant did not have to answer all of the questions. The content of the questions are:

- Number of teachers in the biology department
- Number of students in a typical biology class
- Participation of students in field trips
- Frequency of going on field trip in a year
- Location of field trips
- Numbers of field trips that participant takes part in
- Role of participant in field trips
- Comparison with colleagues in the department
- Optional: comments about field trips.
- Challenges of conducting field trips
- Benefits of conducting field trips
- Level of confidence about field trip activities

Lastly in Section 3, the pre-service preparation of teachers were asked by 11 five-point Likert scale type questions. The questions and the Likert scales are:

- Description of pre-service preparation program about field trips
- Importance of involving in activities of field trips in pre-service education
- Interest towards the participation in field trips during in-service teaching

1= no opinion, 2= strongly disagree, 3= disagree, 4 = agree and 5= strongly agree

- Level of being a part of pre-service program

1= no opinion, 2= not included, 3= not very involved, 4 = somewhat involved and 5=very involved

- Influence of field trips during pre-service education on current teaching

1= no opinion, 2= no extent, 3= little extent, 4 = some extent and 5= great extent

- Effectiveness of field trip activities

1= no opinion, 2= ineffective, 3= not very effective, 4 = somewhat effective and 5=very effective

- Optional: Suggestions for field trip activities

### **Method of data collection**

The data collection process has three steps. Firstly, to be able to conduct the survey the permissions were obtained from to tool developers and MoNE (Ministry of National Education) (Appendices B, C). Then the schools which participated in the study was informed about the study by November, 2015. Before the survey was administered, the researcher contacted with the participant schools by phone and an

appointment was made for the submission of the surveys. Secondly, the survey was given to the participant teachers on appointment date. At this time a paper-and-pencil survey was given and one more appointment was made for the retrieving of the completed surveys which was in two weeks. Time was limited for each school for the collection of large size of data in a short period of time. Thirdly, the completed surveys were retrieved and formed the main sources of data for the study. During administration and the bringing the surveys back the participants was informed about the content of the research and their privacy in detail.

### **Method of data analysis**

For the quantitative data analysis of the survey, the data were collected from the public and private high schools. Afterwards the data were entered to Statistical Package for Social Sciences (SPSS, v.24.0) for doing the descriptive and inferential statistics, variance analysis, correlation calculation and independent samples *t-test*.

In the analysis of the survey results, the survey questions were divided into categories and examined separately in the line with each research question.

For the first research question descriptive analysis was done for the perceptions of teachers about field trip challenges, benefits and their confidence level by question 19, 20 and 21. Then, for the first sub-question a correlation analysis was done between the question 8, 9 and 19, 20 and 21 (Appendix A) to see the relationship between biology teachers' perceptions about field trips and their year of teaching experience. For the second sub-question one-way ANOVA analysis was done because this question tries to find any possible difference about the perceptions of teachers among undergraduate, master and doctorate graduate teachers. In case the assumptions of variance analysis is not satisfied, a nonparametric analysis aids in

comparison. The alternative version of parametric tests for variance analysis of three different groups for one dependent variable and one independent variable is Kruskal Wallis analysis also used for the second research question. For this purpose the question 4, 19, 20 and 21 were used (Appendix A). Since the third and fourth sub-questions inquires the differences of means between public and private school teachers and two genders independent samples *t*-test analysis was done for each question. Respectively the question 6 and 19, 20, 21 and question 5 and 19, 20 and 21 (Appendix A) were used for the analysis of third and fourth questions.

Additionally descriptive analysis was done for the third question because this research question was about the public and the private school types and the sub-questions were analyzed by descriptive statistics for in-depth understanding of teachers' attitudes about field trips.

Lastly, the second were analyzed by descriptive statistics to investigate the biology teachers' perceptions about their pre-service teacher education program regarding field trip preparation. Thus the answers of questions about the perception on field trips (question 19, 20, and 21) and the questions about the pre-service preparation (question 22, 23, 24, 25, 26, 27, 28, 29, 30, and 31) were used for this question (Appendix A). Then, the teachers' perceptions were compared through independent samples *t* test based on their participation level.

For data analysis, Section 2 of the survey (Appendix A) that includes the five-point Likert scale type questions, which were used almost for every research question, were tested for the reliability with Cronbach's alpha resulted in the score of  $\alpha=.937$ . This section is for the perceptions of teachers about field trip challenges, benefits and their confidence level. Furthermore, the questions about the pre-service preparation of biology teachers for field trips in Section 3 of the survey were tested for reliability

with Cronbach's alpha. The score of the result is  $\alpha=.960$ . Thus, due to high level Cronbach's alpha values, all of the items about the perceptions on field trips and pre-service preparations of biology teachers were included in data analysis.

## **CHAPTER 4: RESULTS**

### **Introduction**

The findings about the research questions with analyzed data are presented in this chapter. Firstly, the demographic information of the participants is covered and secondly, based on each research question of this research, the survey results are given in an order with tables and comments based on the following research questions:

1. What are the perceptions of teachers about field trip challenges, benefits and their confidence level?
  - a) What is the relationship between biology teachers' perceptions about field trips and their year of teaching experience?
  - b) What are the differences between biology teachers' perceptions about field trips according to their level of education?
  - c) What are the differences between public and private school biology teachers' perceptions about field trips?
  - d) What are the differences between biology teachers' perceptions about field trips according to gender?
2. What are the biology teachers' perceptions about their pre-service teacher education program regarding field trip preparation?
  - a) What are the differences between biology teachers' perceptions about field trips according to their level of participation?

## **Survey results**

The results of the study were obtained by analyzing the survey. Statistical Package for Social Sciences (SPSS, v.24.0) was used to do the analysis of collected data.

The survey consists of three sections and these are demographic information, general information about field trips in the biology department of the participant's current school and information about the pre-service field trip preparation. The SPSS results about the study are given according to these sections and parallel to research questions.

### **Demographic information**

Demographic data was collected through the first section of the survey. From question 1 to question 9; the participants were asked for their faculty of education, the institute for their teaching certificate, the year when they took teaching certificate, level of education, gender, the city where their school found, the classroom lessons that they give, the year of work in current school and the total year of experience in teaching.

In total, 39 biology teachers were participated in the study ( $N=39$  teachers; 92.3% female, 7.7% male) from 10 public and four private schools. Less than half of the participants ( $n=16$ ) took their teaching certificates from the faculty of education during undergraduate years and the others ( $n=23$ ) took their teaching certificates through graduate school of education during their master program or from the institutions in where certificates are given after completing a short period education. In addition, there are teachers who have different level of education and these are 61.5% are undergraduate, 28.2 are master and 10.3% are doctorate graduates.

The context schools are located in Ankara, Turkey but they are in three different towns: Çankaya, Gölbaşı and Mamak. From total 14 schools, School A2, A3, B5-B13 (78.6%) are located in Çankaya, School A1 and A4 (14.3%) are located in Gölbaşı and School B14 (7.1%) is located in Mamak. Moreover, in these schools the teachers teach health and other classroom lessons in addition to biology. Eight of 39 teachers just teach biology while 28 of them teach health and 31 of them teacher health and others additionally.

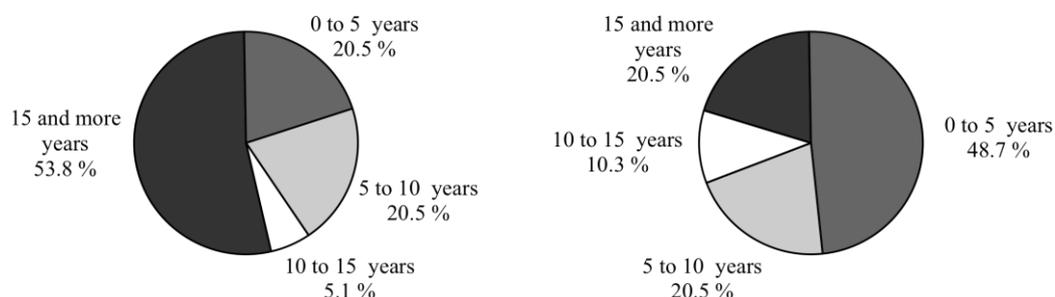


Figure 1. Year of teaching in current school and total years of teaching

When mentioning about experience, there are two categories in the survey these are the year of experience in current schools and total years of experience in profession (Figure 1).

The years were grouped as 0-5, 5-10, 10-15 and more than 15. The percentages are for the year of experience in current schools are 48.7%, 20.5%, 10.3% and 20.5% for 0-5, 5-10, 10-15, and 15 and more year of experiences respectively.

After all, for the total experience in teaching, 20.5% of the teachers have 0-5, 20.5% have 5-10, 5.1% percent of the teachers have 10-15 and 15.3% of the teachers have 15 and more year of experiences.

### **Research question 1: The perceptions of teachers about field trip challenges, benefits and their confidence level**

According to the descriptive analysis, the biology teachers consider the finding enough time for conducting field trips ( $M=4.31$ ,  $SD=0.86$ ), enough time for organizing field trips ( $M=4.13$ ,  $SD=0.95$ ) and student safety as three important challenges for field trips ( $M=3.85$ ,  $SD=1.11$ ). Additionally, they did not consider the importance of curriculum ( $M=2.49$ ,  $SD=.89$ ), teachers' confidence ( $M=2.67$ ,  $SD=0.90$ ) and their own knowledge level about the process of conducting field trips ( $M=2.69$ ,  $SD=1.00$ ) as challenging as the other factors.

For the benefits of field trips according to biology teachers, students' interest increases towards science ( $M=4.56$ ,  $SD=0.94$ ), students enjoy field trips ( $M=4.46$ ,  $SD=0.99$ ) and students find field trips entertaining ( $M=4.44$ ,  $SD=1.02$ ) are regarded as more beneficial factors while administrative support ( $M=3.18$ ,  $SD=1.30$ ), field trip importance as a part of curriculum ( $M=3.92$ ,  $SD=1.31$ ) and science career potential of students ( $M=4.05$ ,  $SD=1.10$ ) are less beneficial factors of field trips.

Lastly for the confidence level of teachers, it can be claimed that the teachers feel confident about evaluating field trip effectiveness ( $M=3.92$ ,  $SD=1.22$ ), relating the field trip to curriculum ( $M=3.92$ ,  $SD=1.29$ ), and helping students the field trip experience to classroom learning ( $M=3.85$ ,  $SD=1.25$ ). On the other hand, they did not feel confident about involving parents or guardians ( $M=3.15$ ,  $SD=1.46$ ) for field trips, managing budget ( $M=3.15$ ,  $SD=1.42$ ) and fundraising ( $M=3.21$ ,  $SD=1.38$ ).

**Research question 1a: The relationship between biology teachers' perceptions about field trips and their year of teaching experience**

To investigate the relationship between the biology teachers' perceptions about field trips and their year of teaching experience, Pearson correlation coefficient was computed. For this purpose, the year of teaching in current school and total years of teaching were tested for correlation with perceptions of teachers on field trip challenges and benefits and confidence level of teachers when implementing field trips (Table 4, 5, 6, 7, 8, and 9).

## Year of teaching experience in current school

Table 4

The relationship between biology teachers' perceptions about field trip challenges and their year of teaching experience in current schools

	Pearson Correlation
Year of teaching at current school	Year of teaching at current school
Year of teaching at current school	1
a: There is not enough time in the school year to conduct field trips	0.246
b: There is not enough time in the year to organize field trips	0.112
c: Transportation costs are too high	-0.237
d: We do not have the necessary equipment, resources or materials	-0.105
e: Student safety is at risk	0.318*
g: I am not knowledgeable about the process of planning field trips	0.176
h: I am not knowledgeable about the process of conducting field trips	0.007
i: I am not comfortable conducting field trips	0.113
j: My administration discourages field trips	0.035
k: Parents disapprove of field trips	0.118
l: Field trips are unnecessary for students to understand the curriculum	0.260

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

The results in Table 4 show that there is no correlation between the year of experience at current school and perceptions of teachers on field trip challenges except the student safety. There is a statistically significant positive correlation between the year of teaching in current school and safety as a challenge at .05 level ( $r=.318$ ,  $n=39$ ,  $p=.049$ ). This shows that as the teacher experience increases at

current school, he/she considers the safety during field trips as a challenge when implementing field trips.

Table 5

The relationship between biology teachers' perceptions about field trip benefits and their year of teaching experience in their current schools

	Pearson Correlation
Year of teaching at current school	Year of teaching at current school
Year of teaching at current school	1
a: Field trips increase student interest in science	-0.060
b: Students enjoy field trips	-0.208
c: Students find field trips entertaining	-0.202
d: Field trips help students understand some science concepts better than classroom learning	-0.128
e: Field trips encourage students to appreciate nature	-0.130
f: Students learn about careers in science through field trips	-0.220
g: Field trips are an important part of the curriculum	-0.267
h: My administration supports field trips	-0.071
i: I enjoy conducting field trips	-0.199
j: Others	. <sup>a</sup>

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

As represented in Table 5, there is no statistically significant correlation between the year of teaching in current school and perceptions of biology teachers about the benefits of field trips.

Table 6

The relationship between biology teachers' confidence level when implementing field trips and their year of teaching experience in their current schools

	Pearson Correlation
Year of teaching at current school	Year of teaching at current school
Year of teaching at current school	1
a: Choosing a location (site)	0.097
b: Obtaining administrative support	-0.008
c: Obtaining equipment and materials	-0.060
d: Fundraising	-0.178
e: Managing a budget	-0.110
f: Building partnerships with experts from field trip locations	-0.209
g: Networking with resource experts	-0.105
h: Arranging meals	-0.067
i: Arranging transportation	-0.055
j: Securing parental permission	-0.044
k: Involving parents or guardians on the trip	-0.017
l: Arranging lodging	-0.024
m: Conducting field work/experiments	-0.191
n: Designing student learning experiences	-0.111
o: Enhancing student inquiry	-0.082
p: Fostering critical thinking	-0.111
q: Managing student behavior	-0.216
r: Encouraging cooperative learning	-0.286
s: Monitoring group work	-0.133

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

Table 6 (cont'd)

The relationship between biology teachers' confidence level when implementing field trips and their year of teaching experience in their current schools

	Pearson Correlation
	Year of teaching at current school
t: Ensuring student safety	-0.204
u: Assessing student learning	-0.032
v: Evaluating field trip effectiveness	-0.196
w: Helping students relate the field trip experience to classroom learning	-0.085
x: Relating the field trip to the curriculum	-0.152
y: Other activities not included in this list:	. <sup>a</sup>

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

As shown in Table 6, there is no statistically significant correlation between the year of teaching in current school and perceptions of biology teacher on field trips and their confidence level.

### **Total years of teaching**

The total years of teaching were tested for correlation with perceptions of teachers on field trip challenges and benefits and confidence level of teachers when implementing field trips (Table 7, 8 and 9).

Table 7

The relationship between biology teachers' perceptions about field trip challenges and their total years of teaching

	Pearson Correlation Total years of teaching
Total years of teaching	1
a: There is not enough time in the school year to conduct field trips	0.191
b: There is not enough time in the year to organize field trips	-0.079
c: Transportation costs are too high	0.068
d: We do not have the necessary equipment, resources or materials	0.121
e: Student safety is at risk	0.515**
f: I am not confident planning field trips	0.046
g: I am not knowledgeable about the process of planning field trips	0.134
h: I am not knowledgeable about the process of conducting field trips	0.064
i: I am not comfortable conducting field trips	0.112
j: My administration discourages field trips	0.511**
k: Parents disapprove of field trips	0.151
l: Field trips are unnecessary for students to understand the curriculum	0.176

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

Table 7 demonstrates that there is statistically significant correlation between the teachers' perceptions about student safety as a part of field trip challenge and total years of teaching at 0.01 level ( $r=.515$ ,  $n=39$ ,  $p=.001$ ). Moreover, the total year of teaching and administration discourage challenge are statistically correlated at .01 level ( $r=.511$ ,  $n=39$ ,  $p=.001$ ). These results claim that as year of experience increases, the teachers felt student safety and lack of support by administration as a

challenge. For the other challenge subsections there is no statistically significant correlation with teachers' total year of teaching.

Table 8

The relationship between biology teachers' perceptions about field trip benefits and their total years of teaching

	Pearson Correlation Total years of teaching
Year of teaching at current school	1
a: Field trips increase student interest in science	-0.029
b: Students enjoy field trips	-0.180
c: Students find field trips entertaining	-0.259
d: Field trips help students understand some science concepts better than classroom learning	-0.112
e: Field trips encourage students to appreciate nature	-0.065
f: Students learn about careers in science through field trips	0.041
g: Field trips are an important part of the curriculum	-0.370*
h: My administration supports field trips	-0.072
i: I enjoy conducting field trips	-0.258
j: Others	. <sup>a</sup>

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

In Table 8 the analysis results show that, other than as an important part of curriculum, there is no statistically significant correlation between the total year of teaching and teachers' perception on field trip benefits. There is a statistically significant negative correlation between teachers' perceptions on field trip benefits for curriculum and total year of teaching at .05 level ( $r=-.370$ ,  $n=39$ ,  $p=.020$ ). As the teaching years go by, the teachers consider field trips have less importance in curriculum.

Table 9

The relationship between biology teachers' confidence level when implementing field trips and their total years of teaching

	Pearson Correlation
	Total years of teaching
Year of teaching at current school	1
a: Choosing a location (site)	0.041
b: Obtaining administrative support	-0.040
c: Obtaining equipment and materials	-0.027
d: Fundraising	-0.126
e: Managing a budget	-.0125
f: Building partnerships with experts from field trip locations	-0.098
g: Networking with resource experts	0.008
h: Arranging meals	-0.072
i: Arranging transportation	-0.196
j: Securing parental permission	0.034
k: Involving parents or guardians on the trip	0.007
l: Arranging lodging	-0.054
m: Conducting field work/experiments	-0.233
n: Designing student learning experiences	-0.065
o: Enhancing student inquiry	-0.084
p: Fostering critical thinking	-0.078
q: Managing student behavior	-0.107
r: Encouraging cooperative learning	-0.250

\*\* .Correlation is significant at the 0.01 level (2-tailed).

\* .Correlation is significant at the 0.05 level (2-tailed).

Table 9 (cont'd)

The relationship between biology teachers' confidence level when implementing field trips and their total years of teaching

	Pearson Correlation Total years of teaching
s: Monitoring group work	-0.099
t: Ensuring student safety	-0.218
u: Assessing student learning	-0.027
v: Evaluating field trip effectiveness	-0.208
w: Helping students relate the field trip experience to classroom learning	-0.024
x: Relating the field trip to the curriculum	-0.069
y: Other activities not included in this list:	. <sup>a</sup>

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant

According to Table 9, there is no statistically significant correlation between the teachers' confidence level and total year of teaching.

Table 10

The relationship between biology teachers' perceptions about field trips and their year of teaching experience.

	Challenges	Benefits	Confidence Level
	Pearson Correlation		
Year of teaching at current school	0.158	-0.222	-0.135
Total years of teaching	0.329*	-0.201	-0.110

Correlation is significant at the 0.05 level (2-tailed).

Correlation is significant at the 0.01 level (2-tailed).

When the perceptions of teachers about benefits and confidence level are tested

about the correlation with their year of teaching, there is no statistically significant

correlation. However, there is a statistically significant positive correlation between the total years of teaching and teachers' perceptions on field trips about the challenges ( $r=.329, n=39, p=.041$ ).

**Research question 1b: The difference between biology teachers' perceptions about field trips according to their level of education**

The descriptive statistic related to perceptions of teachers associated with benefits and challenges of field trips and confidence levels of teachers when implementing field trips are reported in Table 11.

Table 11  
Descriptive statistic for biology teachers' perceptions about field trips according to their level of education

		N	Mean	Std. Deviation
Challenges	University	24	3.44	0.50
	MA	11	2.77	0.40
	PhD	4	2.88	0.78
	Total	39	3.19	0.59
Benefits	University	24	3.93	0.94
	MA	11	4.59	0.25
	PhD	4	4.42	0.43
	Total	39	4.16	0.81
Confidence Level	University	24	3.39	1.05
	MA	11	4.03	0.82
	PhD	4	3.90	1.19
	Total	39	3.62	1.02

In Table 11, it can be seen that the university graduates have numerically highest mean for the challenges of field trips ( $M=3.44$ ) and masters and doctorate graduates have numerically higher mean for confidence levels during field trips ( $M=4.03$  and  $M=3.90$ ).

Furthermore, in order to test the hypothesis that level of teacher education (bachelors, masters, and doctorate) has an effect on teachers' perceptions on field trips, a one-way ANOVA was conducted. Prior to analysis of variance, the assumption about the normality and homogeneity of variances were tested (Table 12 and 13).

Table 12  
Test of normality for the perceptions of teacher associated with their level of education

	Level of education	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Challenges	University	0.140	24	0.200*	0.962	24	.477
	MA	0.220	11	0.142	0.910	11	.245
	PhD	0.314	4	.	0.854	4	.240
Benefits	University	0.181	24	0.040	0.812	24	.000
	MA	0.208	11	0.198	0.877	11	.096
	PhD	0.377	4	.	0.717	4	.018
Confidence Level	University	0.161	24	0.111	0.916	24	.047
	MA	0.172	11	0.200*	0.917	11	.297
	PhD	0.367	4	.	0.737	4	.029

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

According to the normality test for challenges, benefits and confidence levels, only the challenges show statistically significant normal distribution with the value of 0.477 for university graduates, 0.245 for master graduates and 0.240 for PhD graduates ( $\text{sig.} \geq .05$ ) according to the Shapiro-Wilk test. For this reason, before one-way ANOVA, the homogeneity of variances was evaluated only for challenges (Table 13).

Table 13  
Test of homogeneity of variances

	Levene Statistic	df1	df2	Sig.
Challenges	0.854	2	36	.434

According to Table 13, the homogeneity of variances for the challenges was satisfied based on Levene's  $F$  test by the values of  $F(2, 36) = .64, p = .434$ .

Following the assumptions for normality and homogeneity of variances, to evaluate the mean differences between the groups for challenges one-way ANOVA was conducted (Table 14).

Table 14  
ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Challenges	Between Groups	3.935	2	1.968	7.799	.002
	Within Groups	9.083	36	0.252		
	Total	13.019	38			

According to Table 14, there is a statistically significant mean difference between the groups for the challenges of field trips. To see which groups are statistically and

significantly different One-way ANOVA with LSD post-hoc test was conducted (Table 15).

Table 15  
Dependent variable: Challenges

	(I) Level of education	(J) Level of education	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
LSD	University	MA	0.18	.001*	0.31	1.05
		PhD	0.27	.043*	0.02	1.12
	MA	University	0.18	.001*	-1.05	-0.31
		PhD	0.29	.710	-0.70	0.49
	PhD	University	0.27	.043*	-1.12	-0.02
		MA	0.29	.710	-0.49	0.70

\*The mean difference is significant at the 0.05 level.

According to the results of LSD post-hoc test, the mean difference between the university and master graduates about the teachers' perceptions on field trip challenges is statistically significant,  $p=.001$  at 0.05 level. Moreover, the mean difference between the university and doctorate graduates is statistically significant,  $p=.043$  at 0.05 level. However there is no statistically significant mean difference between the master graduates and doctorate graduates,  $p=.710$  at 0.05 level.

Since the normal distribution is not satisfied for the benefits of field trips and confidence levels of teachers during field trips, a nonparametric test was conducted for making comparison between the groups. The results of Kruskal Wallis test are given in Table 16.

Table 16

Test statistics<sup>a,b</sup>

	Benefits	Confidence Level
Chi-Square	5.463	4.113
df	2	2
Asymp. Sig.	0.065	0.128

a. Kruskal Wallis Test

b. Grouping Variable: Level of education

Table 16 shows that there is no statistically significant difference between the biology teachers' perceptions on benefit of field trips and their own confidence level when conducting field trips according to their level of education. Since the p-value is equal to  $.128 \geq .05$ , it is failed to reject that there is no statistically significant difference between the groups based on benefits and challenges.

**Research question 1c: The differences between public and private school biology teachers' perceptions about field trips**

To explore the difference between the private and public school teachers' perceptions on field trips, independent samples *t* test was conducted. Table 17 lists the means values for challenges with its items and Table 18 gives the results of independent samples *t* test.

Table 17

## Perceptions of teachers about field trip challenges: School Type

	School type	N	Mean	Std. Deviation
Challenges	public	23	3.52	0.43
	private	16	2.72	0.44
a: There is not enough time in the school year to conduct field trips	public	23	4.70	0.64
	private	16	3.75	0.86
b: There is not enough time in the year to organize field trips	public	23	4.26	0.96
	private	16	3.94	0.93
c: Transportation costs are too high	public	23	4.13	1.29
	private	16	2.13	0.89
d: We do not have the necessary equipment/resources/materials	public	23	4.30	0.82
	private	16	2.56	0.73
e: Student safety is at risk	public	23	4.17	1.15
	private	16	3.38	0.89
f: I am not confident planning field trips	public	23	2.61	0.94
	private	16	2.75	0.86

Table 17 (cont'd)

## Perceptions of teachers about field trip challenges: School type

	School type	N	Mean	Std. Deviation
g: I am not knowledgeable about the process of planning field trips	public	23	3.17	1.07
	private	16	2.38	0.72
h:I am not knowledgeable about the process of conducting field trips	public	23	2.96	1.15
	private	16	2.31	0.60
i: I am not comfortable conducting field trips	public	23	2.91	1.13
	private	16	2.63	0.81
j: My administration discourages field trips	public	23	3.04	1.61
	private	16	2.44	0.81
k: Parents disapprove of field trips	public	23	3.39	1.38
	private	16	2.13	0.81
l: Field trips are unnecessary for students to understand the curriculum	public	23	2.61	0.89
	private	16	2.31	0.87

Table 18

Independent samples *t* test for teachers' perceptions on challenges of field trips:  
School type

			t	df
	F	Sig.		
Challenges	0.189	.666	5.629	37
a: There is not enough time in the school year to conduct field trips	2.196	.147	3.964	37
b: There is not enough time in the year to organize field trips	1.658	.206	1.046	37
c: Transportation costs are too high	0.984	.328	5.388	37
d: We do not have the necessary equipment/resources/materials	0.898	.349	6.815	37
e: Student safety is at risk	0.032	.859	2.330	37
f: I am not confident planning field trips	0.956	.335	-0.478	37
g: I am not knowledgeable about the process of planning field trips	3.417	.073	2.596	37
h: I am not knowledgeable about the process of conducting field trips	5.658	.023	2.052	37
i: I am not comfortable conducting field trips	1.160	.288	0.878	37
j: My administration discourages field trips	9.234	.004	1.384	37
k: Parents disapprove of field trips	5.568	.024	3.306	37
l: Field trips are unnecessary for students to understand the curriculum	.510	.480	1.029	37

\* $p \leq .05$  level is significant.

Table 18 represents that there is a statistically significant mean difference between the perceptions of public and private school biology teachers about the challenges of field trips;  $t(37)=3.303, p=.002$ . In public schools the teachers seem to have more challenges ( $M=3.52, SD= 0.43$ ) than private school teachers ( $M=2.72, SD= 0.44$ ).

When the specific challenges of field trips are evaluated according to the perceptions of biology teachers in public and private schools, there are statistically significant mean differences for finding enough time, field trip costs, availability of materials, student safety, knowledge of process and planning of field trips and parental support for item a;  $t(37)=3.964, p=.000$ ; item c;  $t(37)=5.388, p=.000$ ; item d;  $t(37)=6.815, p=.000$ ; item e  $t(37)=2.330, p=.025$ ; item g  $t(37)=2.596, p=.013$ ; item h  $t(37)=2.052, p=.047$  and item k;  $t(37)=3.306, p=.002$ . Based on these results public school teachers have more challenges than private school teachers.

As it was conducted to investigate the difference between public and private school biology teachers in terms of their perceptions about field trips, independent sample  $t$  test was conducted to explore the difference between school types for benefits of field trips. Table 19 lists mean values for benefits with its items while Table 20 shows the results of independent sample  $t$  test for the benefits of field trips according to the teachers.

Table 19

## Perceptions of teachers about field trip benefits: School Type

	School type	N	Mean	Std. Deviation
Benefits	public	23	3.88	0.94
	private	16	4.57	0.30
a: Field trips increase student interest in science	public	23	4.30	1.15
	private	16	4.94	0.25
b: Students enjoy field trips	public	23	4.17	1.19
	private	16	4.88	0.34
c: Students find field trips entertaining	public	23	4.13	1.22
	private	16	4.88	0.34
d: Field trips help students understand some science concepts better than classroom learning	public	23	4.04	1.30
	private	16	4.88	0.34
e: Field trips encourage students to appreciate nature	public	23	4.17	1.03
	private	16	4.69	0.60
f: Students learn about careers in science through field trips	public	23	4.04	1.22
	private	16	4.06	0.93

Table 19 (cont'd)

## Perceptions of teachers about field trip benefits: School Type

	School type	N	Mean	Std. Deviation
g: Field trips are an important part of the curriculum	public	23	3.52	1.50
	private	16	4.50	0.63
h: My administration supports field trips	public	23	2.61	1.23
	private	16	4.00	0.89
i: I enjoy conducting field trips	public	23	3.91	1.345
	private	16	4.31	0.60
j: Other	public	a	.	.
	private	a	.	.

a. t cannot be computed because at least one of the groups is empty.

Table 20

Independent samples *t* test for teachers' perceptions about field trip benefits: School type

			t	df
	F	Sig.		
Benefits	6.391	.016	2.837	37
a: Field trips increase student interest in science	10.176	.003	2.167	37
b: Students enjoy field trips	9.505	.004	2.279	37
c: Students find field trips entertaining	7.420	.010	2.373	37
d: Field trips help students understand some science concepts better than classroom learning	5.956	.020	2.497	37
e: Field trips encourage students to appreciate nature	1.628	.210	1.790	37
f: Students learn about careers in science through field trips	0.262	.612	0.052	37
g: Field trips are an important part of the curriculum	13.621	.001	2.448	37
h: My administration supports field trips	8.954	.005	3.855	37
i: I enjoy conducting field trips	4.491	.041	1.109	37

\* $p \leq .05$  level is significant.

Table 20 shows that there is a statistically significant mean difference between the perceptions of public and private school biology teachers about the field trip benefits;  $t(37)=2.837, p=.007$ . In private schools the biology teachers strongly agree that the field trips are beneficial for students ( $M=4.57, SD= 0.30$ ) while public school teachers just agree the benefits of field trips ( $M=3.88, SD= 0.94$ ).

When the beneficial items are evaluated according to the perceptions of biology teachers in public and private schools, there are statistically significant mean differences for creating interest among students, enjoying students, student entertainment, better learning by field trips, important part of a curriculum and support by administration in the favor of private school teachers: for item a;  $t(37)=2.167, p=.037$ ; item b;  $t(37)=2.279, p=.029$ ; item c;  $t(37)=2.373, p=.023$ ; item d  $t(37)=2.497, p=.017$ ; item g  $t(37)=2.448, p=.019$  and item h  $t(37)=3.855, p=.000$ .

Lastly, to evaluate the teachers' perceptions on their confidence level when implementing field trips independent samples  $t$  test was conducted. Table 21 represents the mean values and Table 22 represents the results of the analysis for mean differences.

Table 21

## Perceptions of teachers about field trip confidence: School Type

	School type	N	Mean	Std. Deviation
Confidence level	public	23	3.44	1.05
	private	16	4.25	0.95
a: Choosing a location (site)	public	23	3.65	1.15
	private	16	3.94	1.240
b: Obtaining administrative support	public	23	3.04	1.40
	private	16	4.13	0.96
c: Obtaining equipment and materials	public	23	3.04	1.30
	private	16	4.06	0.93
d: Fundraising	public	23	2.61	1.20
	private	16	4.06	1.18
e: Managing a budget	public	23	2.61	1.27
	private	16	3.94	1.29
f: Building partnerships with experts from field trip locations	public	23	3.61	1.37
	private	16	3.94	1.00

Table 21 (cont'd)

## Perceptions of teachers about field trip confidence: School Type

	School type	N	Mean	Std. Deviation
g: Networking with resource experts	public	23	3.30	1.46
	private	16	3.81	1.170
h: Arranging meals	public	23	3.35	1.19
	private	16	4.06	1.06
i: Arranging transportation	public	23	3.13	1.42
	private	16	4.19	1.170
j: Securing parental permission	public	23	3.48	1.50
	private	16	4.13	1.09
k: Involving parents or guardians on the trip	public	23	2.65	1.47
	private	16	3.88	1.15
l: Arranging lodging	public	23	3.13	1.46
	private	16	4.00	1.10
m: Conducting field work/experiments	public	23	3.39	1.34
	private	16	4.25	0.86

Table 21 (cont'd)

## Perceptions of teachers about field trip confidence: School Type

	School type	N	Mean	Std. Deviation
n: Designing student learning experiences	public	23	3.35	1.43
	private	16	4.06	1.00
o: Enhancing student inquiry	public	23	3.43	1.38
	private	16	4.00	0.97
p: Fostering critical thinking	public	23	3.43	1.41
	private	16	4.06	1.12
q: Managing student behavior	public	23	3.39	1.23
	private	16	4.00	1.03
r: Encouraging cooperative learning	public	23	3.65	1.30
	private	16	4.06	1.06
s: Monitoring group work	public	23	3.35	1.34
	private	16	4.13	1.03
t: Ensuring student safety	public	23	3.43	1.34
	private	16	3.94	1.06

Table 21 (cont'd)

## Perceptions of teachers about field trip confidence: School Type

	School type	N	Mean	Std. Deviation
u: Assessing student learning	public	23	3.43	1.31
	private	16	4.31	0.95
v: Evaluating field trip effectiveness	public	23	3.65	1.27
	private	16	4.31	1.08
w: Helping students relate the field trip experience to classroom learning	public	23	3.57	1.31
	private	16	4.25	1.07
x: Relating the field trip to the curriculum	public	23	3.57	1.41
	private	16	4.44	0.89
y: Other activities not included in this list:	public	a	.	.
	private	a	.	.

a. t cannot be computed because at least one of the groups is empty.

Table 22

Independent samples *t* test for teachers' perceptions on their confidence level when implementing field trips: School type

	F	Sig.	t	df
Confidence level	0.018	.894	-2.488	37
a: Choosing a location (site)	0.021	.885	-.738	37
b: Obtaining administrative support	5.097	.030	-2.684	37
c: Obtaining equipment and materials	2.910	.096	-2.696	37
d: Fundraising	1.144	.292	-3.752	37
e: Managing a budget	0.368	.548	-3.194	37
f: Building partnerships with experts from field trip locations	1.915	.175	-0.818	37
g: Networking with resource experts	2.441	.127	-1.157	37
h: Arranging meals	0.762	.388	-1.924	37
i: Arranging transportation	1.404	.244	-2.449	37
j: Securing parental permission	2.494	.123	-1.471	37
k: Involving parents or guardians on the trip	5.484	.025	-2.792	37
l: Arranging lodging	3.130	.085	-2.021	37

\* $p \leq .05$  level is significant.

Table 22 (cont'd)

Independent samples *t* test for teachers' perceptions on their confidence level when implementing field trips: School type

	F	Sig.	t	df
m: Conducting field work/experiments	5.211	.028	-2.258	37
n: Designing student learning experiences	4.578	.039	-1.722	37
o: Enhancing student inquiry	7.016	.012	-1.416	37
p: Fostering critical thinking	1.941	.172	-1.483	37
q: Managing student behavior	.838	.366	-1.617	37
r: Encouraging cooperative learning	1.174	.286	-1.042	37
s: Monitoring group work	2.514	.121	-1.959	37
t: Ensuring student safety	1.045	.313	-1.249	37
u: Assessing student learning	2.348	.134	-2.294	37
v: Evaluating field trip effectiveness	0.638	.430	-1.700	37
w: Helping students relate the field trip experience to classroom learning	1.489	.230	-1.731	37
x: Relating the field trip to the curriculum	5.358	.026	-2.186	37

\* $p \leq .05$  level is significant.

As evaluated in challenges and benefits, Table 22 gives the statistically significant difference between public ( $M=3.44$ ,  $SD= 1.04$ ) and private ( $M=4.25$ ,  $SD= 0.95$ ) school biology teachers' perceptions on their confidence level when conducting field trips;  $t(37) = -2.488$ ,  $p=.017$ . Additionally, if the confidence issues are evaluated item by item, the results in the table demonstrate that there is statistically significant difference between the perceptions of teachers according to school types; administrative support (item b;  $t(37)=-2.684$ ,  $p=.011$ ) , access to materials (item c;  $t(37)=-2.696$ ,  $p=.011$ ) , fundraising (item d;  $t(37)=-3.752$ ,  $p=.001$ ), management of budget (item e;  $t(37)=-3.194$ ,  $p=.003$ ), arrangement of transportation (item i;  $t(37)=-2.449$ ,  $p=.019$ ), involving parents or guardians on the trip (item k;  $t(37)=-2.792$ ,  $p=.008$ ), conducting field work (item m;  $t(37)=-2.258$ ,  $p=.030$ ) and assessment of student learning (item u;  $t(37)=-2.294$ ,  $p=.028$ ). Private school teachers seem to have more confidence about field trips for all given items.

**Research question 1d: The differences between biology teachers' perceptions about field trips according to gender**

Independent samples  $t$  test was conducted to explore the difference between female and male biology teachers' perceptions toward the challenges and benefits of field trips and their confidence levels when implementing field trips. Table 23, 25 and 27 include the mean values of challenges, benefits and confidence levels and Table 24, 26 and 28 demonstrate the results of independent samples  $t$  test for challenges and benefits of field trips and confidence levels of teachers when implementing field trips.

Table 23

## Perceptions of teachers about field trip challenges: Gender

	Gender	N	Mean	Std. Deviation
Challenges	female	36	3.14	0.58
	male	3	3.83	0.25
a: There is not enough time in the school year to conduct field trips	female	36	4.25	0.87
	male	3	5.00	0.00
b: There is not enough time in the year to organize field trips	female	36	4.06	0.96
	male	3	5.00	0.00
c: Transportation costs are too high	female	36	3.17	1.48
	male	3	5.00	0.00
d: We do not have the necessary equipment/resources/materials	female	36	3.53	1.16
	male	3	4.33	1.16
e: Student safety is at risk	female	36	3.78	1.12
	male	3	4.67	0.58
f: I am not confident planning field trips	female	36	2.72	0.88
	male	3	2.00	1.00

Table 23 (cont'd)

## Perceptions of teachers about field trip challenges: Gender

	Gender	N	Mean	Std. Deviation
g: I am not knowledgeable about the process of planning field trips	female	36	2.78	0.99
	male	3	3.67	1.16
h:I am not knowledgeable about the process of conducting field trips	female	36	2.61	0.96
	male	3	3.67	1.16
i: I am not comfortable conducting field trips	female	36	2.83	0.97
	male	3	2.33	1.53
j: My administration discourages field trips	female	36	2.69	1.31
	male	3	4.00	1.73
k: Parents disapprove of field trips	female	36	2.75	1.27
	male	3	4.33	1.16
l: Field trips are unnecessary for students to understand the curriculum	female	36	2.53	0.91
	male	3	2.00	0.00

Table 24

Independent samples *t* test for teachers' perceptions on challenges of field trips:

Gender

			t	df
	F	Sig.		
Challenges	1.366	.250	-2.049	37
a: There is not enough time in the school year to conduct field trips	8.867	.005	-1.468	37
b: There is not enough time in the year to organize field trips	4.436	.042	-1.693	37
c: Transportation costs are too high	7.715	.009	-2.115	37
d: We do not have the necessary equipment/resources/materials	0.117	.735	-1.157	37
e: Student safety is at risk	1.037	.315	-1.343	37
f: I am not confident planning field trips	0.062	.804	1.352	37
g: I am not knowledgeable about the process of planning field trips	0.022	.883	-1.481	37
h: I am not knowledgeable about the process of conducting field trips	0.040	.842	-1.800	37
i: I am not comfortable conducting field trips	0.902	.348	0.825	37
j: My administration discourages field trips	0.383	.540	-1.631	37
k: Parents disapprove of field trips	0.080	.779	-2.079	37
l: Field trips are unnecessary for students to understand the curriculum	5.439	.025	0.993	37

\* $p \leq .05$  level is significant.

As shown in Table 24, there is statistically significant difference between female ( $M=3.14, SD=0.58$ ) and male biology teachers ( $M=3.83, SD= 0.25$ );  $t(37) = -2.049, p=.048$ , in terms of their perceptions about challenges of field trips. Moreover, when each item is analyzed separately it is seen that there is a statistically significant difference between female and male teachers' perceptions for challenges. To illustrate, male biology teachers ( $M=5.00, SD= 0.00$ ) consider the transportation costs more challenging than female teachers ( $M=3.17, SD= 1.48$ );  $t(37) = -2.115, p=.041$ . In addition to transportation cost, the biology teachers think different about parental support about field trips. While male biology teachers ( $M=4.33, SD= 1.16$ ) agree the idea that parents do not support field trips the female teachers ( $M=2.75, SD= 1.27$ ) seem to have not clear idea about the parental support;  $t(37) = -2.079, p=.045$ .

To examine whether any the difference between male and female biology teachers in terms of their perceptions about field trip benefits, independent sample  $t$  test was conducted. Table 25 lists mean values for benefits with its items then Table 26 shows the results of independent sample  $t$  test for the benefits of field trips according to the gender.

Table 25

## Perceptions of teachers about field trip benefits: Gender

	Gender	N	Mean	Std. Deviation
Benefits	female	36	4.18	0.83
	male	3	3.93	0.65
a: Field trips increase student interest in science	female	36	4.56	0.97
	male	3	4.67	0.58
b: Students enjoy field trips	female	36	4.47	1.0007
	male	3	4.33	1.16
c: Students find field trips entertaining	female	36	4.47	0.97
	male	3	4.00	1.73
d: Field trips help students understand some science concepts better than classroom learning	female	36	4.36	1.13
	male	3	4.67	0.58
e: Field trips encourage students to appreciate nature	female	36	4.36	0.93
	male	3	4.67	0.58
f: Students learn about careers in science through field trips	female	36	4.00	1.12
	male	3	4.67	0.58

Table 25 (cont'd)

## Perceptions of teachers about field trip benefits: Gender

	Gender	N	Mean	Std. Deviation
g: Field trips are an important part of the curriculum	female	36	4.00	1.24
	male	3	3.00	2.00
h: My administration supports field trips	female	36	3.25	1.27
	male	3	2.33	1.53
i: I enjoy conducting field trips	female	36	4.17	1.00
	male	3	3.00	2.00
j: Other	female	a	.	.
	male	a	.	.

a. t cannot be computed because at least one of the groups is empty.

Table 26

Independent samples *t* test for teachers' perceptions about field trip benefits: Gender

			t	df
	F	Sig.		
Benefits	0.050	.824	0.519	37
a: Field trips increase student interest in science	0.221	.641	-0.194	37
b: Students enjoy field trips	0.201	.656	0.229	37
c: Students find field trips entertaining	2.577	.117	0.766	37
d: Field trips help students understand some science concepts better than classroom learning	0.517	.477	-0.461	37
e: Field trips encourage students to appreciate nature	0.590	.447	-0.556	37
f: Students learn about careers in science through field trips	0.511	.479	-1.010	37
g: Field trips are an important part of the curriculum	0.717	.403	1.286	37
h: My administration supports field trips	0.018	.894	1.184	37
i: I enjoy conducting field trips	2.060	.160	1.801	37

\* $p \leq .05$  level is significant.

For the differences between male and female biology teachers' perceptions on field trip benefits, Table 25 and 26 show that there is no statistically significant difference. Female ( $M=4.18$ ,  $SD=0.83$ ) and male ( $M=3.93$ ,  $SD= 0.65$ ) biology teachers consider the biology field trips beneficial in every aspects;  $t(37) = .519$ ,  $p=.607$ .

In Table 27 and 28, the means and independent samples  $t$  test results are given respectively to see the differences between the teachers' perceptions on their confidence level according to gender.

Table 27  
Perceptions of teachers about field trip confidence: Gender

	Gender	N	Mean	Std. Deviation
Confidence level	female	36	3.81	1.10
	male	3	3.33	0.52
a: Choosing a location (site)	female	36	3.75	1.20
	male	3	4.00	1.00
b: Obtaining administrative support	female	36	3.53	1.36
	male	3	3.00	1.00
c: Obtaining equipment and materials	female	36	3.50	1.28
	male	3	3.00	1.00

Table 27 (cont'd)

## Perceptions of teachers about field trip confidence: Gender

	Gender	N	Mean	Std. Deviation
d: Fundraising	female	36	3.28	1.39
	male	3	2.33	1.16
e: Managing a budget	female	36	3.25	1.42
	male	3	2.00	1.00
f: Building partnerships with experts from field trip locations	female	36	3.75	1.27
	male	3	3.67	0.58
g: Networking with resource experts	female	36	3.53	1.40
	male	3	3.33	0.58
h: Arranging meals	female	36	3.67	1.20
	male	3	3.33	1.16
i: Arranging transportation	female	36	3.64	1.44
	male	3	2.67	0.58
j: Securing parental permission	female	36	3.78	1.40
	male	3	3.33	1.16

Table 27 (cont'd)

## Perceptions of teachers about field trip confidence: Gender

	Gender	N	Mean	Std. Deviation
k: Involving parents or guardians on the trip	female	36	3.22	1.50
	male	3	2.33	0.58
l: Arranging lodging	female	36	3.50	1.40
	male	3	3.33	1.16
m: Conducting field work/experiments	female	36	3.81	1.24
	male	3	3.00	1.00
n: Designing student learning experiences	female	36	3.67	1.35
	male	3	3.33	0.58
o: Enhancing student inquiry	female	36	3.72	1.28
	male	3	3.00	0.00
p: Fostering critical thinking	female	36	3.75	1.36
	male	3	3.00	0.00
q: Managing student behavior	female	36	3.67	1.22
	male	3	3.33	0.58

Table 27 (cont'd)

## Perceptions of teachers about field trip confidence: Gender

	Gender	N	Mean	Std. Deviation
r: Encouraging cooperative learning	female	36	3.89	1.21
	male	3	3.00	1.00
s: Monitoring group work	female	36	3.72	1.30
	male	3	3.00	0.00
t: Ensuring student safety	female	36	3.67	1.29
	male	3	3.33	0.58
u: Assessing student learning	female	36	3.81	1.28
	male	3	3.67	0.58
v: Evaluating field trip effectiveness	female	36	3.92	1.25
	male	3	4.00	1.00
w: Helping students relate the field trip experience to classroom learning	female	36	3.83	1.28
	male	3	4.00	1.00
x: Relating the field trip to the curriculum	female	36	3.92	1.32
	male	3	4.00	1.00
y: Other activities not included in this list:	female	a	.	.
	male	a	.	.

a. t cannot be computed because at least one of the groups is empty.

Table 28

Independent samples *t* test for teachers perceptions on their confidence level when implementing field trips: Gender

			t	df
	F	Sig.		
Confidence level	1.271	.267	0.741	37
a: Choosing a location (site)	0.303	.586	-0.348	37
b: Obtaining administrative support	0.874	.356	0.653	37
c: Obtaining equipment and materials	0.680	.415	0.659	37
d: Fundraising	0.571	.455	1.144	37
e: Managing a budget	2.025	.163	1.483	37
f: Building partnerships with experts from field trip locations	1.252	.270	0.111	37
g: Networking with resource experts	3.112	.086	0.236	37
h: Arranging meals	0.056	.814	0.465	37
i: Arranging transportation	3.785	.059	1.152	37
j: Securing parental permission	0.180	.674	0.534	37
k: Involving parents or guardians on the trip	4.176	.048	1.013	37
l: Arranging lodging	0.533	.470	0.199	37
m: Conducting field work/experiments	0.368	.548	1.093	37
n: Designing student learning experiences	2.320	.136	0.420	37

\* $p \leq .05$  level is significant.

Table 28 (cont'd)

Independent samples *t* test for teachers perceptions on their confidence level when implementing field trips: Gender

	F	Sig.	t	df
o: Enhancing student inquiry	6.543	.015	3.389	35
p: Fostering critical thinking	5.344	.026	3.308	35
q: Managing student behavior	1.967	.169	0.465	37
r: Encouraging cooperative learning	0.368	.548	1.229	37
s: Monitoring group work	5.867	.020	3.331	35
t: Ensuring student safety	1.859	.181	0.441	37
u: Assessing student learning	1.488	.230	0.184	37
v: Evaluating field trip effectiveness	0.613	.439	-0.112	37
w: Helping students relate the field trip experience to classroom learning	0.883	.354	-.220	37
x: Relating the field trip to the curriculum	0.757	.390	-.106	37

\* $p \leq .05$  level is significant.

According to the results of independent samples *t* test for confidence, there is no statistically significant difference between female ( $M=3.81$ ,  $SD= 1.10$ ) and male ( $M=3.33$ ,  $SD= 0.52$ ) biology teachers;  $t(37) = .741$ ,  $p=.463$ ). However when the subsections are evaluated separately it is seen that female teachers are more confident than male biology teachers about enhancing student learning (item o  $t(35) = 3.389$ ,  $p=.002$ ), fostering critical thinking (item p  $t(35) = 3.308$ ,  $p=.002$ ) and monitoring group work (item t  $t(35) = 3.331$ ,  $p=.002$ ).

**Research question 2: The biology teachers’ perceptions about their pre-service teacher education program regarding field trip preparation**

Biology teachers’ perceptions about their pre-service preparation for field trips were evaluated by the third section of the survey. The participants were asked whether they took field trip preparation education before starting profession. Descriptive analyses were conducted for the teachers took preparation of field trips during pre-service education to have idea about their level of preparation, effectiveness level of the activities, quantity and quality of field trip activities and preparation activities.

Then lastly, whether the teachers took field trips or not they were asked about the importance of field trips during pre-service education and in-service education.

Additional descriptive analysis was done to see the biology teachers’ perceptions on field trip importance for pre-service education and their interest for participating in in-service field trip activities.

Table 29  
Steps of pre-service preparation for field trips

		SA	A	D	SDi	NO	Mean	SD
a: Classroom lectures	f	5	12	1		1	4.05	0.91
	%	26.3	63.2	5.3		5.3		
b: Readings/discussion	f	5	11	1		2	3.89	1.15
	%	26.3	57.9	5.3		10.5		
c: Participating in a field trip with other student teachers	f	14	4			1	4.58	0.96
	%	73.7	21.1			5.3		

NOTE: F: Frequency SA: Strongly agree (5) A: Agree (4) D: Disagree (3) SDi: Strongly disagree (2) NO: No opinion (1)

Table 29 (cont'd)

## Steps of pre-service preparation for field trips

d: Participating in a field trip with students from a school	f	15	3		1	4.74	0.56	
	%	78.9	15.8		5.3			
e: Planning a field trip for post-secondary students	f	5	6	5	1	2	3.58	1.26
	%	26.3	31.6	26.3	5.3	10.5		
f: Planning a field trip for students from a school	f	12	3	3		1	4.32	1.11
	%	63.2	15.8	15.8		5.3		
g: Conducting a field trip for post-secondary students	f	7	5	5		2	3.79	1.27
	%	36.8	26.3	26.3		10.5		
h: Conducting a field trip for students from a school	f	13	1	4		1	4.32	1.16
	%	68.4	5.3	31.1		5.3		
i: Others	f	.	.	.	.	.	.	.
	%							

NOTE: F: Frequency SA: Strongly agree (5) A: Agree (4) D: Disagree (3) SDi: Strongly disagree (2) NO: No opinion (1)

Table 29 shows that from the 39 biology teachers, 19 (49%) of them took pre-service preparation and 20 (51%) of them did not take pre-service preparation for field trips. When the frequencies are listed the highest mean belongs to the item d ( $M= 4.74$ ,  $SD=0.56$ ) for the steps of field trips during pre-service education. After the item “participating in a field trip with students from a school”, “participating in a field trip with other student teachers” has the higher mean is item c; ( $M= 4.58$ ,  $SD=0.96$ ). Seventy eight point nine and 73.7% of the teachers who took field trip preparation think that their pre-service preparation can be defined by the activities of participating in field trip activities with student from a school and with other pre-service teachers. On the other hand, the lowest mean belongs to planning a field trip

for post-secondary students ( $M=3.58$ ,  $SD=1.26$ ). This shows that the biology teachers did not participate in field trip preparation with high school graduates.

To generalize the effectiveness of field trip activities the teachers were asked to evaluate their pre-service preparation (Table 30).

Table 30  
Effectiveness of field trip activities

		VE	SE	NVE	I	NO	Mean	SD
Effectiveness of preparation	f	10	7	2			4.42	0.69
	%	52.6	36.8	10.5				

The teachers find their field trip preparation somewhat effective ( $M=4.42$ ,  $SD=0.69$ ). Fifty two point six percent of the teachers ( $n=10$ ) evaluate the field trip preparation very effective. Thirty six point eight percent of the teachers ( $n=7$ ) find field trips somewhat effective. Ten point five percent of them find the field trip preparation during pre-service education not very effective ( $n=2$ ).

To investigate the teacher's perceptions about the effect of field trip preparation on their current teaching, they are asked to credit to what extent the quantity and quality of field trip activities and confidence level when planning and conducting field trips they are influenced by their pre-service preparation (Table 31).

Table 31  
Influence of field trips on current teaching

		GE	SE	LE	NE	NO	Mean	SD
Quantity of field trips provided to students related to pre-service teacher preparation	f	11	4	2	1	1	4.21	1.18
	%	57.9	21.1	10.5	5.3	5.3		
Quality of field trips provided to students related to pre-service teacher preparation	f	12	4	1	1	1	4.32	1.16
	%	63.2	21.1	5.3	5.3	5.3		
Confidence level in planning field trips related to pre-service teacher preparation	f	12	6	1			4.58	0.61
	%	63.2	31.6	5.3				
Confidence level in conducting field trips related to your pre-service teacher preparation	f	14	4	1			4.68	0.58
	%	73.7	21.1	5.3				

NOTE: F: Frequency GE: Great extent (5), SE: Some extent (4), LE: Little extent (3), NE: No extent (2), No opinion (1)

According to the results given in Table 31, 57.9% of biology teachers (n=11) consider that the field trip activities they took during pre-service education have influence the quantity of field trip they implemented with a great extent ( $M=4.21$ ,  $SD= 1.18$ ). Sixty three point two percent of biology teachers (n=12) consider that the field trip activities they took during pre-service education have influence the quality of field trip they implemented with a great extent ( $M=4.32$ ,  $SD= 1.16$ ). Sixty three point two percent of biology teachers (n=12) consider that the field trip activities they participated in during pre-service education have influence the confidence level teachers when planning field trips ( $M=4.58$ ,  $SD= 0.61$ ). Seventy three point seven percent of biology teachers (n=14) consider that the field trip activities they

participated in during pre-service education have influence the confidence level teachers when implementing field trips ( $M=4.68$ ,  $SD= 0.58$ ).

Finally, the perceptions of biology teachers who had the experience on field trip were asked to indicate the level of involvement to field trips during pre-service education (Table 32).

Table 32  
Level of involvement in field trip activities

		VI	SI	NVI	NI	NO	Mean	SD
a: Choosing a location (site)	f	1	7	4	4	3	2.95	1.2
	%	5.3	36.8	21.1	21.1	15.8		
b: Obtaining administrative support	f		7	5	5	2	2.89	1.05
	%		36.9	26.3	26.3	10.5		
c: Obtaining equipment and materials	f	4	9	3	1	2	3.63	1.21
	%	21.1	47.4	15.8	5.3	10.5		
d: Fundraising	f	2	5	7	3	2	3.11	1.15
	%	10.5	26.3	36.8	15.8	10.5		
e: Managing a budget	f	2	3	6	5	3	2.79	1.23
	%	10.5	15.8	31.6	26.3	15.8		
f: Building partnerships with experts from field trip locations	f	3	6	4	5	1	3.26	1.20
	%	15.8	31.6	21.1	26.3	5.3		
g: Networking with resource experts	f	5	4	5	4	1	3.42	1.26
	%	26.3	21.1	26.3	21.1	5.3		

NOTE: F: Frequency VI: Very involved (5), SI: Somewhat involved (4), NVI: Not very involved (3), NI: Not included (2), No opinion (1)

Table 32 (cont'd)  
Level of involvement in field trip activities

h: Arranging meals	f	3	4	4	6	2	3.00	1.29
	%	15.8	21.1	21.1	31.6	10.5		
i: Arranging transportation	f	1	4	5	7	2	2.74	1.10
	%	5.3	21.1	26.3	36.8	10.5		
j: Securing parental permission	f	2	2	5	7	3	2.63	1.21
	%	10.5	10.5	26.3	36.8	15.8		
k: Involving parents or guardians on the trip	f		2	7	8	2	2.47	0.84
	%		10.5	36.8	42.1	10.5		
l: Arranging lodging	f		4	3	10	2	2.47	0.96
	%		21.1	15.8	52.6	10.5		
m: Conducting field work/experiments	f	5	9	3	1	1	3.84	1.07
	%	26.3	47.4	15.8	5.3	5.3		
n: Designing student learning experiences	f	7	8	2	1	1	4.00	1.11
	%	36.8	42.1	10.5	5.3	5.3		
o: Enhancing student inquiry	f	7	9	1	1	1	4.05	1.08
	%	36.8	47.4	5.3	5.3	5.3		
p: Fostering critical thinking	f	8	9		1	1	2.63	1.07
	%	42.1	47.4		5.3	5.3		

NOTE: F: Frequency VI: Very involved (5), SI: Somewhat involved (4), NVI: Not very involved (3), NI: Not included (2), No opinion (1)

As the results in Table 32 show, there is no activity that the participants were very involved however the biology teachers mostly involve in evaluation field trip effectiveness ( $M= 4.16, SD= 1.17$ ) and fostering critical thinking ( $M=4.16, SD= 1.07$ ) activities during their pre-service education. They also somewhat involved in helping students relate the field trip experience to classroom teaching ( $M= 4.11, SD= 1.05$ ), assessment in student learning ( $M= 4.11, SD= 1.10$ ) monitoring group work ( $M= 4.11, SD= 1.05$ ), encouraging cooperative learning ( $M= 4.05, SD= 1.13$ ), enhancing student inquiry ( $M= 4.05, SD= 1.08$ ), relating the field trip to curriculum ( $M= 4.00, SD= 1.11$ ), designing student learning experiences ( $M= 4.00, SD= 1.11$ ), ensuring student safety ( $M= 3.95, SD= 1.18$ ), conducting field trip experiments ( $M= 3.84, SD= 1.07$ ), managing student behaviour ( $M= 3.79, SD= 1.18$ ) and obtaining materials ( $M= 3.63, SD= 1.21$ ). The activities that the teachers participated less during the pre-service education are networking with resource experts ( $M= 3.42, SD= 1.26$ ), building partnerships with experts from field trip locations ( $M= 3.26, SD= 1.20$ ), fundraising ( $M= 3.11, SD= 1.15$ ), arranging meals ( $M= 3.00, SD= 1.29$ ), choosing locations ( $M= 2.95, SD= 1.22$ ), obtaining administrative support ( $M= 2.89, SD= 1.50$ ), managing budget ( $M= 2.79, SD= 1.23$ ), arranging transportation ( $M= 2.74, SD= 1.10$ ), securing parental permission ( $M= 2.63, SD= 1.21$ ), arranging lodging ( $M= 2.47, SD= 0.96$ ) and involving parents or guardians on the trip ( $M= 2.47, SD= 0.84$ ). To sum up, the mean value is between somewhat involvement and less involvement ( $M= 3.49, SD= 0.79$ ). This result indicates that the teachers are not very involved in field trip preparation activities.

In conclusion, by ignoring whether the teachers involved in field trips or not they are asked to evaluate their perceptions about field trip preparation importance in pre-

service and their interest towards field trip preparation during in-service education.

Table 33 gives the mean values for the perceptions.

Table 33  
Field trip importance

		SA	A	D	SDi	NO	Mean	SD
It is very important that pre-service teacher training institutions incorporate field trip training into their programs.	f	30	6	1	1	1	4.62	0.88
	%	76.9	15.4	2.6	2.6	2.6		
I would be interested in participating in in-service field trip planning programs.	f	26	7		3	3	4.28	1.28
	%	66.7	17.9		7.7	7.7		

NOTE: F: Frequency SA: Strongly agree (5) A: Agree (4) D: Disagree (3) SDi: Strongly disagree (2) NO: No opinion (1)

For the importance of field trips that the teacher training institutions give during pre-service education, 76.9% ( $n=30$ ) of the biology teachers strongly agree with the idea that they are really important ( $M=4.62$ ,  $SD=0.88$ ). Moreover, 66.7% ( $n=26$ ) of teachers state they would be interested in in-service field trip activities ( $M=4.28$ ,  $SD=1.28$ ).

### **Research question 2a: The differences between biology teachers' perceptions about field trips according to their level of participation**

To examine whether any the difference between biology teachers according to their pre-service preparation in terms of their perceptions about field trip benefits,

independent sample  $t$  test was conducted. Table 34 lists mean values for challenges,

benefits and confidence level with its mean values then Table 35 shows the results of independent sample *t* test for the perceptual differences of teachers about field trips.

Table 34  
Perceptions of teachers about field trip confidence: Pre-service preparation

	Preparation level	N	Mean	Std. Deviation
Challenges	Participated	19	3.04	0.56
	Not participated	20	3.34	0.59
Benefits	Participated	19	4.42	0.38
	Not participated	20	3.92	1.03
Confidence level	Participated	19	4.02	0.80
	Not participated	20	3.54	1.25

When the mean values of the challenges, benefits and confidence levels of teachers are calculated it can be seen that the biology teachers who took pre-service preparation for field trip have higher confidence level ( $M=4.02$ ,  $SD= 3.54$ ) and consider the field trips more beneficial ( $M=4.42$ ,  $SD=0.38$ ) compared to teachers who did not participated in field trip activities. Moreover, the teachers who did not take field trip activities as a preparation for in-service teaching consider field trips

more challenging ( $M=3.34$ ,  $SD=0.59$ ). To see whether these differences are significant independent samples  $t$  test was done (Table 35).

Table 35  
Independent samples  $t$  test for teachers' perceptions about field trips: Pre-service preparation

	F	Sig.	t	df
Challenges	0.007	.932	-1.598	37
Benefits	7.742	.008	2.052	24
Confidence level	2.734	.107	1.417	37

\* $p \leq .05$  level is significant.

According to independent samples  $t$  test analysis, there was no statistically significant differences between teachers' perceptions about field trips based on their participation conditions for challenges;  $t(37) = -1.598$ ,  $p = .119$ , benefits;  $t(24) = 2.052$ ,  $p = .051$ , and confidence level;  $t(37) = 1.417$ ,  $p = .165$ .

## **CHAPTER 5: DISCUSSION**

### **Introduction**

This research was designed to investigate the perceptions of biology teachers about field trips and their pre-service preparation. This final chapter starts with the overview of the study, continues with the major findings connected with the literature, implications for practice and implications for further research then ends up with the limitations of the study.

### **Overview of the study**

In this study, the perceptions of biology teachers about field trips' challenges and benefits, their confidence level during field trip activities and their pre-service preparation were explored through a survey. The survey was administered to the participants of the research then data analysis was accomplished by SPSS. The results of the analysis were interpreted for the relationship between the year of experience and teachers' perceptions, the difference between educational level, school types and gender. Additionally, the teachers' perceptions about field trip preparation were evaluated. The findings according to the analysis results expressed that there was no statistically significant correlation between the year of experience in teaching and teachers' perceptions about field trip benefits and teachers' confidence level. On the other hand, there was a statistically significant correlation between the total year of teaching and teachers' perceptions about field trip challenges. As the year of experience increases the teachers consider the field trips as more challenging. Moreover, the difference between the teachers according to their

educational levels were evaluated for the perceptions about field trips. It was found that there was no statistically significant difference between the doctorate, master and undergraduate graduates related to perceptions on field trip benefits and confidence level. When the challenges were examined for these three groups, there was a statistically significant difference between the undergraduate graduates and other two groups. In addition to these results, since the teachers from private and public high school may have different opportunities in their schools it was examined whether any difference in their perceptions for challenges, benefits and confidence levels about field trips. The results showed that there was a statistically significant school type difference in terms of the perceptions. To clarify, when the public and private school teachers were compared, the public school biology teachers faced with more challenges, the private school biology teachers thought the field trips are really beneficial and the private school biology teachers had higher confidence level about field trip activities. Additionally, when the gender difference was evaluated for perceptions, there was no statistically significant difference found between female and male biology teachers about field trip benefits and confidence level. Barely, the female teachers had more confidence in some of the activities than male teachers and these were to enhance student learning, to foster critical thinking and to monitor group work. On the other hand, when the teachers were evaluated for the challenges of field trips, it was discovered that the male teachers stated more difficulties about field trips than female teachers. Lastly, the teachers' responses about their pre-service preparation were evaluated for involvement level, effectiveness in current teaching, participation level of the activities and the importance of field trips for teaching.

The discussions of the given analyses were detailed in upcoming sections to be able to answer the following research questions:

1. What are the perceptions of teachers about field trip challenges, benefits and their confidence level?
  - a) What is the relationship between biology teachers' perceptions about field trips and their year of teaching experience?
  - b) What are the differences between biology teachers' perceptions about field trips according to their level of education?
  - c) What are the differences between public and private school biology teachers' perceptions about field trips?
  - d) What are the differences between biology teachers' perceptions about field trips according to gender?
2. What are the biology teachers' perceptions about their pre-service teacher education program regarding field trip preparation?
  - a) What are the differences between biology teachers' perceptions about field trips according to their level of participation?

## **Major findings and conclusions**

### **What are the perceptions of teachers about field trip challenges, benefits and their confidence level?**

According to the descriptive analysis of this research question, the biology teachers' challenges when implementing field trips are finding enough time for conducting field and organizing field trips and student safety. The limited time in an academic year may be a global problem for teachers when there are lots of requirements and students' expected learning outcomes of running curriculum. Teachers may not have suitable time for implementing and/or planning field trips. For this reason, adding field trip activities may be a challenge for teachers (Anderson & Zhang, 2003). In addition, student safety may be a challenging factor for teachers because of the responsibility of them in management and student behavior during the field trips (Olson, Cox-Petersen, McComas, 2001). The reason of the significance of safety is based on the healthy arrival of students to their home (Nabors, Edwards, & Murray, 2009)

Moreover, benefits of field trips according to the biology teachers in this study are increasing students' interest in science, taking pleasure from science and entertainment. These findings were in line with the literature which claimed field trips create personal and academic interest in science (Tal, 2001), entertaining and motivational learning (Bozdoğan, 2015) because of increased awareness, different classroom and real life settings.

Lastly for the confidence level of teachers, it can be claimed that the teachers feel confident about evaluating field trip effectiveness, relating the field trip to curriculum, and connecting students' the field trip experience to classroom learning.

It can be concluded that the teachers were confident about the achievement of learning because they mostly focused on the curriculum. However, when they take into consideration the budget, time, preparation, administrative discourage and curriculum fit issues their confidence level may be lower as it was stated in later sections.

### **What is the relationship between biology teachers' perceptions about field trips and their year of teaching experience?**

To address this research question the participant biology teachers were asked to state the year of experience in total and in their current school. Based on the experience the correlation analysis was conducted and Pearson correlation coefficients were calculated for their perceptions on challenges and benefits of field trips and confidence level when implementing field trips.

For the challenges, most of the items did not correlate with the year of experience in current school. However, a statistically significant correlation was detected between the experience in current school and student safety. This means that when the teachers work at the same schools for long times they consider the student safety as a barrier for conducting field trips (Table 4). Then, the relationship between the total year of teaching and perceptions of teachers were examined. According to the findings there were significant relationships between the total year of experience in teaching profession and student safety and discourage of administration (Table 7). Possibly, as the teachers get experienced in conducting field trips, they face with challenges about student safety. In 2001, the study of Olson, Cox-Petersen and McComas claimed that student behavior and safety were some of the inhibitors of conducting field trips according to pre-service and in-service teachers. With or

without experience student safety by itself and because of problematic behaviors of students waited the teachers for conducting field trips. Moreover, another study added that (Nabors, Edwards, & Murray, 2009) in case of any incident during field trips, providing equipment for safety such as antiseptics, antihistaminic creams and bandages was barrier for teachers.

After student safety issue, a relationship between the total year of teaching and administrative support was detected as a challenge. Experienced teachers agreed with that they were not supported by school authority. In his study, Bozdoğan (2015) claimed that field trips were challenging when the bureaucratic process lengthened with permissions, rules and other requirements. Due to this long bureaucratic process the school authorities may hesitate to support teachers about field trips (Table 7).

Furthermore, although no relationship was appointed between the year of teaching in current school and perceptions of teachers about benefits, total year of teaching correlated negatively with the importance of field trips for curriculum (Table 8). This relationship was supported as field trips were challenging when there was weak (Olson, Cox-Petersen, & McComas, 2001) and/or no curriculum fit (Anderson et. al, 2006; Anderson& Zhang, 2003).

In this research, no correlation was marked between the increasing year of experience both in current school and in profession and confidence levels of teachers when implementing field trips. Similarly, in 2016, Ateskan and Lane did not find any significant correlation between the teaching experience and confidence in field trip implementation.

**What are the differences between biology teachers' perceptions about field trips according to their level of education?**

For providing an acceptable explanation for this research question, three groups were formed for educational levels of teachers; undergraduate, master and doctorate graduates. Firstly, for one dependent and one independent variable for three groups one-way ANOVA were found applicable in this study. However, the assumptions of normal distribution (Table 12) and homogeneity of variance (Table 13) assumptions were satisfied just for perceptions of teachers about field trip challenges. Based on these results one-way ANOVA (Table 14) analysis was implemented and results of this analysis indicated that the teachers with different educational backgrounds thought different about field trip challenges. To find out which groups had different opinions a post-hoc analysis was done. The undergraduate graduates agree with the challenges more than other groups.

Furthermore, for the other perception items the teachers were examined for any difference by Kruskal Wallis nonparametric statistical analysis (Table 16).

According to the results of this analysis, there is no statistically significant difference between the teachers' perceptions on field trips and their pre-service preparation who have different educational levels.

Based on the results of analysis of this research question, by targeted education, such as master and doctorate, the confidence level of teachers are high as expected to be (Wilson, Kickul, & Marlino, 2007). This may be ascribed to have a deeper understanding about education by conducting scientific studies during master and doctorate programs. However, the perceptual differences of teachers who have different educational backgrounds about field trips and pre-service education was not

a sign for concluding that only undergraduate graduates were uncertain to conduct field trips because of many challenges. To illustrate, it was noted that master graduates of a teacher education program felt themselves inadequate for conducting field trips when they were asked about their confidence level (Ateskan& Lane, 2016) although they participated in field trip activities during pre-service education. They felt less confident about managing budget, arranging meals and transportation or building partnerships with non-formal educational sites. Not only having higher level of education may be a way to overcome the challenges but also taking proper training on organizing field trips.

### **What are the differences between public and private school biology teachers' perceptions about field trips?**

This study was conducted in private and public high schools. To see whether any difference between the perceptions of biology teachers from different schools, independent samples *t* test was done. According to the results of this test, the private and public school teachers had different views on challenges, benefits and their confidence about field trips. Firstly, for the challenges of field trips, it was confirmed that the public school biology teachers had more difficulties for finding enough time, field trip costs, availability of materials, student safety, knowledge of process and planning of field trips and parental support (Table 18). Secondly, it was validated that compared to public school biology teachers, the private school biology teachers believe more that field trips are beneficial especially for creating interest among students, entertaining of students, better learning, being an important part of a curriculum and being supported by administration (Table 20). Lastly, for the confidence, the private school biology teachers seemed to feel more confident than

public school biology teachers about administrative support, access to materials, fundraising, management of budget, arrangement of transportation, involving parents or guardians on the trip, conducting field work and assessment of student learning (Table 22).

The findings about the school type were to some extent consistent with the conclusion that they differed in field trips education for environment education. The difference between the public and private schools for environmental education was declared by Tuncer et al. (2007) from students' family background. In their study they stated that the socioeconomic status of parents was low in public schools and they did not give effective environmental education to their children as much as private school parents. Thus, the teachers in public schools did not feel the support from the parents for field trips as a part of environmental education.

The perceptual differences between two school type biology teachers related to the field trip challenges and their confidence level were explained by the conflicts inside the school (Kisiel, 2005). To explain, the collaboration between the teachers may be needed for conducting field trips. However; the management of students and budget, and running learning activities during field trips may create stress for the teachers and partnership may not be provided due to the large group size of students.

Moreover, conflicts between the teachers and administration may arise. The school administrations limited the field trip preparation and implementation time for school academic year although the coordination and preparation of students for field trips took a long time for teachers. Then, preparation in a short time raised the financial issues about arrangement of transportation and materials needed for field trips.

Addition to the scheduling problems, the limited areas were an issue for the teachers

since the field trip areas are restricted to several areas by the administration for student safety therefore the teachers felt discouraged (Kisiel, 2005). Furthermore, these limited areas may not meet the needs of teachers because they felt motivated providing that they connected the field trips to curriculum, exposed the students to new learning experiences, promoted interest and lifelong learning, changed the learning environment, supplied the student with enjoyable experiences and contented school expectations. For this reason, decision making power of school administrations became a barrier for environmental education (Lohman, 2000) and thus for conducting field trips. When these barriers prevented the teachers to conduct field trips, then they had less competence and lost experience chance and ability on conducting field trips, consequently the teachers felt less knowledgeable about handling field trips.

**What are the differences between biology teachers' perceptions about field trips according to gender?**

To comment on whether there is a difference between two genders, independent samples *t* test was done. Although there was no significant difference between the perceptions of two genders related to general field trip challenges and benefits, the findings particularly showed that the high transportation cost was a challenge for male biology teachers and parental support was a challenge for female biology teachers (Table 24). Although the difference between the perceptions of male and female teachers was not explained in the related studies, the transportation cost challenge was stated (Anderson & Kisiel and Storcksdieck, 2006; Ballentyne & Packer, 2006; Lei, 2010) and because of the financial constraints the students were prevented to participate in field trip activities (Ike et. al, 2016) so local field trips could be arranged.

Additionally, the confidence of teachers according to their gender differed in monitoring group work, fostering critical thinking and enhancing student learning, females were more confident in these areas. A study about the female and male differences about teaching science widely expressed that female teachers were more positive when teaching science and open to chances when diversifying teaching with environment or other factors, while male teachers focused mostly on higher scores in science lessons (Lawrenz & Welch, 1983). Possibly, the higher confidence level of female teachers about the field trip can be reasoned by their more positive attitude on environmental issues (Tuncer et al., 2009).

### **What are the biology teachers' perceptions about their pre-service teacher education program regarding field trip preparation?**

For the perceptions of teachers about their pre-service preparation, firstly the participants were asked whether they were involved in field trip activities (51%) or not during their pre-service teacher education program (49%). The teachers who participated in field trip education were asked about the level of preparation, types of activities, effectiveness of activities on current teaching and were questioned to what extent the quality, quantity and confidence were affected by these activities. Then lastly, without looking at their involvement the participants were asked about the importance of field trip implementation in pre-service preparation and their interest towards participating in and organizing field trips during in-service teaching. The responses of this research questions were evaluated by descriptive statistics.

According to the results, the great majority of the teachers defined their level of involvement by participating in a field trip as doing it with students from a school (78.9%) and with other student teachers (73.7%). On the other hand, they pointed out that the least appropriate definition for field trip activities during pre-service

education is conducting a field trip for high school graduates (Table 29). This result showed that the pre-existing and already existing biology teacher education programs were in a level of participating in field trip with students from a school and with student teachers. According to Tal's study (2001) there were three types of teachers with different perceptions about field trips. These were involved teacher, the teachers who follows the program and passive teacher. Involved teacher had roles in planning the activities, introducing field trips to students and conducting field trips. The teacher who follow just organized the field trips without his/her active involvement and had a role for discipline during field trips. The passive teachers did not use any potential for creating learning environment during field trips (Tal, 2001). According to the answers of the participants in this study, it can be argued that the current trainings about field trips may be stated at a level of becoming passive teachers.

The teachers found their field trip preparation during pre-service preparation somewhat effective (Table 30). For this reason, they were asked about the effect of preparation on their current teaching in terms of quality, quantity, confidence level in planning and conducting field trips. Most of the teachers, associated their pre-service preparation for field trips and their current teaching with a significant extent (Table 31). If the teachers believe the influence of pre-service preparation for field trip in ongoing teaching, the teacher education should include field trips in their curriculum for a long-term effect. The study of Bozdoğan (2012) noted that after implementing field trips during pre-service education, the prospective teachers felt their level of knowledge high and increased confidence level about field trip implementation. However, inclusion was not the only suggestion. The preparation for field trips would be effective in long-term in case they were planned inveterately, then the

teachers would see the impact on confidence levels in profession (Moseley& Reinke and Bookout, 2002).

Evaluating field trip effectiveness and fostering critical thinking were activities that the participants were mostly involved. However the various activities were not included during pre-service education become a challenge for teachers such as choosing a location (site), obtaining administrative support, obtaining equipment and materials, fundraising, managing a budget, building partnerships with experts from field trip locations, networking with resource experts, arranging meals, arranging transportation, securing parental permission, involving parents or guardians on the trip, arranging lodging, conducting field work/experiments, designing student learning experiences, enhancing student inquiry, managing student behavior, encouraging cooperative learning, monitoring group work, ensuring student safety, assessing student learning, helping students relate the field trip experience to classroom learning and relating the field trip to the curriculum (Table 32).

Although the teachers justified they had little experience on field trip activities, related studies offered physical and scientific activities for field trip preparation. To illustrate, discussions about environmental issues, sampling for chemical and biological analysis, observation of environment (Tal, 2004), experience in teaching, observing students and their learning, management of student behaviors, working collaboratively and using field trip equipment (Anderson et. al, 2013) and conducting field trips with high school students (Ateskan& Lane, 2016). In addition to the activities above, a better model needed to include all activities below for the management of whole process and ensuring the all arrangements such as permissions from parents, schools and other authorities by grouping the activities with an order of doing. These are before the field trip, during the field trip and after the field trip

activities. The field trip planning, according to Myers and Jones (2018) prior to trip the following components needed to be provided; organizing logistics, having permissions, organizing transportation, informing parents and having their permissions. During the trip informing the students about the purpose, learning and time were the duty. After the trip, sharing and discussion sessions were needed to be included.

In conclusion, by ignoring whether the teachers involved in field trips or not they are asked to evaluate their perceptions about field trip preparation importance in pre-service and their interest towards field trip preparation during in-service education. For the importance of field trips, teachers strongly agree with the idea that the field trips are really important for profession and they would be integrated in in-service field trip activities.

The findings of all research questions run harmonious to the conventional views of Michie (1998). This study found that teachers strongly agree with the importance of field trips for students' cognitive and affective development. Thus, the factors that seemed as challenges to teachers should be minimized for implementing field trips in schools. The challenges were summarized as administrative discourage because of professional and policy based requirements, high costs of field trips and transportation arrangement, students' misbehaviors lead to safety problems, time for preparation and less participation lead to less confidence (Michie, 1998).

### **Implications for practice**

- Although the teachers have experiences, they still consider the safety is an issue because of student behaviors and lack of necessary support. The motivations of teachers towards profession may be increased because the experienced teacher can be expected to consider the benefits of field trips and to have higher confidence. In addition, learning the characteristics of students during the first semester may be a first step then structuring the field trip activities based on students' needs may make teachers more comfortable during field trips which are organized in second semester or following semesters. By that way, the teachers may limit the misbehaviors of students to prevent any incidents and may promote better learning. A second step for the safety may be making arrangements of the safety materials, paramedic staff, number of companion teachers and pre-trip preparation more detailed.
- Administrators may support the teachers for conducting field trips by proposing suitable and alternative time schedules and they may meet the requirements of long bureaucratic processes for teachers before starting to academic year. Furthermore, the policies in this area can be revised by keeping the safety issues important and some processes may be facilitated when obtaining permissions.
- Field trips can be both activators of student learning and inhibitors of running curriculum in an academic year. When the field trips are directly fit to the curriculum the teachers consider them beneficial for student learning and their own teaching on the other hand the field trips become challenges for relating to curriculum. Teachers should participate in training activities that has a purpose for connecting field trips to classroom lesson curriculum. As

another alternative, curriculum developers should include the field trip ideas and suggestions related to students learning outcomes.

- Public school teachers can be supported by local governmental authorities for sufficient time to plan and conduct field trips, for the materials needed during trips and transportation arrangements. In addition field trip activities and workshops may be provided. Moreover, the biology teachers in public schools can be interviewed especially for parental support about the costs. To see whether public school parents cannot afford the field trip costs or directly do not support the field trip education. If these challenges are limited or eliminated the public school biology teachers implement field trips that may lead to increased confidence level.
- Teacher education institutions may include the field trip planning, conducting and evaluating processes for making pre-service teachers ready for implementing field trips. If these education programs structures the processes effectively they may show high confidence during in-service teaching. As a suggestion, organizing field trips with the involvement of high school students may make pre-service teachers more comfortable on field trips. Since, pre-service teachers may be experienced by doing real teaching and having responsibilities to manage student behaviors during field trips.
- In case of transportation costs limit the teachers, parents and administrators, local field trips may be arranged. Besides, the students may be aware of their environment where they live and take part in place based education. Since, local communities may be a starting point to learn and teach classroom lessons not only for curricula of subjects but also for appreciation of local and global environment (Sobel, 2004).

### **Implications for further research**

- At the beginning of this research the participants were assumed that they knew the definition of field trips well. However, for better understanding and development of the tool the survey may be revised by adding prior knowledge questions regarding what field trip is , then the research may be repeated by the revised tool.
- For the validation of the research tool, the study may be conducted with larger sample size.
- A survey was used for investigating biology teachers' perceptions. Following the survey, some interviews could have been done with some teachers from the sample to justify the answers to the survey. However, arranging appointment with the whole sample may a limit because of teachers' workload.
- Biology teachers who have bachelor's degree see more challenges about field trips compared to the teachers who have master and/or doctorate degrees. This may be explained by master and doctorate graduates are expected to have deeper understanding of pedagogy because of their educational level and ages they are more familiar with the possible challenges. To see which areas are considered as challenges a deeper analysis can be done with teachers who have different educational background.
- This study was conducted to investigate the perceptions of high school biology teachers about their pre-service preparation. A similar study may be conducted with chemistry, physics, geology, history, art and elementary school science teachers to explore whether the challenges are just for biology

teachers. Since some field trip areas such as museums, hills, art galleries can be linked to their teaching.

- The researchers or curriculum developers can investigate possible interdisciplinary field trip activities and topics to solve the insufficient time problem of teachers to implement field trips in an academic year. A field trip activity can aid more than one classroom lesson for providing learning outcomes.
- The researchers can investigate the pressures on the experienced teachers related to run the curriculum in an academic year.
- For gender related differences, the sample size is too small to draw a general conclusion by this study. This study may be duplicated with high and equal numbers of teachers. Additionally, the target population size can be investigated to be able to compare the sample values accurately to the population.
- The researchers may conduct longitudinal studies with teacher education institutions and their alumni to analyze the long term effects of field trip preparation on current teaching.
- A comparison may be done between the biology teachers from different countries to see whether cultural differences have effects on field trip perceptions. Environmental education and/or place based education may differ from country to country then demonstrate the impacts when implementing and organizing field trips.

### **Limitations**

In this research the sample was not taken from the whole population thus the research is limited to the biology teachers in Ankara, Turkey. In addition, the sample size could have been larger to generalize the analysis into whole population.

Moreover, exploring the perceptions of biology teachers on field trips and their pre-service preparation may also be supported by additional interviews with the sample.

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## APPENDIX A: The Survey

In Turkish

Biyoloji Derslerinde Arazi Gezisi: Öğretmenlerin hizmet öncesi hazırlıkları ile ilgili algı anketi

Genel açıklama

Bu anket üç kısımdan oluşmaktadır. Lütfen okulunuzun arazi gezisi gerçekleştirip gerçekleştirmediğine veya arazi gezisi hazırlığını hizmet öncesi eğitiminizin bir parçası olarak alıp almadığınıza bakmaksızın üç kısmın tümüne cevap veriniz. Bazı soruları atlamanız istenebilir. Cevaplarınızın tümü gizli tutulacaktır. Bu anketi tamamlamak için zaman ayırdığınızdan dolayı teşekkür ederim.

Değerlendirmeleriniz öğretmenlerin arazi gezisi hazırlıklarını geliştirmede yardımcı olacaktır. Herhangi bir sorunuz veya yorumunuz varsa lütfen Gamze Soysal ([gamzesoyosal7@gmail.com](mailto:gamzesoyosal7@gmail.com)) ile temas kurun.

<b>Kısım I: Sizin hakkınızda genel bilgi</b>
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İsteğe bağlı: Daha sonra yapılacak mülakat için sizinle temas kurulmasını istiyorsanız, lütfen isim ve temas bilgilerinizi doldurunuz. Bilgileriniz gizli tutulacaktır ve bu ankette verdiğiniz cevaplar ile ilişkilendirilmeyecektir.

Adı:

e-posta:

Telefon numarası:

1. Öğretmenlik sertifikanızı hangi fakülte/enstitüden aldınız?
2. Öğretmenlik sertifikanızı kaç yılında aldınız?
3. Mezuniyet dereceniz nedir? a. Üniversite b. Yüksek Lisans c. Doktora
4. Cinsiyetiniz? a. Kadın b. Erkek
5. Şu an öğretmenlik yaptığınız okulun adı ve bulunduğu şehir:

Okul adı:

Şehir:

6. Hangi alanlarda derslere giriyorsunuz? BİYOLOJİ SAĞLIK DİĞER

7. Şu an öğretmenlik yaptığınız okulda kaç yıldır çalışıyorsunuz? 0-5 5-10-10-15 15+

8. Toplam olarak kaç yıldır öğretmenlik yapıyorsunuz?

0-5 5-10-10-15 15+

**Kısım II: Biyoloji  
bölümünüzdeki arazi gezileri  
ve sizin katılımınız hakkında  
genel bilgi**

9. Biyoloji bölümünüzde kaç öğretmen var?

10. Sınıfınızda genel olarak kaç öğrenci vardır?

12. Okulunuzdaki biyoloji öğrencileri arazi gezisine gidiyorlar mı?

a. Evet (13. soruya gidiniz)

b. Hayır (19. soruya gidiniz)

c. Bilmiyorum (19. soruya gidiniz)

13. Öğrenciler bir yılda kaç defa arazi gezisine gidiyorlar?

14. Gezilerin konumunu belirtiniz (Birden fazla seçeneği işaretleyebilirsiniz)

a. Okul arazisi

b. Çevrede bulunan bir bölgeye arazi gezisi

c. Şehir içindeki uzak bir bölgeye arazi gezisi

ŞEHİR DIŞI

d. Uluslararası geziler

e. Diğer: \_\_\_\_\_

15. Bu gezilerin kaç tanesine katıldınız?

16. Bu arazi gezi(ler)sinde çoğunlukla rolünüz nedir?

a. Lider

b. Lider yardımcısı

c. Katılımcı

d. Rolüm yok

e. Diğer \_\_\_\_\_

17. Bölümümdeki diğer biyoloji öğretmenlerine kıyasla, öğrenci arazi gezilerini \_\_\_\_\_ düzenliyorum.

- a. Daha sık
- b. Yaklaşık aynı
- c. Daha az

18. İsteğe bağlı: Okulunuzdaki arazi gezileri hakkında daha çok bilgi edinmek istiyoruz. Lütfen diğer yorumlarınızı, açıklamalarınızı, bilgilerinizi aşağı yazınız.

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**Arazi gezisi gerçekleştirip gerçekleştirmediğinize bakmaksızın 19-21. soruları yanıtlayın ve Kısım III'e geçin.**

19. Okulunda arazi gezisi gerçekleştirirken karşılaştığınız zorluklar nelerdir?

**Kesinlikle katılıyorum (5), katılıyorum (4), katılmıyorum (3), kesinlikle katılmıyorum (2), fikrim yok (1)**

Karşılaşılan olası zorluklar	5	4	3	2	1
a. Akademik takvimde arazi gezisini gerçekleştirecek yeterli zaman yok					
b. Yıl içerisinde arazi gezisini organize edecek yeterli zaman yok					
c. Ulaşım masrafları çok yüksek					
d. Gerekli ekipman, kaynak, materyale sahip değiliz					
e. Öğrenci güvenliği riski					

f. Arazi gezisi planlama konusunda kendime güvenmiyorum					
g. Arazi gezisi planlama süreci konusunda bilgili değilim					
h. Arazi gezisi yapma süreci konusunda bilgili değilim					
i. Arazi gezisi yaparken rahat değilim					
j. Yönetim kademesi arazi gezilerini desteklemiyor					
k. Aileler arazi gezisini onaylamıyor					
l. Öğrencilerin müfredatı anlaması için arazi gezileri gerekli değildir.					
m.Diğer: _____ _____					

20. Arazi gezisini gerçekleştirmek için sebepleriniz nelerdir?

**Kesinlikle katılıyorum (5), katılıyorum (4), katılmıyorum (3), kesinlikle katılmıyorum (2), fikrim yok (1)**

<b>Olası arazi gezisi sebepleri</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
a. Arazi gezileri öğrencilerin bilime olan ilgisini artırıyor					
b. Öğrenciler arazi gezilerini seviyor					
c. Öğrenciler arazi gezilerini eğlenceli buluyor					
d. Arazi gezileri öğrencilerin, bazı bilimsel kavramları sınıfta öğrenmeye kıyasla daha iyi anlamalarına yardımcı oluyor					
e. Arazi gezileri öğrencilerin doğanın kıymetini bilmelerini sağlıyor					
f. Öğrenciler arazi gezileri sayesinde bilim alanındaki iş alanlarını öğreniyorlar					
g. Arazi gezileri müfredatın önemli bir parçasıdır					
h. Yönetim kademesi arazi gezilerini destekliyor					
i. Arazi gezisi yapmaktan hoşlanıyorum					
j. Diğer: _____ _____					

21. Lütfen aşağıda listelenen her bir arazi gezisi faaliyeti için güven seviyenizi işaretleyiniz:

**Çok güvenli(5), biraz güvenli(4), az güvenli(3), güvenli(2), emin değilim(1)**

<b>Faaliyet adı</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Konum (yer) belirleme					
İdari destek alma					
Ekipman ve materyal temini					
Para toplama					
Bütçe yönetimi					
Arazi gezisi yapılacak yerdeki uzmanlarla işbirliği yapma					
Kaynak uzmanları ile ilişkiler					
Öğünlerin (yemeklerin) ayarlanması					
Ulaşımın ayarlanması					
Ebeveyn izinlerinin alınması					
Ebeveynlerin geziye katılımlarının sağlanması					
Konaklamanın ayarlanması					
Arazi çalışmalarının/deneylerinin yapılması					
Öğrenci öğrenme deneyimlerinin tasarımı					
Öğrenci sorgulamalarının artırılması					
Eleştirel düşünmenin teşvik edilmesi					
Öğrenci davranışlarının yönetimi					

İşbirlikli öğrenmenin teşvik edilmesi					
Grup çalışmasının takibi					
Öğrenci emniyetinin sağlanması					
Öğrenci öğrenmesinin değerlendirilmesi					
Arazi gezisi etkinliğinin değerlendirilmesi					
Öğrencilerin arazi gezisi deneyimlerini sınıfta öğrenme ile ilişkilendirmesine yardım etme					
Arazi gezisini müfredat ile ilişkilendirme					
Bu listede bulunmayan diğer faaliyetler: _____					

**Kısım III: Hizmet öncesi  
eğitiminiz sırasındaki arazi  
gezisi hazırlıklarınız hakkında  
bilgi**

22. Arazi gezisi hazırlığı, hizmet öncesi öğretmen eğitiminizin bir parçası mıydı?

- a. Evet (23. soruya gidiniz)
- b. Hayır (30. soruya gidiniz)
- c. Bilmiyorum (30. soruya gidiniz)

23. Aşağıdaki öğeler hizmet öncesi eğitim sırasında arazi gezisi hazırlığını en iyi anlatır

**Kesinlikle katılıyorum (5), katılıyorum (4), katılmıyorum (3), kesinlikle katılmıyorum (2), fikrim yok (1)**

Hazırlık aşamaları	5	4	3	2	1
a. Sınıf dersleri					
b. Okuma/Tartışma					
c. Diğer hizmet öncesi öğretmenlik öğrencileri ile bir arazi gezisine katılma					
d. Bir okulun öğrencileri ile arazi gezisine katılma					
e. Lise mezunu öğrenciler için arazi gezisi düzenleme					
f. Bir okulun öğrencileri için arazi gezisi düzenleme					
g. Lise mezunu öğrenciler için arazi gezisi yapma					
h. Bir okulun öğrencileri için arazi gezisi yapma					
i. Diğer: _____					

24. Genel olarak, hizmet öncesi eğitiminiz sırasındaki arazi gezisi hazırlığınızın etkinliğini nasıl derecelendirirsiniz?

**Çok etkin (5), biraz etkin(4), çok etkin değil (3), etkin değil(2), emin değilim(1)**

Hazırlığın etkinliği	5	4	3	2	1

Aşağıdaki sorular, mevcut arazi gezisi uygulamalarınızdaki hizmet öncesi eğitiminizdeki hazırlıkların etkisini göstermektedir

**Çok etkin (5), biraz etkin(4), çok etkin değil (3), etkin değil(2), emin değilim(1)**

Hazırlıkların etkinliği	5	4	3	2	1
25. Şu anki öğrencilerimle gerçekleştirdiğim arazi gezilerinin <b>niceliğinin</b> tamamını hizmet öncesi eğitimimdeki hazırlıklarım ile bağdaştırabiliyorum.					
26. Şu anki öğrencilerimle gerçekleştirdiğim arazi gezilerinin <b>niteliğinin</b> tamamını hizmet öncesi eğitimimdeki hazırlıklarım ile bağdaştırabiliyorum.					
27. Arazi gezisi planlama konusundaki özgüvenimin tamamını hizmet öncesi eğitimimdeki hazırlıklarım ile bağdaştırabiliyorum.					
28. Arazi gezisi yapma konusundaki özgüvenimin tamamını hizmet öncesi eğitimimdeki hazırlıklarım ile bağdaştırabiliyorum.					

29.Lütfen hizmet öncesi eğitiminiz boyunca aşağıda listelenen faaliyetlere katılım derecenizi belirtiniz:

**Yoğun olarak katıldım(5), Biraz katıldım(4), Çok katılmadım(3), katılmadım(2),bilmiyorum(1)**

<b>Hizmet öncesinde bulunulan faaliyetler</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Konum (yer) belirleme					
İdari destek alma					
Ekipman ve materyal temini					
Para toplama					
Bütçe yönetimi					
Arazi gezisi yapılacak yerdeki uzmanlarla işbirliği yapma					
Kaynak uzmanları ile ilişkiler					
Öğünlerin (yemeklerin) ayarlanması					
Ulaşımın ayarlanması					
Ebeveyn izinlerinin alınması					
Ebeveynlerin geziye katılımlarının sağlanması					
Konaklamanın ayarlanması					
Arazi çalışmalarının/deneylerinin yapılması					
Öğrenci öğrenme deneyimlerinin tasarımı					
Öğrenci sorgulamalarının artırılması					
Eleştirel düşünmenin teşvik edilmesi					

Öğrenci davranışlarının yönetimi					
İşbirlikli öğrenmenin teşvik edilmesi					
Grup çalışmasının takibi					
Öğrenci emniyetinin sağlanması					
Öğrenci öğrenmesinin değerlendirilmesi					
Arazi gezisi etkinliğinin değerlendirilmesi					
Öğrencilerin arazi gezisi deneyimlerini sınıfta öğrenme ile ilişkilendirmesine yardım etme					
Arazi gezisini müfredat ile ilişkilendirme					
Bu listede bulunmayan diğer faaliyetler: _____					

Lütfen 30 ve 31. soruları arazi gezisi hazırlığının hizmet öncesi öğretmen eğitiminizin bir parçası olup olmamasına bakmaksızın cevaplayınız.

**Kesinlikle katılıyorum (5), katılıyorum (4), katılmıyorum(3),kesinlikle katılmıyorum(2),emin değilim(1)**

	5	4	3	2	1
30. Hizmet öncesi öğretmen eğitim kurumlarının arazi gezisi eğitimlerini programlarına dâhil etmeleri çok önemlidir.					
31. Hizmet içi arazi gezisi planlama programlarına katılma konusu ile ilgilenirim.					

32.İsteğe bađlı: Lütfen hizmet öncesi ve hizmet içi öğretmen arazi gezisi hazırlıklarının içeriđi (faaliyetler, teknikler, deneyimler, vs.) hakkında tavsiyelerinizi yazınız.

Bu anketi tamamladıđınız için teŖekkürler. Cevaplarınız arazi gezilerinin planlanması, gerçekleştirilmesi ve deđerlendirilmesi ile ilgili öğretmen hazırlıklarının geliştirilmesine katkıda bulunacaktır.

In English

**Field trips in biology classes: A survey of pre-service teachers' perceptions of their field trip preparation**

**General instructions**

This survey has three sections. Please respond to all sections whether or not you received field trip preparation as part of your pre-service training. You may be directed to skip some questions. All your responses will be kept confidential. Thank you for taking the time to complete this survey; your serious consideration will help improve teacher field trip preparation. If you have any questions or comments, please contact Gamze Soysal ([gamzesoyosal7@gmail.com](mailto:gamzesoyosal7@gmail.com))

<p><b>Section I: General information about you</b></p>
--

Optional: If you are willing to be contacted for a follow up interview, please provide your name and contact information. Your information will be kept confidential and not related to the answers you provided in this survey.

Name:

E-mail:

Telephone number:

1. Are you a graduate of faculty of education?
2. If not, from which institution did you receive your teaching certificate?
3. What year did you receive your teaching certificate?
4. What is the highest degree you earned? A) college B) Master's C) Doctorate
5. What is your gender? A) Female B)Male
6. What is the name and city of the school in which you are currently teaching ?  
School Name:  
City:
7. Which subject area(s) do you teach?  
A) Biology B) Health Education C) Other
  
8. How many years have you been teaching at your current school? 0-5 5-10 10-15 15+
9. In total, how many years have you been teaching? 0-5 5-10 10-15 15+

**Section II: General information  
about field trips in your biology  
department**

10. How many teachers are there in your biology department?
11. How many students are there in a typical biology class?
12. Do biology students in your school go on field trips?
  - a) Yes ( go to question 13)
  - b) No (go to question 19)
  - c) I don't know ( go to question 19)
  
13. How many times in a year do students go on field trips?
14. Indicate a location of field trips (choose all that apply)
  - a. school grounds
  - b. field trip to local site within the community
  - c. field trip to distant site within the country
  - d. international trips
  - e. other:
15. How many of these trips are you involved in?
16. For the most part, what is your role in the field trips?
  - a. leader
  - b. co-leader
  - c. participant
  - d. no role
  - e. other
17. Compared to other biology teachers in my department , I organize student field trips
  - a. more often
  - b. about the same
  - c. less often
18. Optional: We are interested in learning more about field trips in your school. Please feel free to provide other comments of information or descriptions.

**Please answer questions from 19-21 whether or not you conduct field trips and go to Section III**

19. What are the challenges to conducting field trips in your school?

**Strongly agree (5), Agree (4), Disagree (3), Strongly disagree (2), No opinion (1)**

<b>Possible challenges</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
a) There is not enough time in the school year to conduct field trips					
b) There is not enough time in the year to organize field trips					
c) Transportation costs are too high					
d) We do not have the necessary equipment/resources/materials					
e) Student safety is at risk					
f) I am not confident planning field trips					
g) I am not knowledgeable about the process of planning field trips					
h) I am not knowledgeable about the process of conducting field trips					
i) I am not comfortable conducting field trips					
j) My administration discourages field trips					
k) Parents disapprove of field trips					
l) Field trips are unnecessary for students to understand the curriculum					

20. What are the reasons for conducting field trips?

**Strongly agree (5), Agree (4), Disagree (3), Strongly disagree (2), No opinion (1)**

Possible Reasons	5	4	3	2	1
a) Field trips increase student interest in science					
b) Students enjoy field trips					
c) Students find field trips entertaining					
d) Field trips help students understand some science concepts better than classroom learning					
e) Field trips encourage students to appreciate nature					
f) Students learn about careers in science through field trips					
g) Field trips are an important part of the curriculum					
h) My administration supports field trips					
i) I enjoy conducting field trips					
j) Other: _____					

21. Please indicate your **level of confidence** for each field trip activity listed below:

**Very confident (5), somewhat confident (4), a little confident (3), not confident (2), not sure (1)**

<b>Activity</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
a) Choosing a location (site)					
b) Obtaining administrative support					
c) Obtaining equipment and materials					
d) Fundraising					
e) Managing a budget					
f) Building partnerships with experts from field trip locations					
g) Networking with resource experts					
h) Arranging meals					
i) Arranging transportation					
j) Securing parental permission					
k) Involving parents or guardians on the trip					
l) Arranging lodging					
m) Conducting field work/experiments					
n) Designing student learning experiences					
o) Enhancing student inquiry					
p) Fostering critical thinking					
q) Managing student behavior					
r) Encouraging cooperative learning					
s) Monitoring group work					
t) Ensuring student safety					
u) Assessing student learning					
v) Evaluating field trip effectiveness					
w) Helping students relate the field trip experience to classroom learning					
x) Relating the field trip to the curriculum					
y) Other activities not included in this list: _____					

**Section III: Information about your  
pre-service field trip preparation**

22. Was field trip preparation part of your pre-service teacher training?

- a) Yes (go to question 23)
- b) No (go to question 30)
- c) I don't know (go to question 30)

23. Which of the items below best describes your pre-service field trip preparation?

**Strongly agree (5), Agree (4), Disagree (3), Strongly disagree (2), No opinion (1)**

Preparation steps	5	4	3	2	1
a) Classroom lectures					
b) Readings/discussion					
c) Participating in a field trip with other student teachers					
d) Participating in a field trip with students from a school					
e) Planning a field trip for post-secondary students					
f) Planning a field trip for students from a school					
g) Conducting a field trip for post-secondary students					
h) Conducting a field trip for students from a school					
Other: _____					

24. Overall, how would you rate the effectiveness of your pre-service field trip preparation?

Effectiveness of preparation	Very effective 5	Somewhat effective 4	Not very effective 3	Ineffective 2	No opinion 1

The questions below indicate the influence of pre-service preparation on your current field trip practices.

**Great extent (5), Some extent(4), Little extent(3), No extent(2), No opinion (1)**

	5	4	3	2	1
25. To what extent do you credit the <b>quantity</b> of field trips you provide students to your pre-service teacher preparation?					
26. To what extent do you credit the <b>quality</b> of field trips you provide students to your pre-service teacher preparation?					
27. To what extent do you credit your confidence level planning field trips to your pre-service teacher preparation?					
28. To what extent do you credit your confidence level conducting field trips to your pre-service teacher preparation?					

29. Please indicate the extent to which you were involved in the activities listed below during your <b>pre-service</b> training:	Very involved (We did this activity and I played an active role) <b>5</b>	Somewhat involved (We did this activity and I mainly observed) <b>4</b>	Not very involved (We did not do this activity, but we learned about it) <b>3</b>	Not included (We had no experience with this activity) <b>2</b>	I don't know <b>1</b>
Choosing a location (site)					
Obtaining administrative support					
Obtaining equipment and materials					
Fundraising					
Managing a budget					
Building partnerships with experts from field trip locations					
Networking with resource experts					
Arranging meals					
Arranging transportation					
Securing parental permission					
Involving parents or guardians on the trip					
Arranging lodging					
Conducting field work/experiments					
Designing student learning experiences					
Enhancing student inquiry					
Fostering critical thinking					
Managing student behavior					

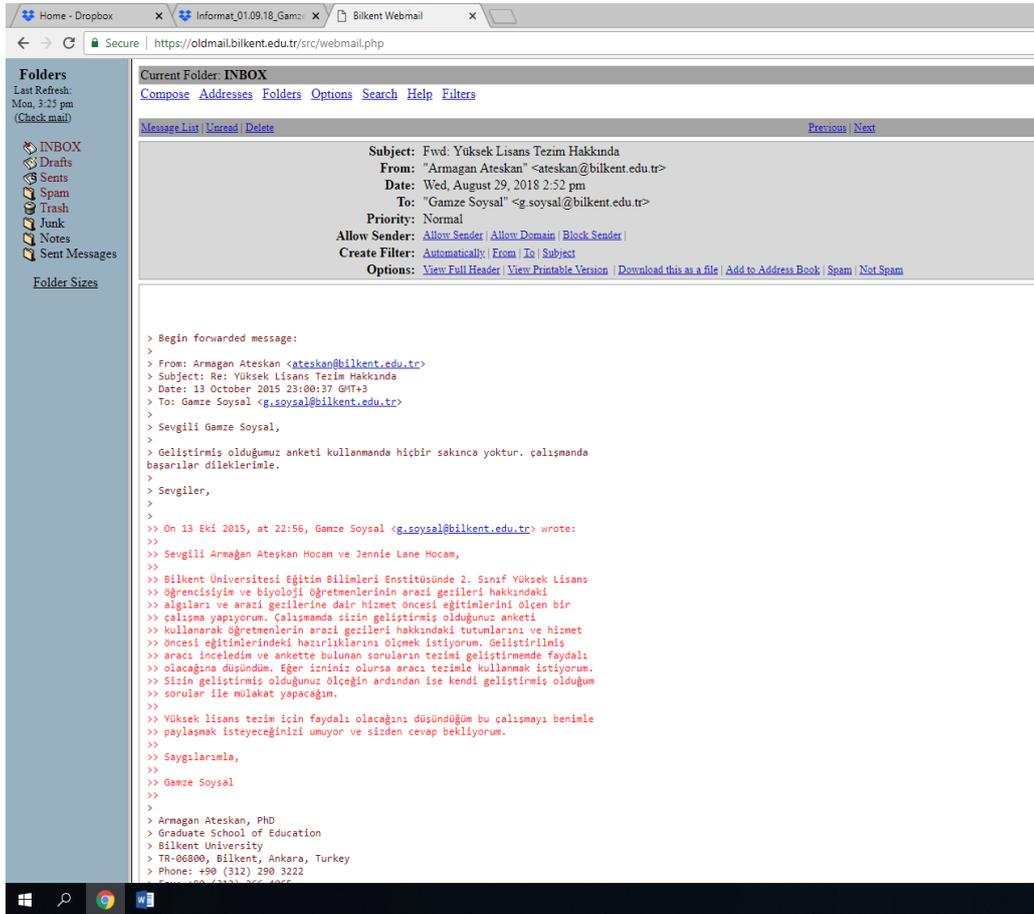
Encouraging cooperative learning					
Monitoring group work					
Ensuring student safety					
Assessing student learning					
Evaluating field trip effectiveness					
Helping students relate the field trip experience to classroom learning					
Relating the field trip to the curriculum					
Other activities not included in this list: _____					

<b>Please answer questions 30 and 31 whether or not field trip preparation was part of your pre-service teacher training</b>	<b>Strongly agree</b>	<b>Agree</b>	<b>No opinion</b>	<b>Disagree</b>	<b>Strongly disagree</b>
30. It is very important that pre-service teacher training institutions incorporate field trip training into their programs.					
31. I would be interested in participating in in- service field trip planning programs.					

32. Optional: Please provide suggestions for the content (activities, techniques, experiences, etc.) of pre-service and in-service teacher field trip preparation.

**Thank you very much for completing this survey. Your responses will be valuable for helping to improve teacher preparation for planning, conducting, and evaluating field trips.**

## APPENDIX B: The Permission from Developer



Home - Dropbox x Informat\_01.09.18\_Gamze x Bilkent Webmail x

Secure | https://oldmail.bilkent.edu.tr/src/webmail.php

**Folders**  
Last Refresh: Mon, 3:25 pm (Check mail)

- INBOX
- Drafts
- Sents
- Spam
- Trash
- Junk
- Notes
- Sent Messages

Folder Sizes

**Current Folder: INBOX**

[Compose](#) [Addresses](#) [Folders](#) [Options](#) [Search](#) [Help](#) [Filters](#)

[Message List](#) [Unread](#) [Delete](#) [Previous](#) [Next](#)

**Subject:** Fwd: Yüksek Lisans Tezim Hakkında  
**From:** "Armagan Ateskan" <ateskan@bilkent.edu.tr>  
**Date:** Wed, August 29, 2018 2:52 pm  
**To:** "Gamze Soysal" <g.soysal@bilkent.edu.tr>  
**Priority:** Normal  
**Allow Sender:** [Allow Sender](#) | [Allow Domain](#) | [Block Sender](#)  
**Create Filter:** [Automatically](#) | [From](#) | [To](#) | [Subject](#)  
**Options:** [View Full Header](#) | [View Printable Version](#) | [Download this as a file](#) | [Add to Address Book](#) | [Spam](#) | [Not Spam](#)

> Begin forwarded message:  
>  
> From: Armagan Ateskan <ateskan@bilkent.edu.tr>  
> Subject: Re: Yüksek Lisans Tezim Hakkında  
> Date: 13 October 2015 23:00:37 GMT+3  
> To: Gamze Soysal <g.soysal@bilkent.edu.tr>  
>  
> Sevgili Gamze Soysal,  
>  
> Geliştirmiş olduğumuz anketi kullanmada hiçbir sakınca yoktur. çalışmada başarılar dilekleriyle.  
>  
> Sevgiler,  
>  
>  
>> On 13 Eki 2015, at 22:56, Gamze Soysal <g.soysal@bilkent.edu.tr> wrote:  
>>  
>> Sevgili Armagan Ateskan Hocam ve Jennie Lane Hocam,  
>>  
>> Bilkent Üniversitesi Eğitim Bilimleri Enstitüsünde 2. Sınıf Yüksek Lisans  
>> öğrencisiyim ve biyoloji öğretmenlerinin arazi gezileri hakkındaki  
>> algılarına ve arazi gezilerine dair hizmet öncesi eğitimlerini ölçen bir  
>> çalışma yapıyorum. Çalışmada sizin geliştirmiş olduğunuz anketi  
>> kullanarak öğretmenlerin arazi gezileri hakkındaki tutumlarını ve hizmet  
>> öncesi eğitimlerindeki hazırlıklarını ölçmek istiyorum. Geliştirilmiş  
>> aracı inceledim ve ankette bulunan soruların tezimi geliştirmede faydalı  
>> olacağına düşündüm. Eğer izniniz olursa aracı tezime kullanmak istiyorum.  
>> Sizin geliştirmiş olduğunuz ölçeğin ardından ise kendi geliştirmiş olduğum  
>> sorular ile mülakat yapacağım.  
>>  
>> Yüksek lisans tezim için faydalı olacağını düşündüğüm bu çalışmayı benimle  
>> paylaşmak isteyeceğinizi umuyor ve sizden cevap bekliyorum.  
>>  
>> Saygılarımla,  
>>  
>> Gamze Soysal  
>>  
>>  
> Armagan Ateskan, PhD  
> Graduate School of Education  
> Bilkent University  
> TR-06000, Bilkent, Ankara, Turkey  
> Phone: +90 (312) 290 3222  
> Fax: +90 (312) 292 1055

## APPENDIX C: The Permission from MoNE



T.C.  
ANKARA VALİLİĞİ  
Milli Eğitim Müdürlüğü

178/018829

Sayı : 14588481-605.99-E.11958133  
Konu: Araştırma İzni

20.11.2015

BİLKENT ÜNİVERSİTESİNE  
(Eğitim Bilimleri Enstitüsü)

İlgi: a) MEB Yenilik ve Eğitim Teknolojileri Genel Müdürlüğünün 2012/13 nolu Genelgesi.  
b) 14/10/2015 tarihli ve 16198 sayılı yazınız.

Üniversiteniz Eğitim Bilimleri Enstitüsü Yüksek Lisans öğrencisi Gamze SOYSAL'ın "Biyoloji Öğretmenlerinin Gezileri Hakkındaki Algıları ve Arazi Gezilerine Dair Hizmet Öncesi Eğitimi" konulu tez kapsamında uygulama yapma talebi Müdürlüğümüze uygun görülmüş ve uygulamanın yapılacağı İlçe Milli Eğitim Müdürlüğüne bilgi verilmiştir.

Uygulama formunun (13 sayfa) araştırmacı tarafından uygulama yapılacak sayıda çoğaltılması ve çalışmanın bitiminde bir örneğinin (cd ortamında) Müdürlüğümüz Strateji Geliştirme (1) Şubesine gönderilmesini arz ederim.

Müberra OĞUZ  
Müdür a.  
Şube Müdürü

20 11 15

Konya yolu Başkent Öğretmen Evi arkası Beşevler ANKARA  
e-posta: istatistik06@meb.gov.tr

Ayrıntılı bilgi için  
Tel: (0 312) 221 02 17/135

25-11-15  
EBE

Du cvrak güvenli elektronik imza ile imzalanmıştır. <http://evraksorgu.meb.gov.tr> adresinden a4e9-ac05-324a-b9f7-cb37 kodu ile teyit edilebilir.