REASONS FOR STUDENT FIELD TRIPS TO BOTANIC GARDENS:

A CASE FROM TURKEY

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REASONS FOR STUDENT FIELD TRIPS TO BOTANIC GARDENS:

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Reasons for Student Field Trips to Botanic Gardens: A Case from Turkey

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Thesis Abstract

Dilan Bayındır, “Reasons for student field trips to botanic gardens: A case from Turkey”

The aim of this survey is to determine the reasons why elementary school teachers organize student field trips into Nezahat Gökyiğit Botanic Garden in İstanbul, Turkey. The thesis defines the characteristics of elementary school teachers who organize field trips into the garden, the reasons for teacher personal visits into informal learning centers, the roles of teachers on field trip experience in its first parts. Then, it states what are the reasons of organizing student field trips and whether the reasons why teachers organize trips into the garden differ according to the identified teacher characteristics and contextual factors or not. A questionnaire, particularly developed for the study by the researcher, was used to collect data. Data was collected from elementary school teachers who organized student field trips into the garden during April-June 2010 period. The findings indicate that all of the identified nine factors are all very valid and important reasons for organizing field trips for teachers. There are no significant differences on factor scores according to many selected teacher characteristics such as years of teaching experience, teacher personal interest, and the perceived support of the school community. The significance of teacher agendas on field trip experience is drawn by findings and a significant relation is found between teachers’ interest and field trip experience they provide to their students.

Tez Özeti

Dilan Bayındır, "Botanik bahçelerine öğrenci gezisi düzenleme nedenleri: Türkiye'den bir örnek"

Bu araştırmanın amacı Nezahat Gökyiğit Botanik Bahçesi'ne öğrenci gezisi düzenleyen ilköğretim okulu öğretmenlerinin hangi nedenlerle gezi düzenlediklerini belirlemektir. Tezin ilk bölümlerinde, bahçeye öğrenci gezisi düzenlemiş öğretmenlerin profili, öğretmenlerin informal öğrenme merkezlerine yaptıkları kişisel ziyaretlerin nedenleri ve öğretmenlerin öğrenci gezileri üzerindekileri rolleri açıklanmaktadır. Sonraki bölümlerde, öğretmenlerin gezi düzenleme nedenleri ve bu nedenlerin belirlenmiş öğretmen ve çevresel unsurlara göre değişip değişmediğini sunulmaktadır. Çalışmaya veri toplamak için kullanılan anket, bu çalışma için özel olarak, araştırmacı tarafından geliştirilmiştir. Veriler, bahçeye Nisan-Haziran 2010 tarihleri arasında öğrenci gezisi düzenleyen ilköğretim öğretmenlerinden toplanmıştır. Bulgular, belirlenmiş dokuz faktörden her birinin öğretmenler için gezi düzenlemekte anlamlı derecede önemli bulunduğunu ortaya koymaktadır. Bulgulara göre, faktörlerde öğretmenlik deneyimi, öğretmenlerin informal öğrenme merkezlerine kişisel ilgisi ve okul yönetiminin verdiği destek gibi pek çok unsurun hiçbir etkisi yoktur. Öğretmenlerin kişisel ilgilerinin, öğrencilerine sundukları informal öğrenme imkanlarıyla anlamlı derecede ilişkili olduğu bulunmuştur.

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CONTENTS

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SYMBOLS/ABBREVIATIONS

Symbols/ Abbreviation	Explanation
BGCI	Botanic Gardens Conservation International
CBD	Convention on Biological Diversity
GSPC	Global Strategy for Plant Conservation
ILI	Informal learning institutions
ISI	Informal science institutions
SES	Socioeconomic status
NGBB	Nezahat Gökyiğit Botanic Garden
UN	United Nations
N	Sample size
f	Frequency
%	Percent
$\chi 2$	Chi square value
p	Significance level
df	Degree of freedom

CHAPTER 1

INTRODUCTION

The purpose of this thesis is to explore the reasons why elementary school teachers take their students into informal science learning institutions by focusing on a botanic garden and exploring if there is a significant relationship between the selected teacher and the contextual characteristics, and the reasons for taking students on field trips into a botanic garden.

In the first chapter, the background of the problem, the definitions of used terms, the purpose of the study, research problems and the significance of the study will be presented. The second chapter will be covering the related literature review. The third chapter will present methods and procedures. Analyses and the interpretation of the findings of the study will be stated in the fourth chapter. The conclusion of the study will be given in the last chapter.

Background of the Study

Learning is a process that occurs in every different contextual environment. Formal learning that occurs in a defined learning environment, like a school, is just one of the learning categories. Recently, out of school learning is one of the most outstanding research areas of the educational sciences. There are two main categories of out of school learning: non-formal and informal learning. Non-formal learning can be defined as semi-structured, program based learning, while informal learning can be defined as the incidental or self-directed acquisition of knowledge, attitudes and

skills in an informal situation. There is a debate as to how learning in informal learning institutions like museums, nature centers, aquariums, botanic gardens can be categorized. Eshach (2006) stresses that learning which occurs in an informal learning institution cannot be categorized as informal learning because these places are constructed for educational purposes, and also because they offer many structured learning activities. He categorizes this type of learning as non-formal learning. In this thesis, program based learning with a curriculum and an educator is categorized as non-formal learning even if it occurs in an informal learning institution such as an art museum, aquarium, science center or botanic garden. However, in this thesis self directed and acquired learning in an informal learning institution is called as informal learning.

Related literature indicates the positive effects of visits to informal learning institutions especially on the cognitive and affective domain of the learner. In other words, visits into these institutions provide both improved learning and increased interest and motivation on the related topic. However, there are some factors that are important to this type of learning. Falk and Dierking (2000) give a structure to this type of learning with their Contextual Model of Learning Theory. The theory states that there are three contexts, personal, physical and social, for the learning process in informal learning institutions. There are studies on visitor agendas, which can be seen as combinations of factors underlying the personal context, and they attempt to explain the reasons for museum visits. However, in a group visit, the personal agenda of the group leader becomes more dominant than others. Therefore, understanding teachers' motivations and their roles in conducting field trips is one of the most important issues. Understanding teacher motivations is the key to increasing the

number of school trips and to making field trips more effective (Anderson, Kisiel & Storksdieck, 2006; Kisiel, 2005).

There are research studies that were run to identify teachers' motivations and their reasons for organizing student field trips to informal science learning institutions. One of the most recent of these was done by Kisiel (2005). He states that there are eight factors which lead elementary school teachers to conduct science field trips into informal learning sites: connecting with the classroom curriculum; providing students with a general learning experience; encouraging students in lifelong learning; enhancing the students' interest and motivation; providing exposure to new experiences; providing a change in setting or routine; enjoyment; and meeting the expectations of the school administration. The findings of Kisiel's study were used as the baseline of this thesis. Also, two other factors, the socialization of students (Michie, 1998) and enjoyment of the physical environment (Falk, Moussouri & Coulson, 1998) were covered as identified factors for student field trips in this study.

Although there are many related studies abroad on teacher motivations and reasons for student science field trips, no data exists in Turkey on these issues. The thesis attempts to identify the reasons of elementary school teachers organize student science field trips into a botanic garden.

Statement of the Problem

Although informal learning institutions can support formal learning and encourage further learning, there are some obstacles for students to benefit from these institutions. One of the most important obstacles is that teachers are not knowledgeable about these learning opportunities. This is one of the biggest

obstacles because teachers decide on the informal learning experience rather than students. So, it gets importance to know about teacher motivations and their reasons for organizing field trips into informal learning institutions to increase the number of student field trips and the success of these trips.

Although there are many current research studies abroad on teacher motivations and factors affecting them to organize student field trips, there is no research which questions what the reasons are which lead teachers to organize student field trips in Turkey. Also, it is not known whether these reasons vary depending on the teacher and the contextual characteristics.

Definitions of Terms

Formal Education

Compulsory, highly structured, level and curriculum based education which takes place in defined institutions.

Formal Learning

The systematic acquisition of knowledge, attitudes and skills during participation in formal education activities.

Non-formal Education

Semi-structured and program based educational activities. Professional training courses are examples of non-formal education activities.

Non-formal Learning

In literature, non-formal learning and informal learning terms are used interchangeably to describe learning which occurs in informal institutions. Some researchers claim that any learning which occurs in informal learning institutions is non-formal because informal learning centers are structured with educational

purposes (e.g. Eshach, 2006). In this thesis, the term non-formal learning will be used to define learning which occurs within a curriculum or program in an informal learning institution.

Informal Education

There is a big debate as to what informal education is. It can be described as the incidental transmission or the self-directed acquisition of knowledge, attitudes and skills in an informal situation. Learning in an informal learning institution without any participation in a defined educational activity is an example of informal education.

Informal Learning

Incidental or self directed acquisition of knowledge, attitudes and skills in an informal situation. Learning by talking to others, reading a newspaper, watching television, visiting a museum without participating any structural learning activities are examples of informal learning.

Botanic Garden

Institutions that have documented plant collections and run scientific and educational activities to explore, interpret and conserve the plant diversity of the world.

Botanic Garden Education

All kinds of educational activities that have parallel aims to missions of botanic gardens. Botanic gardens provide formal, non-formal and informal learning opportunities.

Informal Learning Institutions

Out of school sites, such as art museums, history museums, science centers, aquariums, zoos, natural parks and botanic gardens, in which learning occurs.

Informal Science Learning Institutions

Out of school sites, such as museums, science centers, aquariums, zoos, natural parks and botanic gardens, in which science learning occurs.

Field Trip

A school-organized trip with an educational purpose that is generally led by teachers to places where students can observe or work with the materials related with instruction.

Elementary School

Schools that provide mandatory years of schooling. In Turkey, according to state law, eight years of elemantary schooling is mandatory for all. These schools can be private or public schools. There is a national curriculum at these schools.

Public School

Schools that are founded by the state. These schools do not charge tuition.

Private School

Schools charge tuition. These schools apply the same curriculum public schools apply.

Elementary school teacher

Teachers who teach at elementary schools, grades 1 through 8.

Class Teacher

Teachers who teach the same class in the first five years of the mandatory schooling period.

Science and Technology Teacher

Teachers who are graduates of science teaching departments and teach science and technology classes.

Statement of the Purpose

The purpose of this thesis is to explore the reasons why elementary school teachers take their students into informal science learning institutions by focusing on a botanic garden and exploring if there is a significant relationship between the selected teacher and the contextual characteristics and reasons for taking student field trips to botanic gardens.

The Selected Characteristics of the Teachers

1. Years of teaching experience
2. Their branch
3. Types of faculties from which they graduated
4. Their personal interests
5. The perceived effectiveness on teaching the topic of plants

Identified Contextual Factors

1. School type
2. The perceived socio-economic status of the school population
3. Teachers' role in the selection of the field trip
4. NGBB experience
5. The perceived support of the school administration for field trips

Identified Reasons for Organizing Student Field Trips into Informal Science Institutions

F1 To connect with the classroom curriculum

F2 To provide students with a general learning experience and a new experience

F3 To encourage students in lifelong learning

F4 To enhance students' interest and motivation

F5 To provide a change in setting or routine

F6 For enjoyment

F7 To meet school expectations

F8 For the socialization of students

F9 To enjoy the physical setting

Research Questions

The study explores answers to the following questions:

1) What are the main reasons that elementary school teachers organize field trips to a botanic garden?

2) Do these reasons differ significantly according to the teacher's selected characteristics?

3) Do these reasons differ significantly according to the identified contextual factors?

4) What are the reasons for elementary school teachers' personal participation in informal learning institutions?

5) Is there are a significant relationship between teacher interest and the field trip experience they offer to their students?

Significance of the Study

Informal science learning opportunities both for children and teachers are very limited in Turkey. As a result of this situation, there is also very limited research on learning in informal learning institutions such as museums and botanic gardens in Turkey. The research will make contributions to related literature. Furthermore, it is known that teachers are the ones decide on the trip experience. This study attempts to identify valuable information on reasons affecting Turkish elementary school teachers in their decision to take their students to informal science learning centers. Knowing about teacher agendas and their reasons for organizing field trips may help informal learning institutions to negotiate with teachers and increase the number and the success of school group visits.

The Nezahat Gökyiğit Botanic Garden (NGBB) is the first and the only botanic garden which has an educational unit in Turkey. So, each facility of NGBB will make a contribution to the development of botanic garden education facilities in Turkey. The findings of this study will lead to suggestions for developing and improving the educational facilities of NGBB. Botanic gardens are one example of informal learning centers, which also include science centers, aquariums, and museums. These organizations may also benefit from the findings of this thesis.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter presents categories of learning and education, learning in informal contexts, informal science learning, and informal learning institutions by focusing especially on botanic gardens.

Categories of Learning and Education

It is accepted that people start to learn even before birth and continue to learn until death. While some of this learning occurs in a formal context such as school, much learning takes place in informal contexts such as watching television, reading a newspaper, talking with friends, surfing the internet and visiting a museum (Eshach, 2006; Falk & Dierking, 2000; Osborne & Dillon, 2007; Rogers, 2002).

There are lots of attempts to categorize learning, but mainly it is divided into three categories: formal, non-formal and informal. While it is easier to define formal learning, it is more difficult to distinguish between non formal and informal learning. Rogers (2002, 2004) states that the key distinction between formats of informal, non-formal and formal learning lies in the individualization of learning while Eshach (2006) sees the difference both in the individualization of learning in terms of motivation and interest and also in social context and assessment.

Formal Education and Learning

It can be said that many researchers generally agree on the definition and the characteristics of formal education. Formal education is defined as hierarchically organized, compulsory and curriculum based (Livingstone, 2000), highly institutionalized, level based learning process that provides diploma or certificates at the end (Schugurensky, 2000). Similarly, Jarvis (2002) defines formal education as "the hierarchical structured educational system introduced by most states extending from primary schools to graduate programmes in universities" (p. 72).

In Turkey, eight years of elementary school education has been obligatory since 1997 (Okçabol, 2005). Eight years of formal schooling is an obligatory and free service provided by the state. For all levels of formal schooling- preschool, elementary, secondary and university education- private options also exist. The Ministry of Education of Turkey offers national curriculums for elementary and secondary schools, and whether private or public, schools apply the same national program.

Informal Education and Learning

It can be said that there is a big debate on the definition of informal learning. One of the most used categorizations is made by focusing on the differences in physical setting in which learning takes place. One of these definitions belongs to Gerber, Marek & Cavallo (2001) and they define it as "the sum of activities that comprise the time individuals are not in the formal classroom in the presence of a teacher'' (as cited in Eshach, 2006, p. 570). However, Jarvis (2002) gives importance to structure, and he defines informal learning as "the type of learning that occurs when a person

acquires knowledge, skill, or attitudes thorough interaction in an informal situation" (p. 90).

However, is it possible to define or name informal education? Schugurensky (2000) stresses that it is not possible to define informal education beacuse there is no educational institutions, instructors and curriculum in informal learning process. However, Jarvis (2002) gives a definition for informal education. He defines informal education as "often refering to the form of education that occurs when people learn informally from their environment" (p. 90). However, he relializes the difficulty of defining it and states one more definition of informal education as "… where groups of people learn through planned activities in an informal manner, e.g. where there is no overt status role difference between learners" (Jarvis, 2002, p. 90). As can be seen, he emphasizes the non existance of the educator in the learning environment.

Non-Formal Education and Learning

According to Colletta (1996), the term "non-formal education" gained popularity in 1970. This new approach and new term emerged because people realized that formal education was insufficient in meeting the learning needs of developing societies (Colletta, 1996). After this time, many different definitions of non-formal learning were made. It can be seen that the general agreement on non-formal education is that it takes place out of a formal school. For example, Jarvis (2002) defines non-formal education as "the educational process organized outside of the formal educational system often to respond to the learning needs of specific groups" (p. 129). Livingstone (2000, 2001) presents a new term instead of non-formal education: further education. According to Livingstone (2000), "Further education refers to all

other organized educational activities, including further courses, training programs and workshops offered by any social institution" (p. 2). Structure and existence of a program or curriculum seems to be an important characteristics for Livingstone. Similarly, Eshach (2006) defines non-formal education as "…occuring in a planned but highly adaptable manner in institutions, organizations, and situations beyond the spheres of formal or informal education. It shares the characteristic of being mediated with formal education but the motivation for learning may be wholly intrinsic to the learner" (p. 173). As can be seen, both Eshach and Livingstone emphasize that although non formal education facilities cover an organized curriculum, participants voluntarily choose to participate in these programs. Schugurensky (2000) also stresses the importance of it being voluntary, and also says that it is a short term education type. In addition, Schugurensky (2000) defines the target group of non-formal educational activities. He emphasizes that non-formal education is usually directed at adults, but children and adolescents may also participate in non-formal educational activities.

As it was mentioned before, learning is divided into three by Eshach (2006) by looking the differences in motivation, interest, social context and assessment. The following table indicates the differences, as identified by Eshach, which underlie between formal, non-formal and informal learning.

Table 1. Differences between Formal, Non-formal and Informal Learning

Formal	Non-formal	Informal
Usually at school	At institution out of school	Everwhere
May be repressive	Usually supportive	Supportive
Structured	Structured	Unstructured
Usually prearranged	Usually prearranged	Spontaneous
Motivation is typically more extrinsic	Motivation may be extrinsic but it is typically more intrinsic	Motivation is mainly intrinsic
Compulsory	Usually voluntary	Voluntary
Teacler-led	May be guide or teacher-led	Usually learner-led
Learning is evaluated	Learning is usually not evaluated	Learning is not evaluated
Sequential	Typically non-sequential	Non-sequential

Note. This table is taken from Eshach, 2006, p. 174

As can be seen from Table 1, Eshach (2006) gives importance also to the physical setting of learning, and calls learning which occurs in an out of school institution "non-formal". Learner motivation, evaluation and the nature of the program are other factors, he uses for categorization, and this is not unfamiliar.

In this thesis, I categorize learning which occurs during a program offered by an informal learning institution like a museum as non-formal. Self-directed and incidental learning during a visit without a program, curriculum or guide is categorized as informal.

Learning in Informal Learning Institutions

In this part of the literature, the definition of informal learning institutions and the features of learning in informal learning institutions will be given.

Informal Learning Institutions

In literature, out of school sites are generally called "informal learning institutions (ILI)" (e.g. Anderson et al. 2006; Kisiel, 2005) or simply museums (e.g. Falk &

Dierking, 1992, 2000; Griffin, 2004). In this thesis, the term "informal learning institutions (ILI)" will be used to define all these sites. Such places as museums, science centers, aquariums, zoos, natural parks and botanic gardens are accepted as informal learning institutions (Falk & Dierking, 1992; Kisiel, 2005; Michie, 1998; Suzuki, 2005). When we look at the historical development of museums, it is said that they got institutional identitites while opening their collections to the public, and that first occurred in Europe (Tezcan-Akmehmet & Ödekan, 2006). According to Tezcan-Akmehmet and Ödekan (2006), collections of natural materials and earth science started to form after discoveries made in the Renaissance period. These natural collections are used as important science teaching materials today, and exhibited in specific institutions. These materials are generally collected at informal institutions which aim to teach science. Informal learning institutions which aim to provide science learning are will be named "informal science learning institutions (ISIs)". Science centers, aquariums and botanic gardens are examples of informal science education institutions.

Tezcan-Akmehmet and Ödekan (2006) stress that ILIs were opened with educational purposes and that these gained a lot more importance especially after the Industrial Revalution in the nineteenth century. In the twentieth century, museum education became an expertise area. While education in museums has gained importance in last few years in Turkey, it has not yet spread to all institutions. It can be said that informal learning institutions which function truly in terms of museum education, are examples that were created by the private sector.

As it was mentioned above, informal learning institutions have educational purposes. However, it is necessary to know why visitors come into informal learning institutions or informal science learning institutions. Falk et al. (1998) state that it is

necessary to study visitor agendas formed by motivations and strategies to explain why visitors come into informal learning institutions. Their study, which consists of adult visitors, indicates that there are six motivations and three strategies for visits. The determined motivations are: place, life cycle, social event, entertainment, and practical issues. All these motivations with descriptions are listed in a table by Kisiel (2005) (See Table 2).

Table 2. Motivations of Museum Visitors (Falk et al., 1998)

Motivation	Description
Place	Visitors see the museum as a leisure/cultural destination in itself
Education	Visitors recognize the informational or cultural content of the museum and wish to learn from it
Life cycle	Visitors see the museum visit as part of of the life cycle; parents bring their child to the museum, just as they were brought when they were young
Social event	Visitors see the museum as an enjoyable thing to do with family or friends
Entertainment	Visitors see the museum visit as a leisure-time activity
Practical issues	Visitors are influenced by external factors, such as weather, proximity or cost

Note. This table is taken from Kisiel, 2005, p. 93

As can be seen, motivations are listed as place, education, life cycle, social event, entertainment and practical issues. Falk et al. (1998) put three types of strategies in a continuum from unfocused to focused. They explain that visitors with unfocused strategies visit museums to see whatever they offer. However, visitors with focused strategies have a specific goal for a visit like seeing a specific exhibition.

A visitor's agenda can determine the learning or visit experience of many others if s/he decides on the learning experience himself or herself. Kisiel (2005) stresses that if a leader like a teacher guides a group into an informal learning

institution, then it is necessary to understand the agenda of the teacher because the learning experience of the group will be affected by his/her agenda.

Features of Learning in Informal Learning Institutions

There are some characteristics of learning, whether defined as non-formal or informal, which occur in informal contexts. This type of learning is "self-motivated, voluntary and guided by learners' needs and interests", "effected by the physical setting", "strongly socio culturally mediated", "a cumulative process", "both a process and a product" and "creative methods is needed for assessing it" (Dierking, Falk, Rennie, Anderson & Ellenbogen, 2003, p. 110).

Falk and Dierking (2000) use the term "free-choice learning" to describe learning which occurs during visits to museums. Also, they offer a learning model, The Contextual Model of Learning which enables the study of museum learning (Falk & Dierking, 2000). This model will be presented in the following part.

The Contextual Model of Learning

Modern learning theories emphasize the importance of the total environment including the social and the physical environment (Rogers, 2002). The Contextual Model of Learning is one of these. Falk and Dierking (2000) transformed their Interactive Experience Model, which is a framework looking at learning in contexts such as museums, into the Contextual Model of Learning. Falk and Dierking (2000) say, "The Contextual Model involves three overlapping contexts: the personal, the sociocultural, and the physical. Learning is the process/product of the interactions between these three contexts" (p. 10). The eight key factors which are determined as important factors by them are cited in Table 3.

Table 3. Key Factors Identified in the Contextual Model of Learning (Falk & Dierking, 2000)

Eight key factors that influence learning
Personal context
Motivation and expectations
Prior knowledge, interest, and beliefs
Choice and control
Sociocultural context
Within-group sociocultural mediation
Facilitated mediation by others
Physical context
Advance organizers and orientation
Design
Reinforcing events and experiences outside the museum

Note. This table is taken from Falk & Dierking, 2000, p. 137

Falk & Dierking (2000) state important points which will be discussed below in correspondence with these three contexts for the high quality of learning in museums.

Personal Context

According to Falk and Dierking (2000), learning is a highly personal activity and motivation is an important factor for the occurrence of learning. However, some factors such as a safe and motivating environment, which offers meaningful activities and gives control to the learner about their learning will increase the motivation to learn.

Sociocultural Context

The sociocultural context in which a learner lives determines what and why that person learns. Falk and Dierking (2000) state that interactions between people are

important in organized trips. Interactions occur between visiting group members and between a group and a group leader or museum professionals. These interactions affect the quality of the museum experience.

Physical Context

The model claims that "Spatial learning is not just a specialized and isolated type of learning but is integrated with all types of learning; all learning is influenced by the awareness of place" (p. 65). At the beginning of organized trips, free time should be provided to visitors to explore the place. Giving time to visitors to explore the place is one of the ways to make them familiar with the place and to prevent the sensory overload of visitors.

Science Learning in Informal Learning Institutions

As it was mentioned, one of the topics learned in informal learning centers is science. The Board of the National Association of Research in Science Teaching (NARST) established an Informal Science Education Ad Hoc committee in 1999 (Dierking et al., 2003). The members of the Ad Hoc Committee concluded that science learning which occurs outside the school environment should not be defined by the current term: ''Informal Science Education.'' However, they did not give an alternative term. So, in this study, informal science education will be used to define science learning which occurs in an informal learning institution.

Features of Science Learning in Informal Science Learning Institutions

It is important to know about the features of science education at ISIs. Wellington (1990) compares and contrasts the features of informal and formal science education by means of a table (Table 4).

Table 4. Identified Features of Formal and Informal Learning in Science by Wellington (1990)

Informal Learning	Formal Learning
Voluntary	Compulsory
Unstructured	Structured
Nonassessed	Assessed
Open-ended	Closed-ended
Learner-centered	Teacher-centered
Out-of-school-context	Classrom context
Non-curriculum-based	Classroom-based
Many unintended outcomes	Fewer unintended outcomes
Less directly measurable	Empirically measured outcomes
Social intercourse	Solitary work
Nondirected	Directed

Note. This table is adapted from Wellington, 1990, p. 48

Firstly, the most outstanding feature of informal science learning, as stated in Wellington's table, is a kind of free choice learning. Being voluntary is cited as the most outstanding feature of informal science learning by Wellington. Comparing Table 1 with Table 4, it can be concluded that regardless of the content (science, literature or etc.) identified features of each categories are quite similar. However, Wellington's table does not let us place a curriculum or program based learning in an informal learning context in a category. It can be referred to Eshach's (2006) categorization system in this point. He emphasizes that any type of learning occur in a constructed context such as zoos, botanic gardens, science centers, is non-formal learning because these places are the ones we visit occationally (Figure 1).

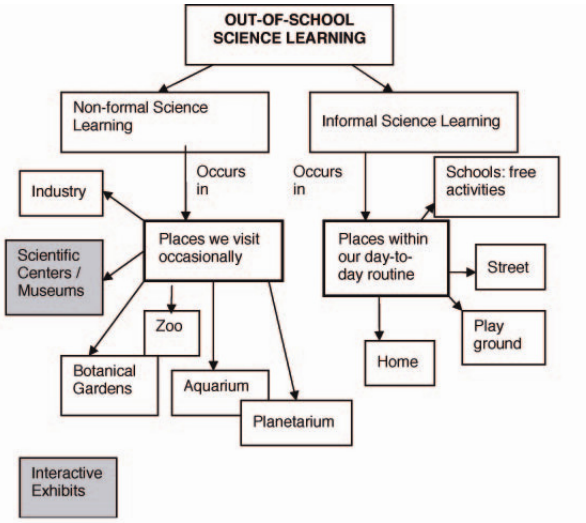


Fig. 1. Informal and Non-Formal learning.

Note. This figure is taken from Eshach, 2006, p.174.

Fig. 1 Categorization of informal and non-formal science learning by Eshach (2006)

By focusing on features of science learning in informal learning contexts, Dierking et al. (2003) state that being self-motivated, cumulative, and mediated by sociocultural and physical factors are features of this type of learning. As can be seen these features can be linked with the three contexts (personal, sociocultural and physical) of the Contextual Model of Learning.

Student Field Trips to Informal Science Learning Institutions for Science Learning

Informal learning institutions are not just visited by individuals or families, but a very high percent of the visitors are teacher led school groups. Field trips are defined by Krepel and Duvall (as cited in Michie, 1998) as; “trips arranged by the school and undertaken for educational pruposes, in which the students go to places where the materials of instruction may be observed or studies directly in their functional setting: for example a trip to a factory, a city waterwoks, a library, a museum etc.”

(p. 7). Student science field trips are a part of formal schooling and students are aware that in addition to being enjoyable, there are also expected learning outcomes of these trips (Eshach, 2006). However, as Kisiel (2006) states, the learning experience is highly shaped by the teachers, so teacher attitudes and motivations on student informal science field trips will be discussed in the following part.

Benefits of Field Trips into Informal Science Learning Institutions

Many studies indicate the importance of organizing science field trips for students. These benefits are generally separated into two domains: cognitive and affective (Eshach, 2006; Kisiel, 2006). Kisiel (2006) says: "Out of classroom experiences have great potential for making an impression on students and increasing their appreciation and understanding of science, helping students understand that it is more than a subject studied in school" (p. 48).

There is especially stressed as the most important benefits of field trips are on affective domain (Eshach, 2006; Wellington, 1990). Many state that informal learning institutions have an important support on science education not only through their collections, but also by their pedagogy (Phillips, Finkelstein & Wever-Frerichs, 2007; Suzuki, 2005). Eshach (2006) points to the gender differences in scientific attitudes, and he states that "Scientific field trips may play a significant role in inculcating positive attitudes toward science among children, in boys, and even more importantly in girls (p. 178). Contributions, to the affective domain, directly help to increase enthusiasm toward science and indirectly lead to increase in cognitive domain as improving understanding (Wellington, 1990). However, there is criticism of Falk and Dierking (1992) on this issue, they state that: "Museums have

focused on trying to teach content, rather than exploring ways of maximizing the affective potential of visitors."

Other than direct benefits of trips on students, there are also social benefits of these institutions and student trips into them. One of the important benefits of student field trips into informal learning institutions for science learning is that it can fill an important gap between public and private schooling. Falk and Dierking (2000) state that museums have an opportunity in that the public sees museums as an option for filling the inadequacies in formal schooling. They state that, "The crisis in public education presents museums with an opportunity to take a leadership role in affecting quality learning practices." (p. 226). This kind of function of informal learning institutions is important especially in countries like Turkey. In Turkey, there is a big gap between public and private schools. Private schools have greater financial, physical and functional resources than public ones (e.g. Tuncer, Ertepinar, Tekkaya & Sungur, 2005). Although there is a national curriculum applied both by private and public schools, implications and extracurricular activities like field trips create differences on various dimensions such as student learning. The study done by Tuncer et al. (2005) is worth mentioning because it is related to the topic of the study. They state that there are differences in the implementation of environmental education in private and public schools. Their research indicates that private school students have much more positive attitudes towards the environment than others. However, as they discuss, this difference may also be a result of differences in parental variables or teacher characteristics. In any case, it is important to consider the differences between public and private schools in Turkey.

Teacher Attitudes Towards Student Field Trips for Science Learning in Informal Learning Institutions

To get a clear understanding of teacher attitudes towards science learning in informal learning institutions, teacher attitudes towards science and science teaching should be discussed first.

Koballa and Crowley (1985) define the attitude toward science as "… a learned, positive or negative feeling about science that serves as a convenient summary of a wide variety of beliefs about science, and is important because it permits the prediction of science related behavior" (p. 231). Attitudes towards science are affected by social interactions such as interactions with teachers. So, it can be said that teachers' attitudes towards science affects the attitudes of students towards science. Koballa and Crowley (1985) also agree with this, and they stress that "a teacher's attitude towards science is reflected in the time the teacher spends teaching science and the manner in which it is taught" (p. 228). Teacher attitudes on student science field trips also have important effects on student science field trip experiences.

It is important to know about the attitudes and motivations of teachers towards conducting field trips and science learning in informal learning institutions because rather than students, it is the teachers who decide on a field trip, and on the when, where and for what of the trip (Kisiel, 2005). As it was mentioned, attitudes have an influence on behavior, and visiting a science museum is highly related to these attitudes. So, understanding teachers, their expectations, their motivations and their roles in conducting field trips is the key to increasing the number of school trips and to making field trips more effective (Anderson et al., 2006). Literature indicates that teachers value field trip experiences for the learning of their students (Anderson et

al., 2006; Anderson & Zhang, 2003; Kisiel, 2005; Neathery, 1998; Wellington 1990). The research on elementary teachers' utilization of science field trips done by Lessow (1990) put very important findings in terms of teachers' impact on students' science field trip experience. It concluded that teachers tend to organize field trips into science centers that they are familiar with. Also, the number of personal visits of the teachers is significantly related to the number of student field trips that they organize into informal science centers. Furthermore, the same research indicates that the number of student field trips increases in lower elementary school classes and if the teachers have the power to choose the location of the visit. There are lots of studies which indicate that the teachers value curriculum linked programs more than nonrelated ones (Anderson, et al., 2006; Anderson and Zhang, 2003). Similarly, Kisiel (2005) stresses that the curriculum connection is the most mentioned motivation, among the eight motivations found by his study, for organizing field trips into informal science learning institutions for elementary school teachers. The motivations determined as a result of this study are: to connect with the classroom curriculum, provide students with a general learning experience, encourage students in lifelong learning, enhance students' interest and motivation, provide exposure to new experiences, provide a change in setting or routine, enjoyment, and meeting the expectations of the school administration. Although it was found that there is a significant relation between "general learning experience" and "exposure to new experiences", they are left as separate categories. Similary, Michie (1998) concludes his research findings by saying that the main purpose of teachers for field trips is to provide hands-on and real life experiences to students, and that they expect that this kind of experience of students will lead to a better understanding and improved interest and motivation towards the related issue. However, there are other reasons

for conducting field trips and in Michie's summary of some research findings, the socialization of students is given as one of these reasons. The same research also states that there is a significant interaction between years of teaching experience and the number of field trips the teacher organizes more experienced teachers feel more comfortable organizing field trips (Michie, 1998).

McLeod and Kilpatrick (2001) state that "Knowing that teachers and other adults can influence students in their educational paths and career choices, schools need to make sure that teachers develop their own interest in science and that they can provide learning resources to students" (p. 59). They state that teachers can develop their own interest in science through teacher training programs. Through teacher training programs related to science teaching, teachers can help both student learning, which is a cognitive domain, and the students' interest in science, which is an affective domain. Offering these programs may also be viewed as the responsibility of informal learning institutions. Although many informal learning institutions offer teacher training, those programs do not train teachers on how to conduct a successful field trip (Tal, Bamberger & Morag, 2005). The teacher training programs offered by informal learning centers focus not only on increasing their content based knowledge, but these programs also support teachers in improving their pedagogical knowledge (Phillips et al., 2007).

The Success of Student Science Field Trips

The related literature indicates that there are two important factors which can contribute to the effectiveness of field trip experiences for students. These factors are teachers and informal learning institutions themselves. Pre-visit, on-visit and post-visit preparations of and actions of the teacher and the informal learning institutions

can contribute to the success of student trips, as will be discussed below. However, the suggestion of Falk and Dierking (1992) should be considered at all times. They state that "Children, in particular, should be informed before, during and after a trip about the museum's and the school's goals and objectives for the trip" (p. 152).

Firstly, I will discuss how the pre-visit work of teachers can contribute to the success of student science field trips. According to Kisiel (2006), a field trip experience, "the teacher tries to bring the structure and order of a formal classroom setting into an informal learning institution" (p. 47). So, Kisiel (2006) addresses several strategies that can help teachers for successful field trips and can be held before visit: making a connection with the class program, getting informed about the site, preparing students by increasing their familiarity, organizing helpers such as parents and creating a trip plan. The student preparation for the trips is especially mentioned by many researchers for successful field trips experiences (Eshach 2006; Kisiel, 2006; Orion, 1993). The study done by Storksdieck (2001) indicates that although teachers are more knowledgeable about and aware of the field trip experience, they generally are not aware of the importance of shaping the expectations of students. However, Tal et al. (2005) disagree that teachers are aware of the program of the field trips. The findings of their study indicate that teachers are not knowledgeable about programs, they do not apply any pre-visit activities and just give just technical information about field trips to their students. Then, what kind of preparation is necessary for students? Orion (1993) stresses the importance of three types of preparation for students by saying that:

> The more familiar they are with their assignment (cognitive preparation), with the area of the field trip (geographical

> preparation) and the kind of event in which they will participate (psychological preparation), the more productive the field trip will be for them (p. 326).

Another issue that literature covers for the success of the trip is the connection of the trip with the curriculum (Anderson & Zhang, 2003; Kisiel, 2006; Orion, 1993). Like them, Kisiel (2006) states that "A strong connection between the curriculum and a field trip allows students to not only remember what they did, but also why they did it." (p. 48). When we look at the related studies on teacher adequacy on linking the trip with the curriculum, findings show that teachers are unable to create this connection (Griffin & Symington, 1997; Tal et al., 2005). However, it should be questioned whether each teacher needs to be aware of each type of informal learning opportunity? McLeod and Kilpatrick (2001) stress that each teacher should be knowledgeable about the museums that provide programs related with the topic they teach. This statement again focuses on the same issue of making a connection with the class. There are further suggestions. According to Phillips et al. (2007), teachers not only need to think about how to improve the link between their programs and the curriculum, but they also need to develop materials that can be applied in classrooms for the success of the trip. When we look from the point of view of informal learning institutions, Falk and Dierking (1992) suggest that they not just link informal science learning institutions programs to the curriculum, but also extend the classroom curriculum.

Secondly, there are some strategies teachers and informal science learning institutions can work on to increase the success of the trip. The most frequently mentioned strategy is to offer hands-on and concrete experiences and activities to children (e.g. Anderson & Zhang, 2003; Falk & Dierking, 1992; Orion 1993). Falk and Dierking (1992) state that visitors can make sense of what they act on by their

senses. According to them; “Ideas that cannot be presented concretely should not be presented at all” (p. 154). Other suggested strategies are to give time students to explore the physical place themselves (Falk & Dierking, 1992) and to give students choices on their learning in informal learning contexts that will facilitate their learning (Griffin, 2004). As it is stressed in the Contextual Model of Learning, the physical setting has an important role in informal science learning (Falk & Dierking, 2000). Similarly, Orion (1993) states that environment has an enormous importance for learning in informal learning institutions and that it has to encourage students to construct information themselves in it. Also, teachers can contribute to the activities, whereas usually during visits, they just remain passive followers (Tal et al., 2005).

After the visit, it is important to run follow-up activities (Anderson & Zhang, 2003; Kisiel, 2006). Lessow’s research (1990) indicates that a very high percent of teachers run both pre and post-visit activities. The application percentage of post-visit activities can be related to whom - teacher or informal learning institution - is offering the activity.

How can one judge the success of a trip? Experimental studies on the effects of field trips on students provide valuable data about the importance of their cognitive and affective domain. There are studies on teacher perceptions on indicators of field trip experiences (e.g. Kisiel, 2005). The study done by Kisiel (2005) states that one of the most important indicators, cited by teachers, of a successful field trip is the students’ enjoyment and the positive experience. Other indicators are the occurrence of new knowledge in students, the transformation of the experience into the class, increased motivation and interest, good student behavior, the high quality of student questions and lastly completing a trip without any incident.

Obstacles for Student Science Field Trips

There are also such technical factors, as the cost of the trip, discipline problems, restrictions of curriculum and lack of time, which present obstacles for organizing field trips (Anderson et al., 2006; Lessow, 1990; Michie, 1998; Orion, 1993). Orion (1993) adds some more topics that lead to a decrease in the number and the efficiency of field trips. He especially states two more reasons for missing the opportunity of field trips: a. teachers do not knowledgeable about the potential of the outdoors as learning environments, and b. there is a lack of materials because teachers and curriculum developers do not include field trips in their plans and curriculums. Griffin and Symington (1997) also add that losing students, risking the reputation of classes, not being knowledgeable about possible informal learning sites and opportunities, possible student questions that cannot be answered by the teachers are the management concerns of teachers which prevent them from organizing student field trips. Another important factor that discourages teachers is the lack of the support of school administration (Lessow, 1990; Michie, 1998). It is one of the important factors informal science learning centers should be aware of because when teachers perceive a greater difficulty, they tend to organize fewer trips (Lessow, 1990).

Botanic Garden Education

Botanic gardens are informal learning institutions designed especially to teach about plant science. However, there is very limited research on learning in botanic gardens.

Botanic Gardens as Informal Learning Institutions

Wyse Jackson (1999) describes botanic gardens as "…institutions holding documented collections of living plants for the purposes of scientific research, conservation, display and education" (p. 27). Similarly, Galbraith (2003) states the functions of twenty-first century botanic gardens as "conservation, education, research and recreation" (p. 280).

Today, there are about 2200 botanic gardens all over the world. There are some important events and actions that create a structure, and common roles and functions for all these botanic gardens. Botanic gardens came to be specialist institutions in plant conservation by the publication of Plant Conservation Programme that covered the target of strengthening botanic gardens to conserve the plant diversity of the by World World Conservation Union (IUCN) and World Wildlife Fund (WWF) (Heywood, 1991). Also, according to Heywood (1991), botanic gardens world wide got a common structure and started to work together by the foundation of Botanic Gardens Conservation International (BGCI) in 1987 and by the publication of Botanic Gardens Conservation Strategy in 1989.

Among the mentioned functions of botanic gardens, educations seems as one of the most important and prioritised purposes of botanic gardens. Hundreds years ago, the first botanic gardens were established in order to teach about botany and medicinal training (Heywood, 1991; Willison & Green, 1994). Then, new ones were opened to teach botany, such as the Oxford University Botanic Garden (Bramwell, 1993). According to Bramwell (1993), many botanic gardens still have a very strong connection with formal school systems because they function under universities or horticulture schools such as Cambridge University Botanic Garden, Utrecht University Botanic Garden, the Royal Botanic Garden of Edinburgh (RBGE). It is

important how botanic gardens state their educational roles. Heywood (1991) states that "Education should be seen as an intrinsic and essential part of the mission of most if not all botanic gardens and not just an appendix grafted on" (p. 24). A survey done by distributing questionnaires to over 120 people from 117 different botanic gardens by Kneebone (2006) indicates that 91% of botanic gardens include education in their mission and vision and have separate budgets for educational facilities.

There are some features of botanic gardens that make them important informal learning institutions. One of the features which make botanic gardens important informal learning centers is that they are located close to cities and that there are millions of people who visit botanic gardens each year all over the World (Willison, 2004). It can be said that the physical context of botanic gardens provide an advantage in keeping visitors. Willison (2004) explains that botanic gardens create huge plant collections and run scientific and conservation projects about plants on which life on Earth depends. According to Willison (2004), this feature makes it possible to teach about plant biodiversity, ecosystems, economic, cultural and aesthetic importance of plants, relations between plants and local people; local and global environment and threats for plant extinction. She stresses that plant conservation is the primary goal of botanic gardens. However, it is impossible to conserve a species without education. The Global Strategy for Plant Conservation (GSPC) is prepared by United Nations (UN) and signed by 187 countries. GSPC includes 16 targets to achieve until 2010, and one of the targets, target 14, states the importance of developing and running public education programs as being able to conserve the plant species of the world. Botanic gardens are accepted as the first address to achieve this target. Barasa-Atiti (1999) also stress the importance of conservation by rethinking development practices and states that "Education in

botanic gardens worldwide must prepare individuals for the next decade by radically reviewing global development practices that affect life-supporting systems" (p. 91). Then, Barasa-Atiti (1999) lists some more issues than mentioned above such as population and development, species and ecosystems, energy, industry and the urban challenge which should be focused on by botanic garden education by referring to the Brundtland Report. According to Barasa-Atiti (1999), "Botanic gardens can effectively be used to raise concern about problems associated with global inequalities, regional conflicts and imbalances in consumption of resources. They are also well placed to analyze the relationship between education and the processes of the world economy" (p. 94). Botanic garden education can provide an increase in knowledge related to plants, the roles of plants and humans in the ecosystem, and the threats plants face. Also, botanic garden education can provide positive changes on human attitudes and behaviors towards the environment.

Education Programs of Botanic Gardens

Botanic gardens apply many different programs. The Children's Gardening program is one of the most widely applied ones. The Brooklyn Botanic Garden started their gardening Project in 1914, and the garden is accepted as the first botanic garden that started a children's gardening project (Blandford, 2002). Research indicates the positive long term effects of their gardening projects (Conlon, 2005; Tims, 2003). Millions of students visit and participate in daily education programs in botanic gardens under the guidance of their teachers. As the related literature indicates, the most important reason for teachers to take their students to the botanic garden is the connection of the field trip with their classroom unit (Steward, 2004). Steward states that this result indicates that teachers connect botanic gardens and plant study, and so

expect plant science based content learning from the field trip. Teachers value field trips to botanic gardens because they provide hands on experiences to students.

There are many schools which field trips to botanic gardens, and so each garden creates different programs by considering the different age groups. Unfortunately, there is not much research on the effects of botanic gardens trips on students' knowledge, attitudes or skills. One of the studies of Steward (2004), on the effects of botanic garden education on students, indicates the long term benefits of field trips to botanic gardens for students. The study indicates that participant students remember the plants and the place as a result of sensory experiences. Steward (2004) states that "These long term memories are influenced by the visiting teacher's educational requirements, and the locations and activities selected by the educator in the botanical garden" (p. 124). This indicates the importance of the physical context of learning. This finding also supports Orion's (1993) idea that the environment of the trips should allow students to construct their own knowledge in it. As a result of the study, Steward (2004) stresses that programs or facilities that are used for educational purposes should:

- be physically accessible to groups of students
- be robust enough to allow handling by groups of students
- have a wide range of sensory aspects such as different textures, colors, forms, fragrances
- include charismatic plants such as bottle trees, very tall trees, insect-eating plants and cacti
- use special locations for the plant display such as glasshouses (p. 124).

Also, botanic gardens offer teacher training programs (Galbraith, 2003). The related literature indicates that teachers feel themselves unskilled to teach environmental concepts to their students (DeMarco, Relf & McDaniel, 1999). Willison (1993) suggests in focusing on teacher training by saying ".. if botanic gardens want to get a

particular message across to all their audience, then teaching teachers makes much more sense-especially when botanic garden resources are limited" (p. 34).

Challenges Botanic Gardens Face in Terms of Education

Willison (2004) states one of the challenges botanic gardens face as "Most people working in botanic garden education are not professionally trained educators or teachers" (p. 6). According to her, this is a challenge because staff who lack the knowledge of pedagogy may be successful passing the plant knowledge, but the programs offered by them may fail to change the behaviors and attitudes of participants. Cohen (1999) says;

> Fortunately, in many botanic gardens today, the educational staff are getting the message and have a more adventurous and experimental attitude and offer, especially to children**,** the opportunity to smell, touch the exhibits, handle them, and get sensually involved by role playing and through theatrical performances (p. 106).

There are some other challenges stated by Willison (2004) about teachers. First of all, teachers want botanic garden education to be free of any political views. However, education is not a political free activity. Another challenge about teachers is that "Teachers may have a set agenda when they visit a botanic garden with their students. The school curriculum tends to dictate their visits and they usually come with preconceived ideas about what they want to learn." (Willison, 2004, p. 6).

Botanic Garden Education in Turkey

The biological richness of the World is in threat because of the human impact on it. The UN created an action for the conservation of this richness: the Convention on Biological Diversity (CBD) was signed by 187 countries. Turkey is one of these countries. Within this framework the Global Strategy for Plant Conservation (GSPC)

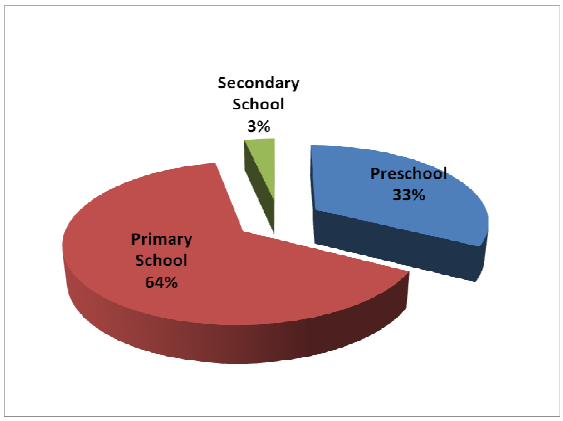
was published and it has specified 16 global targets to be achieved by 2010. Target 14 states that "The importance of plant diversity and the need for its conservation incorporated into communication, educational and public –awareness programs" (CBD, p. 10). All educational activities of NGBB are parallel with this target and try to achieve it.

It is very important to increase the public awareness about the biological diversity and the importance of its conservation to be able to conserve this richness, especially in such as countries as Turkey. Turkey has an astonishing diversity of plant life, with over 9,000 species, 3,000 of which are endemic, so for this reason, it is very important to make the public aware of the country's biological diversity and its importance. However, there are a total of 13 botanic gardens and arboretums in Turkey. Unfortunately, although there are school group visits there is no educational staff work on these gardens except NGBB.

NGBB is situated in a busy motorway intersection in a residential area of Istanbul on land leased from the Road Directorate and is the first and only botanic garden on a motorway junction in the world. The garden is situated on eight islands of land formed by the motorway intersection and the slip roads. The total area of the garden equals to 50 hectares. Originally started in 1995 as a public park, its aim was to restore the environment in an area which had been severely destroyed by major motorway construction. In 2003, the park became a botanic garden. The garden has been primarily sponsored by the Ali Nihat Gökyiğit (ANG) Foundation.

The NGBB Education Unit is the first and the only educational unit that was situated in a botanic garden in Turkey. The educational facilities of NGBB started with "Botanic Garden Education Project" that was funded by the Christensen Foundation in 2004. Then various daily education programs which are curriculum

linked were created for different aged students and nearly 30,000 students participated in these programs through last four years. Figure 2 indicates the distribution of 27,006 students who participated in educational activities between 2006 and 2010.



Note. This data is taken from unpublished NGBB archive

Fig. 2 The percentage of students participating in NGBB daily education programs (January 2006-June 2010)

In 2006, a children's garden was constructed. Since the opening of the children's garden, around 50 children have been trained to grow their vegetables and fruits. Other school projects involve conservation programs based on endangered endemics and another gardening program was designed specifically for blind children. RBGE and NGBB were granted a Darwin Initiative project entitled 'Horticulture and Education for Conservation in Nezahat Gökyiğit Botanik Bahçesi' which ran from 2005 to 2008. As a result of the project, one day teacher training courses were organized in 2007. Today, NGBB offers a wide range of educational activities for adults, school groups, children, and its own staff.

CHAPTER 3

METHODS AND PROCEDURES

This chapter explains the research by covering the design of the study, population and sample selection, location, data collecting instrument, procedure of the study and data analysis.

Nature of the Research Design

The type of this research is quantitative and "Cross-Sectional Survey" that is one category of "Descriptive Research" or "Survey Research" (Gay, Mills & Airasiar, 2006) is chosen as the method of the research. Gay et al. (2006) describes Descriptive Research as "determining and describing the way things are" (p. 159). This research attempts to determine and describe the reasons why elementary school teachers take their students into botanic gardens and to explain the relationship between the selected characteristics and the identified contextual factors. The most important reason to select this method is to collect data from a much larger sample.

Research Population

The population of the study is elementary school teachers who take their students into NGBB in İstanbul. One of the reasons to select this group is that there are not many informal learning institutions in Turkey, and NGBB is one of the informal learning centers that run educational activities and have the highest number of participants. Another reason why they are chosen as the population of the study is because of easy accessibility of the population for the researcher, who works as the

head of education in NGBB and guides many of the education courses run in it. NGBB offers programs for preschool and secondary school students. However elementary school teachers are selected as the population of the study. The most important reason to select elementary school teachers was that preschool education is not obligatory in Turkey, and many students participate in a science field trip when they enter elementary school.

Table 5 indicates the total number of schools/classes, students and teachers in 2002-2003 academic year.

Table 5. Number of Elementary Schools, Students and Teachers in the City of İstanbul (2002-2003)

		Number of	
Type of school	School/Class	Student	Teacher
Public Schools	1.234	1.531.426	40.997
Private Schools	179	50.923	5.097
TOTAL	1.413	1.582.349	46.094

Note. This data retrieved from www.meb.gov.tr/Stats/apk2003/icindekilerSayisalVeriler2003.pdf, p. 78.

As it can be seen from the table, the number of teachers that work in public schools are three times higher than the number of teachers that work in private schools. Public school teachers are hired by an exam (Public Services Personnel Selection Exam (Kamu Personeli Seçme Sınavı, KPSS)). Teachers who work in private schools do not need to take this exam. While public school teachers get their salaries from the state, public school teachers are paid by schools themselves.

When we look at teacher education in the Turkish educational system, there are some points which should be highlighted. Since 1982, all institutions that educate teachers function under universities (Okçabol, 2004). Since that time, all teachers have become university graduates. There are speficied university level programs for each teaching branch such as class, science and technology, mathematics etc.

However, university graduates from other departments have been hired as teachers in the same period because of the lack of teachers in some branches. For example, thousands of university graduates from other departments such as law, agriculture etc. have become elementary school teachers in 1996-1997 (Okçabol, 2004). Today, many of them continue to work as class teachers. So, the targeted population includes teachers who have graduated from educational faculties and also other departments.

Selection of Sample

"Purposive sampling method" (Gay et al., 2006) was used by applying the research with elementary school teachers who conducted field trips into botanic garden because it is accepted that this sample would be representative of the given population. All teachers who organize field trips into NGBB were asked to fill the questionnaire of the study between March-June 2010. When schools were officially closed on 18 June 2010, the data collection process was finished.

When we study the properties of the sample profile, there are important differences to be mentioned. First of all, of the 149 participants, 128 are female (87.1 %) and 19 are male (12.9 %). Figure 3 indicates the distribution of sample by gender.

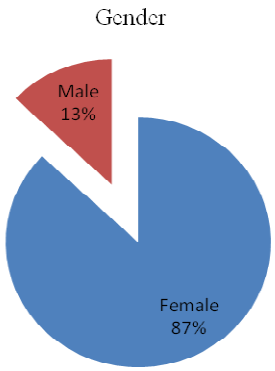


Fig. 3 Gender distribution of the participants

When we looked at the distribution of sample by age and type of school, it is found that 70 of females are from public schools, as 57 of them are from private schools. There are only 3 male teachers from private schools (See Table 6).

Table 6. Distribution of Sample by Gender and Type of School

	Female		Male	
	f	%	*f*	%
Private School	57	44.9	3	15.8
Public School	70	55.1	16	84.2

**N*= 146, missing= 3

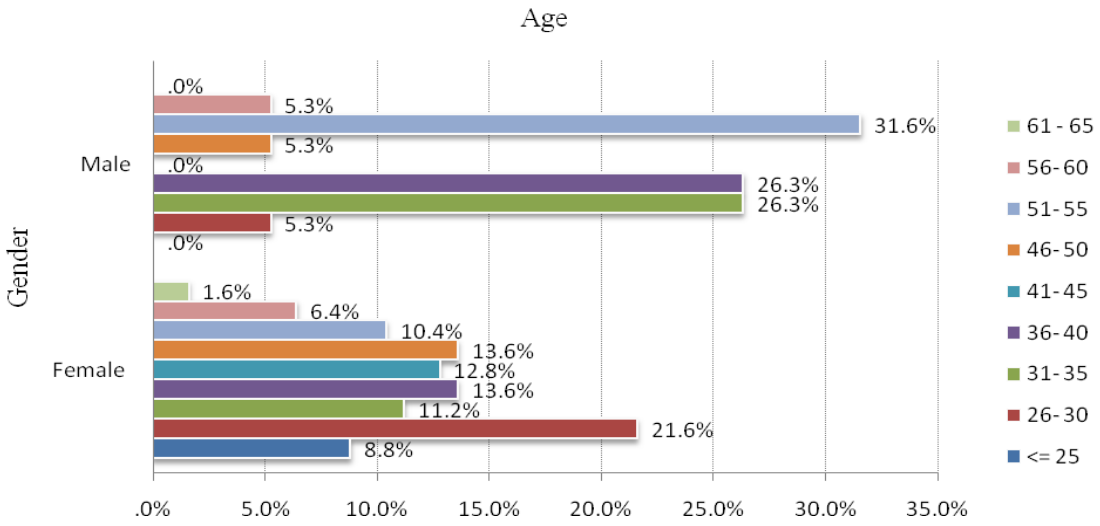


Fig. 4 Age by gender

The mean age of participants is found to be 39.8. The mean age of males is 43 and the mean age of females is 39.3. Age distrubution of female teachers is very wide because of high number of female participants. Although, the majority of females are between 26-30 years old, males are generally older than this age range.

Out of 149 participants, the majority of them are elementary school teachers (97 teachers, 65.5 %). 21 of them are science and technology teachers and 30 of them are from different disciplines as mathematics, literature (*N*=148, missing=1).

Furthermore, the majority of the participants are graduates of education faculties (103 out of *N*=134, missing=15). As it was mentioned in sample section, 60 of them (40.8%) teach in private schools, as 86 of them (58.5%) teach in public schools.

The majority of the participants (55.2%) has been teaching the same level for six or less than six years. 58.3 percentage of the total population (84 teachers) has 15 years or less teaching experience. Figure 5 indicates that private school teachers are much more experienced teachers than public school teachers.

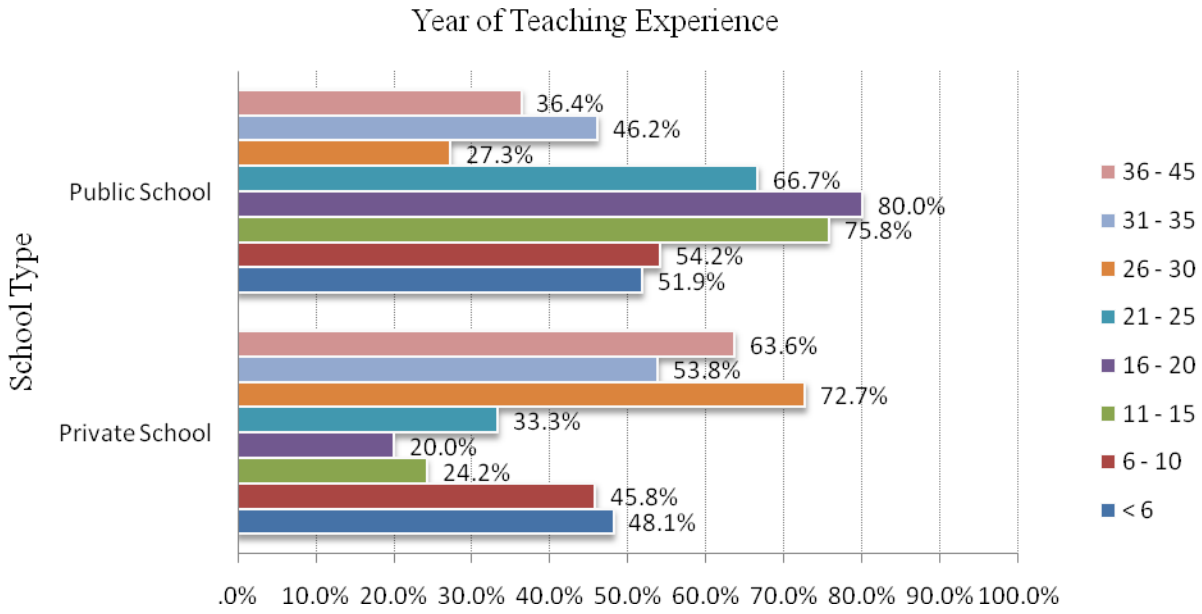


Fig. 5 Years of teaching experience by type of school

Location

The research was applied in NGBB that is located in İstanbul, Turkey. NGBB was officially opened to the public in 2002 as a memorial park. In 2003, it was transformed into a botanic garden. It became the first botanic garden to be situated in a motorway intersection in the world. This project is being funded by the Ali Nihat

Gökyiğit (ANG) Foundation. NGBB provides a public service and functions to preserve plant diversity, promote education and especially through presentations show the crucial importance of plant diversity. NGBB is the first and the only botanic garden in Turkey to have a separate education unit in its organisation.

Instrument

A survey questionnaire, "Teacher Perceptions on Student Field Trips into Botanic Garden" was developed by the researcher in Turkish considering it was going to be distributed to Turkish teachers (See Appendix A). The questionnaire consists of 8 sections, Section A, B, C, D, E, F, G, H.

Section A

In section A, teachers' demographic information was asked. This section includes 9 questions and searches for demographic data such as gender, age, branch, graduate faculty, graduate university, year of teaching experience, year of teaching experience to the same level of the teacher, the school type teachers work in and lastly the perceived SES of the school.

Section B

Section B, search for teacher personal participation into informal learning institutions, covers 3 questions. The first question asks what type of informal learning institutions teachers visit. The second question of the section B asks how many times teachers visit informal learning sites annually. The last question of this part is an open ended question, and searches for the reasons of personal participation into informal learning sites.

Section C

The third section of the questionnaire, section C, covers four questions asking to what type of informal learning sites teachers take their students for field trips, how many times they organize student field trips in a year, the perceived support of the school administration for student field trips, and the effects of teachers on the site, the timing and the number of student field trips. Question1, question 2 and question 4 of this section were adapted from Kisiel's survey questionnaire (Kisiel, 2005).

Section D

Section D, which consists of 28 questions, is structured to investigate the factors or reasons for taking students to field trips into NGBB. All items include a five likert type scale system of scoring, and score 1 indicates the lowest level and means "totally disagree", and 5 means "totally agree". These factors were determined by reviewing the related literature. Factors are listed below:

F1 To connect with the classroom curriculum

F2 To provide students with a general learning experience and a new experience

F3 To encourage students in lifelong learning

F4 To enhance students' interest and motivation

F5 To provide a change in setting or routine

F6 For enjoyment

F7 To meet school expectations

F8 For the socialization of students

F9 To enjoy the physical setting

Factors are determined by looking related literature. Seven of the factors that are: to connect with the classroom curriculum, provide students with a general

learning experience and a new experience, encourage students for lifelong learning, enhance students' interest and motivation, provide a change in setting or routine, meet the school expectations and for enjoyment. These were determined by looking the results of the research titled "Understanding Elementary Teacher Motivations for Science Field Trips", of Kisiel (2005). In fact, Kisiel states eight different reasons by dividing "To provide students a general learning experience and a new experience" into two separate items as "To provide a general learning experience" and "To provide exposure to new experiences". However, it was explained that these two factors were found to be very similar by analysis. Also, the pilot study of this thesis indicated that the participants recognized these two items as the same so they were combined into one item. Other similar research was studied and it was found that the socialization of students is one of reasons for field trips (Michie, 1998). So, it was included as a factor in this thesis. The research area of the thesis is a specific location, a botanic garden. Falk et al. (1998) state that enjoying the physical setting is an important motivation for museum visits, so "To enjoy the physical setting" was added into factors.

All factors, except factor 4, were searched by three paraphrasing sentences or sentences with similar meanings and each sentence starts with "I organize student field trips into Nezahat Gökyiğit Botanic Garden because…". Four similar meaning sentences were written for factor 1. The factors and all the continuing sentences under each factor were listed as below:

F1 To connect with the classroom curriculum

ITEM 4- The trip reinforces students' learning in school.

ITEM 20- I believe curriculum linked learning is reinforced at the trip.

ITEM 27- Students repeat what they have learned at the school.

F2 To provide students with a general learning experience and exposure to new experiences

ITEM 2- Students learn more on the trip on botany.

ITEM 7- Students acquire new knowledge in the trip

ITEM 17- The trip is a new experience for students

F3 To encourage students in lifelong learning

ITEM 12- The trip supports my students for lifelong learning.

ITEM 21- Students identify out of school learning opportunities at the trip.

ITEM 28- I want to support my students for lifelong learning.

F4 To enhance students' interest and motivation

ITEM 1- Student's interest on botany increase.

ITEM 11- The trip into the botanic garden increases students' interest on botany.

ITEM 18- The trip into the botanic garden increases students' motivation to learn on botany.

ITEM 22- The trip into the botanic garden increases students' interest on science classes.

F5 To provide a change in setting or routine

ITEM 6- I want to take my students out of school environment.

ITEM 14- Trips is a difference for students.

ITEM 25- I need to make changes in the daily routine program.

F6 For enjoyment

ITEM 5- Students have fun at the trip.

ITEM 13- I want my students to have fun.

ITEM 26- The trip is very funny for my students.

F7 To meet school expectations

ITEM 8- School administration wants us to make this trip.

ITEM 19- It exists in the school program.

ITEM 23- It is an expected trip by the school administration.

F8 For the socialization of students

ITEM 3- Students get used to be in a different social context.

ITEM 9- The trip supports social development of students.

ITEM 15- Students build close relationships with their peers as a result of the trip.

F9 To enjoy the physical setting

ITEM 10- There are many plant species students want to explore.

ITEM 16- The plant collection of NGBB is very rich.

ITEM 24- The garden provides appropriate physical conditions for the trip.

Section E

In section E, it is required to rank the first five reasons in the order of importance among the 9 given reasons to organize student field trips into the botanic garden. These reasons are stated as following;

1- To increase students interest and motivation

2- To make students have fun

3- To meet the expectations of the school administration

4- To support students' social development

5- To reinforce the knowledge offered by curriculum

6- To provide students with a different life and learning experience

7- To encourage students for lifelong learning

8- To make a difference in daily routine

9- To be in the physical environment of the garden

Section F

Teachers were asked to rank the first five reasons that affect the success of the field trip into NGBB in the order of importance among the 11 reasons that were determined from the related literature and studying experiences from botanic garden experience. The stated reasons were:

1- Providing active learning opportunities

2- Being a fun trip

3- Providing a program parallel to curriculum

4- Providing qualitative physical environment

5- Providing educational activities for students

6- Applying pre-visit activities

7- Providing real life experience based learning

8- Providing student educational materials (by the center)

9- Having a guide during the visit

10- Applying post visit activities

11- Teacher familiarity with the place

Section G

This section consists of 4 questions and seeks answer for NGBB experience of the teachers. Question 1 asks reason, to participate in daily education programs or to have picnic with the group and the year of the trip. Question 2 asks how difficult it is to organize travel, parent permissions, school/ministry permissions, booking, cost and other for teachers with four point likert type questions. This section covers the second open ended question of the questionnaire: that is wherher the teacher did any

pre-visit activity with their group or not. The last question of the questionnaire asks teachers with four point likert type question to evaluate the success of the education program run by NGBB if they have already participated in any.

Section H

The last section, section H, includes two four point likert type questions on teachers' perceptions on their professional adequateness on teaching botany, and if they would like to participate in any training courses on this issue.

Reliability and Validity of the Instrument

In the first version of the questionnaire, 12 factors were identified by reviewing the related literature (Falk et al, 1998; Kisiel, 2005; Michie, 1998). These were as below;

F1- To connect with the classroom curriculum

F2-To provide students with a general learning experience

F3-To encourage students in lifelong learning

F4- To enhance students' interest and motivation

F5- To provide exposure to new experiences

F6-To provide a change in setting or routine

F7- For enjoyment

F8- To meet school and family expectations

F9-The socialazation of students

F10- To support student's physical development

F11-To enjoy the physical setting

F12-Familiarity, advice and satisfaction from the institution

To be sure about the validity of the survey, related literature was checked. Also, after the development of the first version of the survey, three expert views, teacher views and botanic garden staff views were taken. Then, a pilot study was carried out in order to collect enough data for the reliability test for section D of the instrument. The pilot study of the questionnaire was carried out with 30 teachers. The participation was low because of the limited number of population. The analysis of the pilot study indicated the instrument has high reliability (Cronbach' alfa is .909). However, it is needed to make corrections on factors. The number of factors was decreased into nine by analyzing the data of the pilot study. F10 (To support student's physical development) and F12 (Familiarity, advice and satisfaction from the institution) were deleted from the list, and F8 (To meet school and family expectations) was changed as "To meet school expectations".

Reliability analysis and factor analysis were repeated after the collection of data. Reliability analysis was given Cronbach's Alpha .966. Factor analysis grouped all of items, except item 13 and 23, under one factor. Because the related literature states each factor separately, Cronbach's Alpha for each of the 9 factors were calculated separately. Cronbach's Alpha values for F1, F2, F3, F4, F5, F6, F7 and F7 were .873, .859, .862, .923, .757, .832, .666, .800, .852 respectively.

The English version of the questionnaire was given in Appendix B. The basic translation of the questionnaire was done to give as an appendix, but it cannot be said that the English version is equivalent to original one.

Data Collection

Botanic garden staffs that run educational activities with school groups were trained to provide the standard presentation of the questionnaire to the teachers. The teachers

were asked to fill in the questionnaires after the educational activities of their group. Also, there were school groups that do not participate in the educational activities and visit the garden for self guided tours or picnic. The questionnaire of the study was given at the gate of the botanic gardens and these teachers were asked to fill in the questionnaires and leave them to the gate staff.

One of the most important difficulties of data collection process was that the questionnaire is very long. Filling all survey questions nearly takes twenty minutes. A group activity for students was introduced at the end of educational activities to provide free time to teachers to fill the questionnaire. However, the percentage of teachers whose group participated in educational activities and filled in the questionnaire was very high. Only two teachers whose groups participated in educational activities did not give the questionnaire back. It was much more difficult to collect questionnaires back from the ones who organized field trips without participating educational activities.

Data Analysis

The SPSS statistical software package (SPSS 17.0) was used for statistical analysis. For demographic information cross tabulation, frequency distribution and percentiles were carried out. Means of factors were calculated, factor analyses was done by using Mann-Whitney U and Chi square analysis to see if identified factors to take students into botanic garden field trips differ according to selected teacher charecteristics and contextual factors and to study other relations.

CHAPTER 4

ANALYSES AND INTERPRETATION

Data of the study was gathered from 149 elementary school teachers who took their students into Nezahat Gökyiğit Botanic Garden between April and June 2010. Findings of the study are presented in this chapter. Findings are presented by using the order of the sections of the questionnaire, and the hypotheses are linked by the findings. Throughout this chapter, means, frequencies, and the results of nonparametric analysis are presented.

Section A: Analysis of Demographics of Participants

The questionnaire form includes questions on following demographic characteristics; gender, age, branch, faculty of graduation, university of graduation, year of teaching experience, year of teaching experience to the same level of the teacher and the school type teachers work in and lastly the perceived socio economic status (SES) of the school.

The charecteristics of the sample was explained in sample selection section. In addition, a graph was created to indicate the perceived SES of school community by type of school. Most of the participant teachers stated the SES level of their school community they work in as middle (46.6%). However, private school teachers perceived socioeconomic status of their school much higher than public school teachers (See Figure 6).

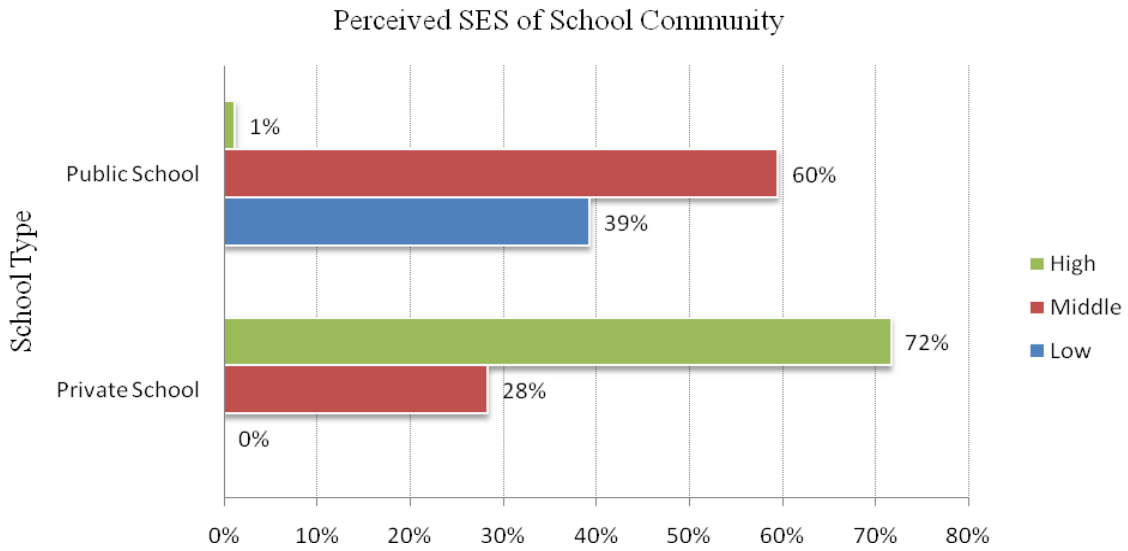


Fig. 6 Perceived SES of school community by type of school

Section B: Anaylsis of Personal Participation in Informal Learning Institutions

This section looks for answers to the following research question;

What are the reasons for elementary school teachers' personal participation in informal learning institutions?

The rank of the informal learning institutions visited by teachers personally is as following: history and archeology museums (21.7 %), zoos (17.5%), NGBB (16.5%), science center (15.0%), aquarium (11.9%), art museums (11.8%), other (3.3.%), other botanic gardens and arboretums (1.3%) and none of them (1.1%).

Nearly half of the research population (47.9%) visits informal learning institutions 2 or 3 times a year. The percentage of teachers who visit informal learning institutions once every 2 or 3 years (13.6%) is much less than the percentage of teachers who visit informal learning institutions once a year (33.6%).

The last question of section B is an open-ended question that asks for the reasons of teachers' personal participation into informal learning institutions. Careful analysis and coding (Gay et al., 2006) of the teacher responses indicated that there are seven categories for teacher personal participation. These categories are; personal interest, learning, place, personal development, enjoyment, social event and professional development. Identified learning, place, enjoyment and social event categories are parallel to the categories of Falk et al. (1998). One of the most outstanding categories is "Personal interest" because it was the most frequently mentioned reason for teachers but it is not a category in the study mentioned in the literature part (Falk et al., 1998). The answers are coded into "Personal interest" part when participant teacher state s/he visit an informal learning center if it is in his or her interest or if the teacher states s/he is curious about the content. Many teachers stated more than one reason for personal participation. Although it is not possible to prioritize these reasons, "personal interest" was the most frequently cited reason. The percentages of teachers identified with these seven different personal participation reasons are indicated in Table 7.

Table 7. Reasons for Teachers' Personal Visits into Informal Learning Institutions

		Response	(*N*=100)
Motivation	Description	*f*	%
Personal Interest	Teachers visit ILIs to meet their personal interests	44	34%
Learning	Teachers want to learn more about informational and cultural content ILIs carry	33	26%
Social Event	Teachers see ILIs visit as an enjoyable thing to do with family or friends	14	11%
Enjoyment	Teachers visit ILIs to have fun and enjoy themselves	13	10%
Place	Teachers see ILIs as a leisure/cultural destination in itself	10	8%
Personal Development	Teachers see ILIs visit as an experience	9	7%
Professional Development	Teachers visit ILIs to be more knowledgeble for possible student field trips	6	5%

As can be seen, the most frequently mentioned reasons for personal visits to ILIs are personal interest, learning, social event, enjoyment, place, personal development and professional development respectively. This finding is important to understanding teachers' agendas for ILIs visits.

Section C: Analysis of Issues on Organizing Field Trips into Informal Learning Centers

The rank order of the types of informal learning institutions are NGBB, science center, history/archeology museum, zoo, aquarium, art museum, other and other botanic gardens and arboretums. It is not surprising that the highest percentage belong to NGBB because the questionnaire was distributed to the elementary school teachers who took their students into the garden during the April-June 2010 period. However, the percentages of NGBB response were not 100% for public and private school categories. This is a result of missing answers. Not surprisingly, nearly each teacher marked more than one informal learning institution they take their students to. Figure 7 lets us to compare destinitions choosen for student field trips by school type.

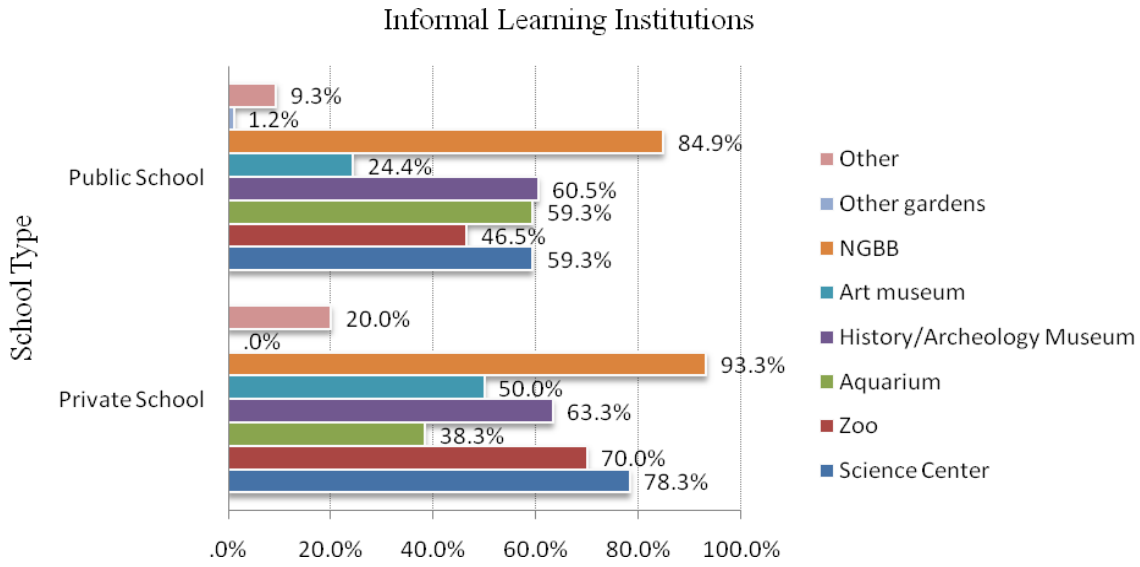


Fig. 7 Types of informal learning centers where teachers organize field trips by type of school

It seems science centers, art museums and zoos are more popular among private school community, as the same popularity is true for public schools in terms of aquarium visits. Chi square analysis were done to see if there is a significant differences on preferred informal learning institutions for student field trips by type of school (See Table 8).

Table 8. Preferred Informal Learning Institution by Type of School

ILI	$\chi 2$	df	p
Science center	5.8	1	0.016
Zoo	7.92	1	0.005
Aquarium	6.217	1	0.013
History/archeology museum	0.123	1	0.726
Art museum	10.176	1	0.001
NGBB	2.453	1	0.117
Other Gardens	0.702	1	0.402

*N= 149

It is found that there is no difference on preference rates of history/archeology museum, NGBB and other gardens by type of school ($p > 0.05$). However, there is a

significant preference difference in terms of science centers, zoos, aquariums, and art museums by school type ($p < 0.05$). Although, it is not possible to conclude the interaction between preferred informal institutions and type of school by nonparametric analysis, by referring to Figure 9, it can be said that science centers, zoos, and art museums are visited by private school students more, while the visit rate of aquariums of public school students are much higher.

The majority of the participants (61.7%) stated that they organize student field trips into informal learning centers 2 or 3 times a year. Interestingly, 7.1% of public school teachers and 5.1% of private school teachers stated that they cannot organize field trips (See Figure 8). This finding is interesting because the survey was distributed to teachers who took their students into NGBB as a field trip experience. They might be considering other types of informal learning institutions by marking this item.

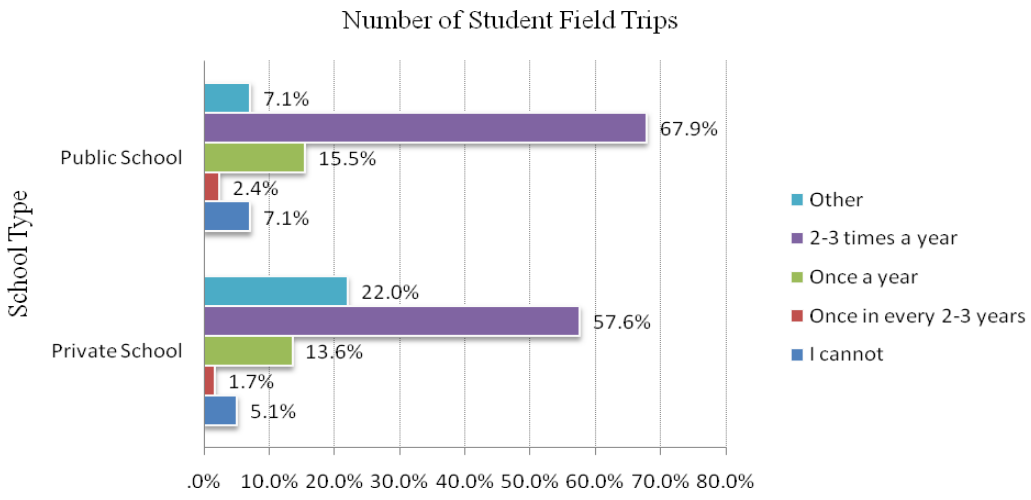


Fig. 8 Number of student field trips by type of school

Chi square analysis also proved that no significant difference on the number of student field trips by type of school ($\chi 2$ (1, N = 143) = .424, $p > 0.05$).

Another Chi square analysis on the relation between years of teaching experience and the number of field trips showed that there is no significant relation between these two factors ($\chi 2$ (7, N = 142) = 3.361, p > 0.05). However, the number of student field trips differ by the branch of teacher ($\chi 2$ (2, N=144) = 11.004, p > 0.05). By looking at Table 9, which indicates the number of field trips by branch of teacher, one can see that there is no difference in the percentages of class teachers and science and technology teachers who organize different numbers of field trips. However, it seems that teachers from other branches organize less field trips than class and science and technology teachers.

Table 9. Number of Student Field Trips by Branch of Teacher

	Number of field trips		
Teacher Branch	Less than 2-3 times in a year	2-3 times in a year	Total
Class teacher	17	78	95
Science and technology	3	18	21
Other	13	15	28
Total	33	111	144

72.1% of the population stated that the school administration “always” supports them to organize student field trips. As 17.0% stated they are “generally” supported, as 9.5% stated they are “sometimes” supported by their school administration to organize field trips. Figure 9 and chi square analysis indicate that there are no big differences on support of school administration by school type ($\chi 2$ (3, N = 146) = 1.120, p > 0,05).

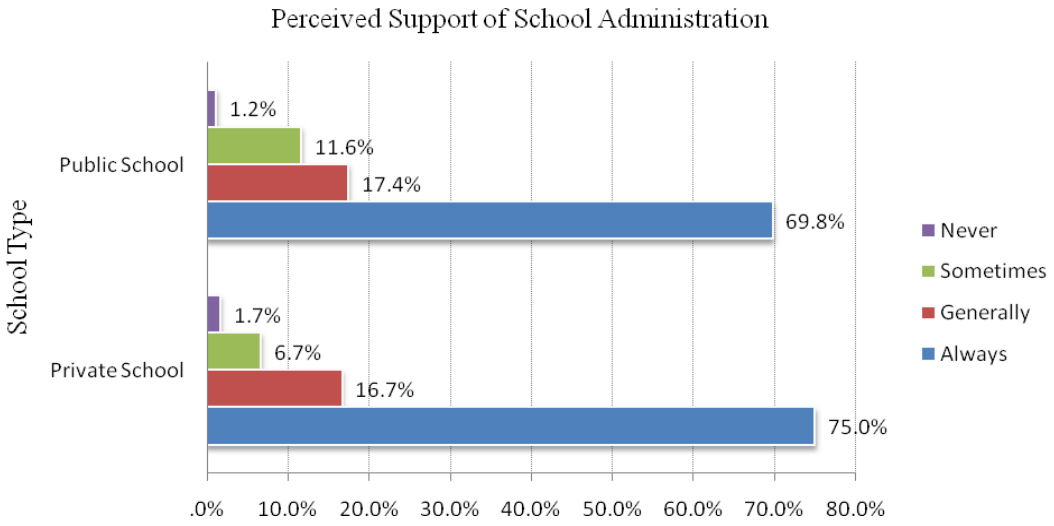


Fig. 9 Perceived support of school administration by type of school

Chi square analysis also proved that no significant difference was found on number of student field trips by perceived support of school administration ($\chi 2$ (3, N = 144) = 7.503, p > 0,05).

The last question of the Section C is about teacher roles on field trip experiences. Findings indicate that teachers have an important impact on the decisions on the type, date and the number of the student field trips. 69.4% of the study population stated that they decide if they will organize student field trip or not. Table 10 indicates the frequency of responses to four questions related with teachers' roles on field trip experience.

Table 10. Teachers' Roles on Student Field Trips

Teachers can choose	Always	Generally	Sometimes	Never
whether they want to organize a field trip or not (N=147)	69.40%	21.10%	8.80%	0.70%
what kind of informal learning center they want to go (N=145)	69.70%	22.10%	7.60%	0.70%
tha date of the field trip (N=144)	64.60%	24.30%	11.10%	
how many times they organize field trips (N=147)	66.00%	23.80%	10.20%	

By looking at Table 10, it can be said that teachers had at least some choice in the date and the number of student field trips. Obviously, teachers are the one that decide on organizing a field trip or not and also the site, date and number of field trips.

Furthermore, it was one of the emerging questions if the type of school has an impact on teachers' decision making process on determining whether they want to organize a field trip or not, to what kind of informal learning institution they will take their students, the date of field trip, how many times they will organize field trips. Figure 10 indicates the roles of teacher by type of school. As can be seen from the figure, roles of teachers do not indicate differences by type of school.

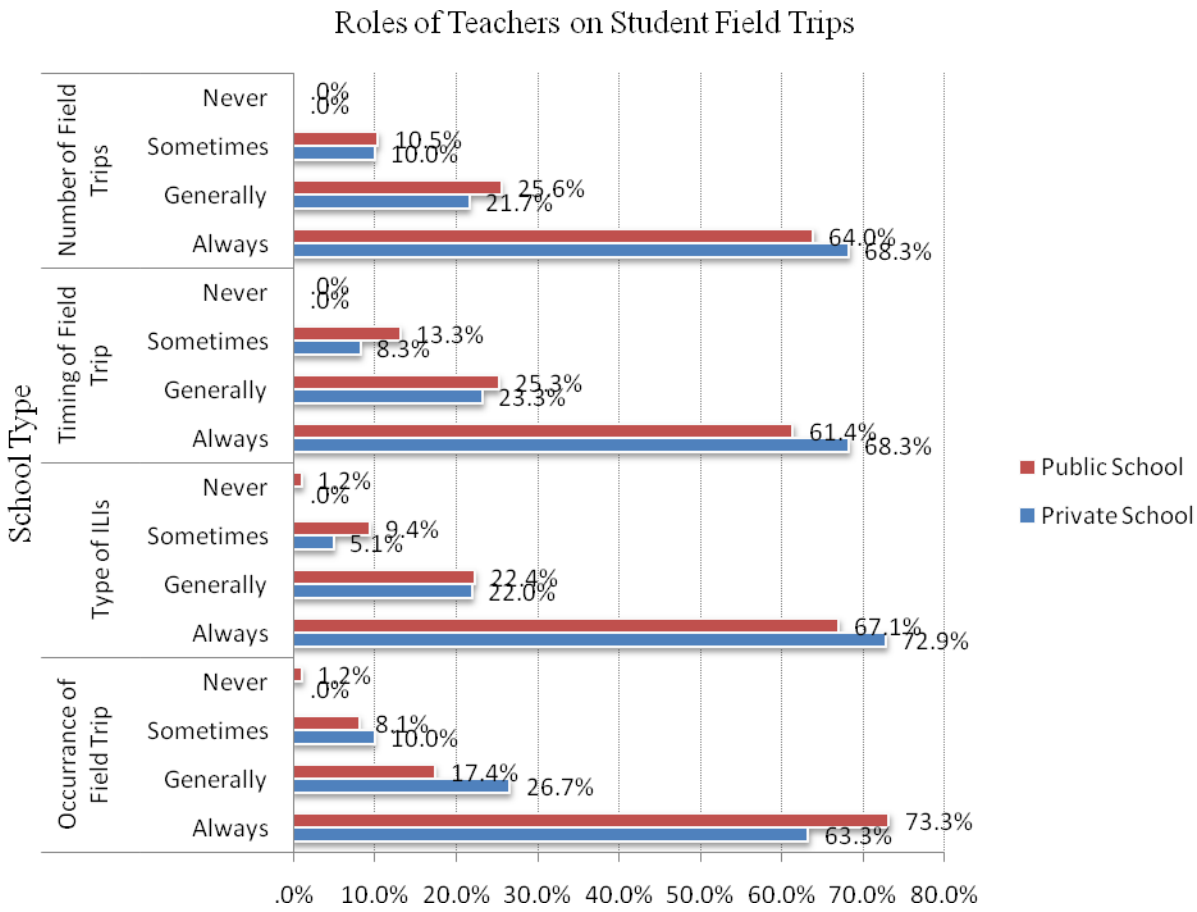


Fig. 10 Roles of teachers on student field trips by type of school

Also, Chi square analysis needed to be made to study if the type of school creates a significance difference in any of these teacher field trip roles or not. Findings revealed that the type of school did not have any impact on these decisions that were mentioned above ($p > 0,05$). Whatever the type of school, private or public, it is up to the teacher to provide students learning opportunities in informal learning sites (See Table 11).

Table 11. Chi Square Analysis for Field Trip Roles of Teachers Comparing Type of School

Teachers can choose	$\chi 2$	df	p
whether they want to organize a field trip or not	0.2	1	0.888
what kind of ILI they want to go	1.381	1	0.24
tha date of the field trip	0.848	1	0.357
how many times they organize field trips	0.008	1	0.927

* $p > 0,05$

The following part up to the beginning of analysis of factors or section D, studies relation between teacher personal visit and student field trips sites and look for answer to the research question if;

Is there are a significant relationship between teacher interest and the field trip experience they offer to their students?

A chi square analysis was conducted to study if teacher interest has an impact on the informal learning destination that teachers take their students into or not. Analysis identified significant relationship between teacher interest and choosen informal learning site to take students in terms of science museum, zoo, aquarium, history/archeology museum, art museum, NGBB (See Table 12).

Table 12. Chi Square Analysis for ILI for Personal Visits Comparing Preferred Field Trip Site

ILI	$\chi 2$	df	p
Science center	32.533	1	0
Zoo	37.049	1	0
Aquarium	42.563	1	0
History/archeology museum	16.213	1	0
Art museum	22.924	1	0
NGBB	18.784	1	0

* p = .000

Teacher interest was studied also by asking how many times the teacher visit ILIs in a year. Another chi square analysis was done to see if there is a significant relationship between the number of visits s/he does in a year and the number of field trips s/he takes students into ILIs. Because the number of answers was very low for some categories, some of them joined together, and this relationship was studied by comparing teacher visits in three categories as; once in 2-3 years, once in a year, 2-3 times in a year or more. The categories of the number of student field trips were collected into two categories; once in every 2-3 years or less and 2-3 times in a year or more. Analysis indicated a significant relationship between the number of personal visits and the number of student field trips ($\chi 2$ (2, N=136) = 14.141, p = .001). In other words, teachers who have higher rates of personal visits for ILIs, organize more field trips than other.

Section D: Analyses of the Factors

In this part of analysis, answers will be searched for following research questions; What are the main reasons that elementary school teachers organize field trips to a botanic garden?

Do these reasons differ significantly according to the teacher's selected characteristics?

Do these reasons differ significantly according to the identified contextual factors?

Mean Scores of Factors

All items, on section D, include a five likert type scoring system and score 1 indicates the lowest level and means strongly disagree as 5 means strongly agree with the factor. In other words, if a teacher marks 5, it means s/he is strongly agreed that the factor is an important one to conduct the field trip. Nine factors are;

F1 To connect with the classroom curriculum

F2 To provide students with a general learning experience and a new experience

F3 To encourage students in lifelong learning

F4 To enhance students' interest and motivation

F5 To provide a change in setting or routine

F6 For enjoyment

F7 To meet school expectations

F8 For the socialization of students

F9 To enjoy the physical setting

The mean of the factors was found as 4,476. The mean scores for F1, F2, F3, F4, F5, F6, F7, F8 and F9 are 4,54, 4,55, 4,60, 4,53, 4,29, 4,69, 3,99, 4,52, 4,55 respectively.

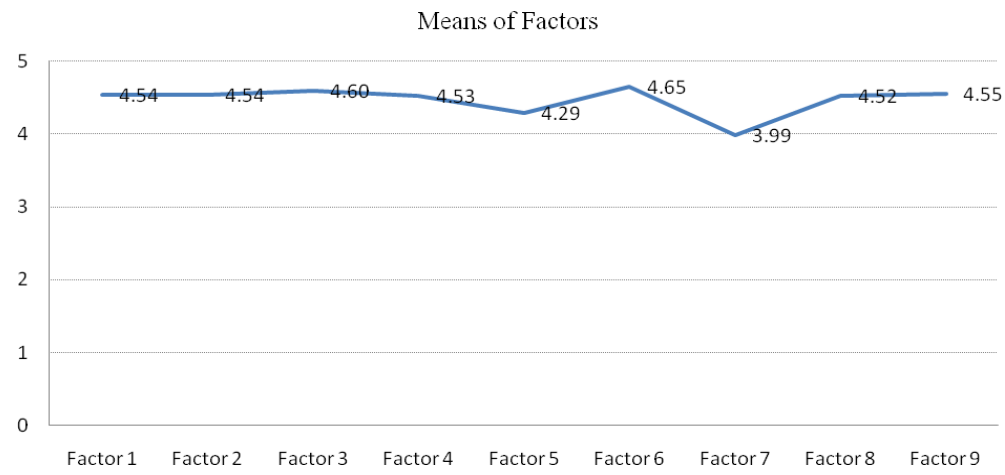


Fig. 11 Means of factors

As can be seen from Figure 11 easily, the means of factors are very close to each other and each of the factors are important and current ones for field trip organization into NGBB.

Analyses of Variance

Mann-Whitney U and Chi square analysis were done to study whether the mean scores of the factors differ significantly or not by identified teacher charecteristisc and identified contextual factors. The mean scores of factors did not indicate a normal distribution by Kolmogorov-Smirnov Test, so nonparametric tests were used.

Selected Teacher Charecteristics

There were five selected teacher charecteristics and analysis was done to see if there are significant differences on factor scores by these charecteristics.

1. Years of teaching experience
2. Their branch
3. Types of faculty they graduated from
4. Their personal interest

5. Perceived effectiveness on teaching the topic of plants

Analysis was done to see if factor means differ according to these selected characteristics or not. Results are presented below by stuying them separately.

1) Is there a significant difference on factor scores in terms of years of teaching experience?

Years of teaching experience distribution of participants were studied into eight categories; 6 or less, 6-10, 11-15, 16-20, 21-25, 26-30, 31-35 and 36-45.

Hypotheses for Chi Square

H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6 = \mu_7 = \mu_8$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5 \neq \mu_6 \neq \mu_7 \neq \mu_8$

H_0: The factor scores do not indicate differences according to year of teaching experience.

H_1: The factor scores indicate differences according to year of teaching experience.

Table 13. Chi Square Analysis for Factors Comparing Year of Teaching Experience

	F1	F2	F3	F4	F5	F6	F7	F8	F9
$\chi 2$	7.325	7.207	10.472	6.564	13.985	5.684	5.467	6.387	5.287
df	7	7	7	7	7	7	7	7	7
p	0.396	0.408	0.163	0.476	0.051	0.577	0.603	0.495	0.625

The way teachers give answers to factors do not differ, so H_0 will be accepted ($p > 0,05$).

2) Is there a significant difference on factor scores in terms of teachers' branch?

Class, science and technology and other were three categories of teachers' branch that were determined by the survey.

Hypotheses for Chi Square

H_0: $\mu_1 = \mu_2 = \mu_3$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3$

H_0: The factor scores do not indicate differences according to branch of teacher.

H_1: The factor scores indicate differences according to branch of teacher.

Table 14. Chi Square Analysis for Factors Comparing Teacher Branch

	F1	F2	F3	F4	F5	F6	F7	F8	F9
$\chi 2$	3.305	1.79	5.068	3.008	5.725	6.401	3.408	8.632	1.994
df	2	2	2	2	2	2	2	2	2
p	0.192	0.409	0.079	0.222	0.057	0.041	0.182	0.013	0.369

Scores of F6 (For enjoyment) and F8 (Socialization of students) indicate differences in terms of branch of teacher, so H_0 will be rejected for F6 and F8 ($p < 0,05$). There is no difference on other scores according to branch of teacher ($p > 0,05$).

3) Is there a significant difference in factor scores in terms of the graduate faculty of the teacher?

Two types of faculty, education and other, were categorized in the survey. Mann-Whitney U hypothesis were written according to these categories.

Hypotheses for Mann-Whitney U

H_0: $\mu_E = \mu_O$

H_1: $\mu_E \neq \mu_O$

H_0: The factor scores do not indicate differences according to the graduate faculty of the teacher.

H_1: The factor scores indicate differences according to graduate faculty of the teacher.

Table 15. Mann Whitney U Analysis for Factors Comparing the Graduate Faculty of Teacher

	F1	F2	F3	F4	F5	F6	F7	F8	F9
Mann Whitney U	1384.5	1430	1341.5	1384	1217.5	1107.5	1296.5	1382	1408
p	0.303	0.449	0.196	0.305	0.056	0.008	0.145	0.298	0.373

Factor scores, except F6 (For enjoyment), do not indicate differences according to graduate faculty of the teacher so H_0 will be accepted ($p < 0,05$). F6 scores indicate differences according to the graduate faculty; education or other. For this reason, H_0 will be rejected for F6 ($p > 0,05$).

4) Is there a significant difference on factor scores in terms of teachers' interest?

Four categories were identified according to the annual number of personal visits into informal learning institutions: teachers visit informal learning institutions a. once in every 2-3 years, b. once in a year, c. 2-3 times a year, d. other.

Hypotheses for Chi Square

H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$

H_0: The factor scores do not indicate differences according to teachers' interest.

H_1: The factor scores indicate differences according to teachers' interest.

Table 16. Chi Square Analysis for Factors Comparing Teachers' Interest

	F1	F2	F3	F4	F5	F6	F7	F8	F9
$\chi 2$	5.517	0.078	1.072	1.191	0.172	0.919	3.319	1.417	3.293
df	3	3	3	3	3	3	3	3	3
p	0.138	0.994	0.784	0.755	0.982	0.821	0.345	0.702	0.349

There is no significant difference on factor scores by teachers' interest, so H_0 will be accepted ($p > 0,05$).

5) Is there a significant difference on factor scores in terms of perceived effectiveness to teach the topic of plants?

Three categories were identified: teachers perceive themselves a.very successful, b. successful and c.unsuccesful.

Hypotheses for Chi Square

H_0: $\mu_1 = \mu_2 = \mu_3$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3$

H_0: The factor scores do not indicate differences according to perceived effectiveness to teach the topic of plants.

H_1: The factor scores indicate differences according to perceived effectiveness to teach the topic of plants.

Table 17. Chi Square Analysis for Factors Comparing Perceived Effectiveness in Teaching the Topic of Plants

	F1	F2	F3	F4	F5	F6	F7	F8	F9
$\chi 2$	0.922	0.288	0.204	1.952	2.495	0.661	5.227	1.285	5.781
df	2	2	2	2	2	2	2	2	2
p	0.631	0.866	0.903	0.377	0.287	0.719	0.073	0.526	0.056

No significant difference was found on factor scores by perceived effectiveness to teach plants, so H_0 will be accepted ($p>0,05$).

Identified Contextual Factors

There were six identified contextual factors as listed below;

1. School type

2. Perceived socio economic status of school population

3. Teachers' role in selection of the field trip

4. NGBB experience

5. Perceived support of school administration for field trips

Analysis was done to see if factor means differ according to these contextual factors or not. Results are presented below by stuying them separately.

1) Is there a significant difference on factor scores in terms of the type of school teachers work in?

There were two determined types of school categories: public and private, from the survey.

Hypotheses for Mann Whitney U

H_0: $\mu_{pri.} = \mu_{pub.}$

H_1: $\mu_{pri.} \neq \mu_{pub.}$

H_0: The factor scores do not indicate differences according to the type of school teachers work in.

H_1: The factor scores indicate differences according to the type of school teachers work in.

Table 18. Mann Whitney U Analysis for Factors Comparing the Type of School Teachers Work in

	F1	F2	F3	F4	F5	F6	F7	F8	F9
Mann Whitney U	2257	2444.5	2371	2454	1973.5	2162.5	2203	2229	2379
p	0.336	0.886	0.637	0.917	0.034	0.161	0.255	0.28	0.669

F5 (To provide a change in setting or routine) scores of teachers indicate differences in terms of the school type they work in, so H_0 will be rejected for F5 ($p<0,05$).

There is no difference on other scores according to the type of school ($p>0,05$).

2) Is there a significant difference on factor scores in terms of perceived socio economic status of school community?

Three categories of socio economic status, low, middle and high, of school community were determined. Hypothesis for chi square analysis were written according to these categories.

Hypotheses for Chi Square

H_0: $\mu_{High} = \mu_{Middle} = \mu_{Low}$

H_1: $\mu_{High} \neq \mu_{Middle} \neq \mu_{Low}$

H_0: The factor scores do not indicate differences according to perceived socioeconomic status of school community.

H_1: The factor scores indicate differences according to perceived socioeconomic status of school community.

Table 19. Chi Square Analysis for Factors Comparing the Perceived SES of the School Community

	F1	F2	F3	F4	F5	F6	F7	F8	F9
$\chi 2$	1.846	0.836	1.449	1.103	6.745	3.987	1.09	4.803	0.797
df	2	2	2	2	2	2	2	2	2
p	0.397	0.658	0.485	0.576	0.034	0.136	0.58	0.091	0.671

Perceived socioeconomic status of school community indicate differences in F5 (To provide a change in setting or routine) scores of teachers, so H_0 will be rejected for F5 ($p < 0,05$). There is no difference on other scores according to perceived socioeconomic status of school community ($p > 0,05$).

3) Is there a significant difference on factor scores in terms of teachers' roles in the field trip experience?

Teachers' roles in determining the field trip experience were studied with questions. These are: whether teachers can decide on organizing a field trip or not; what type of informal learning center they want to take their students; the date of the field trip and lastly whether they can decide on how many times they organize field trips. Differences of factor scores were studied by looking at these four factors and Chi-square hypothesis were written for each of them. Because the question asks for teachers' roles includes four point scales, hypotheses were written in relation to these. All analysis results for four subgroups of this question was given in Table 22.

3a) Is there a significant difference on factor scores in terms of teachers' role on deciding whether organizing a field trip or not?

Hypotheses for Chi Square

H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$

H_0: The factor scores do not indicate differences according to teachers' role on deciding whether organizing a field trip or not.

H_1: The factor scores indicate differences according to teachers' role on deciding whether organizing a field trip or not.

Teachers' role on deciding whether organizing a field trip or not indicate differences in F2 (To provide a change in setting or routine), F6 (For enjoyment), F7 (To meet the school expectations), F8 (The socialization of students) scores of teachers, so H_0 will be rejected for these factors ($p < 0,05$). There is no difference on

F1, F3, F4, F5, F9 scores according to to teachers' role on deciding whether organizing a field trip or not (p >0,05).

3b) Is there a significant difference on factor scores in terms of teachers' role on deciding what kind of informal learning center they want to organize student field trips?

Hypotheses for Chi Square

H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$

H_0: The factor scores do not indicate differences according to teachers' role on deciding in what kind of informal learning center they want to organize student field trips.

H_1: The factor scores indicate differences according to teachers' role on deciding to what kind of informal learning center they want to organize student field trips.

Score of F1 (To connect with the classroom curriculum), F2 (To provide students with a general learning experience and a new experience), F3 (To encourage students in lifelong learning), F4 (To enhance students' interest and motivation), F9 (To enjoy the physical setting) show differences according to teachers' role on deciding what kind of informal learning center they want to organize student field trips ($p < 0,05$). No difference were found on F5, F6, F7, F8 scores according to to teachers' role on deciding whether organizing a field trip or not ($p > 0,05$).

3c) Is there a significant difference on factor scores in terms of teachers' role on deciding the date of field trips?

Hypotheses for Chi Square

H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$

H_0: The factor scores do not indicate differences according to teachers' role teachers' role on deciding the date of field trips.

H_1: The factor scores indicate differences according to teachers' role on deciding the date of field trips.

There are no significant differences in factor scores according to teachers' role on deciding the date of field trips, so H_0 will be accepted ($p > 0,05$).

3d) Is there a significant difference in factor scores in terms of teachers' role on deciding how many times they will organize student field trips?

Hypotheses for Chi Square

H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$

H_0: The factor scores do not indicate differences according to teachers' role on deciding how many times they will organize student field trips.

H_1: The factor scores indicate differences according to teachers' role on deciding how many times they will organize student field trips.

There are no significant differences in factor scores according to teachers' role on deciding many times they will organize student field trips, so H_0 will be accepted ($p > 0,05$).

Table 20. Chi Square Analysis for Factors Comparing Teachers' Role in the Field Trip Experience

		F1	F2	F3	F4	F5	F6	F7	F8	F9
A	$\chi 2$	4.687	10.155	6.175	7.222	5.371	12.387	11.667	10.573	6.25
	df	3	3	3	3	3	3	3	3	3
	p	0.196	0.017	0.103	0.065	0.147	0.006	0.009	0.014	0.1
B	$\chi 2$	9.545	12.198	10.045	10.528	2.387	4.476	6.69	5.453	8.877
	df	3	3	3	3	3	3	3	3	3
	p	0.023	0.007	0.018	0.015	0.496	0.214	0.082	0.142	0.031
C	$\chi 2$	3.232	3.208	1.61	0.461	0.598	5.314	4.265	1.512	2.998
	df	2	2	2	2	2	2	2	2	2
	p	0.199	0.201	0.447	0.794	0.742	0.07	0.119	0.47	0.223
D	$\chi 2$	2.339	1.133	0.323	0.452	0.301	3.466	5.491	2.458	5.055
	df	2	2	2	2	2	2	2	2	2
	p	0.31	0.567	0.851	0.798	0.86	0.177	0.064	0.293	0.08

4) Is there a significant difference in factor scores in terms of NGBB experience?

NGBB experience was categoried into three by the researcher. These catories were: teachers who took their students into NGBB without participating any educational activities; teachers who took their students just once to the garden and participated in educational activities, and teachers who organized NGBB field trips more than once and participated educational activities more than once.

Hypotheses for Chi Square

H_0: : $\mu_1 = \mu_2 = \mu_3$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3$

H_0: The factor scores do not indicate differences according to NGBB experience.

H_1: The factor scores indicate differences according to NGBB experience.

Table 21. Chi Square Analysis for Factors Comparing the NGBB Experience

	F1	F2	F3	F4	F5	F6	F7	F8	F9
$\chi 2$	7.839	3.063	3.073	5.752	0.455	1.066	1.953	2.425	0.491
df	2	2	2	2	2	2	2	2	2
p	0.02	0.216	0.215	0.056	0.796	0.587	0.377	0.297	0.783

H_0 will be rejected for only F1 ($p < 0,05$) because F1 (To connect with the classroom curriculum) scores indicate differences in terms of different NGBB experience. For other eight factors; H_0 will be accepted ($p > 0,05$).

5) Is there a significant difference on factor scores in terms of perceived support of school administration?

Four categories were determined for perceived support of school administration because the related question includes four point scales. Hypotheses for chi square were written in relation to this fact.

Hypotheses for Chi Square

H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4$

H_1: $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$

H_0: The factor scores do not indicate differences according to perceived support of the school administration.

H_1: The factor scores indicate differences according to perceived support of the school administration.

Table 22. Chi Square Analysis for Factors Comparing the Perceived Support of School Administration

	F1	F2	F3	F4	F5	F6	F7	F8	F9
$\chi 2$	9.764	7.616	6.199	5.838	5.545	12.015	18.233	5.26	5.48
df	3	3	3	3	3	3	3	3	3
p	0.021	0.055	0.102	0.12	0.136	0.007	0	0.154	0.14

H_0 will be rejected for F1, F7 and F8 ($p < 0,05$). For other factors; H_0 will be accepted ($p > 0,05$).

Section E: Analyses of The Most Important Five Factors

Teachers were asked to put their five most important reasons in the order of importance by numbering them from one to five. Number one indicates the most important reason. Following results were found by analyzing the frequencies of participants' answers given to that question.

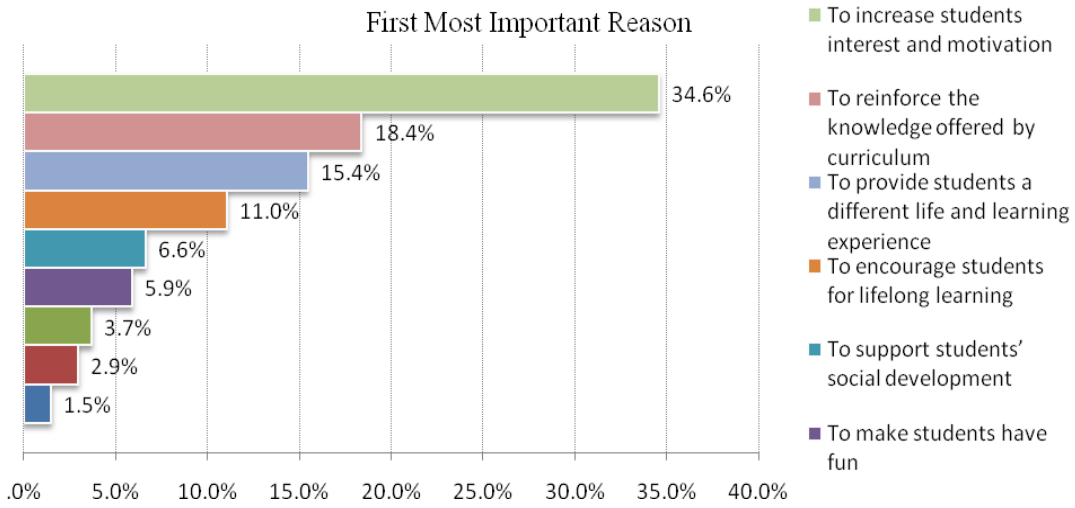


Fig. 12 The first most important reason for organizing field trips into NGBB

First most important five reasons were found as; "To increase students' interest and motivation" and it can be said that there is an agreement on this item because 34,6% of the participants marked this item as the most important reason. For the most important first reason, it seems that "To reinforce the knowledge offered by curriculum" is second most stated reason for field trips.

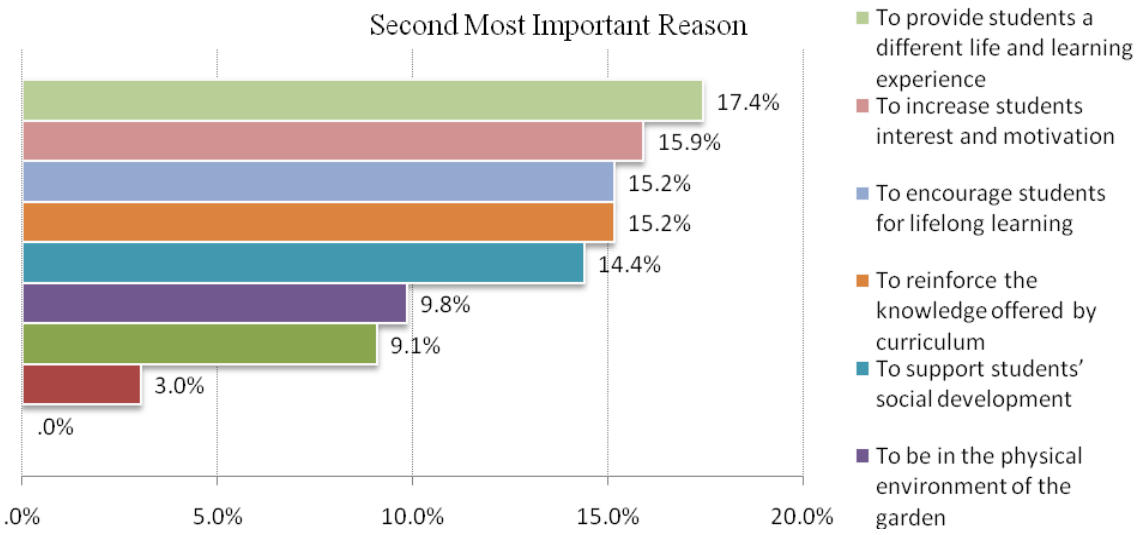


Fig. 13 The second most important reason for organizing field trips into NGBB

"To provide students with a different life and learning experience" was stated as the second most important reason for field trip by 17.4%. "To increase students interest and motivation", "To encourage students for lifelong learning" and "To reinforce knowledge offered by the curriculum" statements have very close percantages then the first statement cited as the second most important reason (Figure 13).

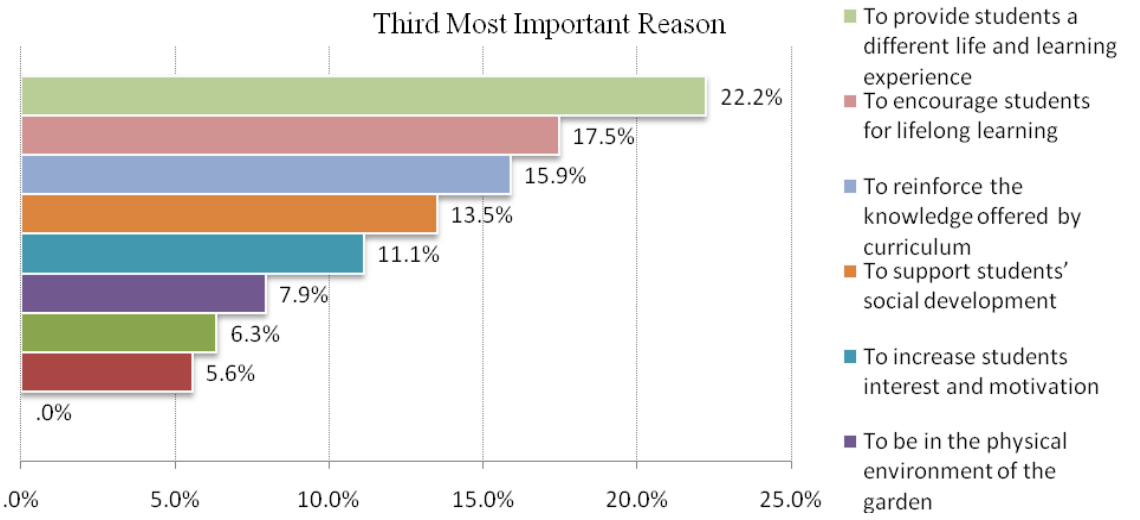


Fig. 14 The third most important reason for organizing field trips into NGBB

"To provide students with a different life and learning experience" was found as the third most important reason also besides being second most important one, for teachers to organize field trips by 22.2% rating. Again "To encourage students for lifelong learning", "To reinforce knowledge offered by curriculum" are the statements which stay at the top of the list.

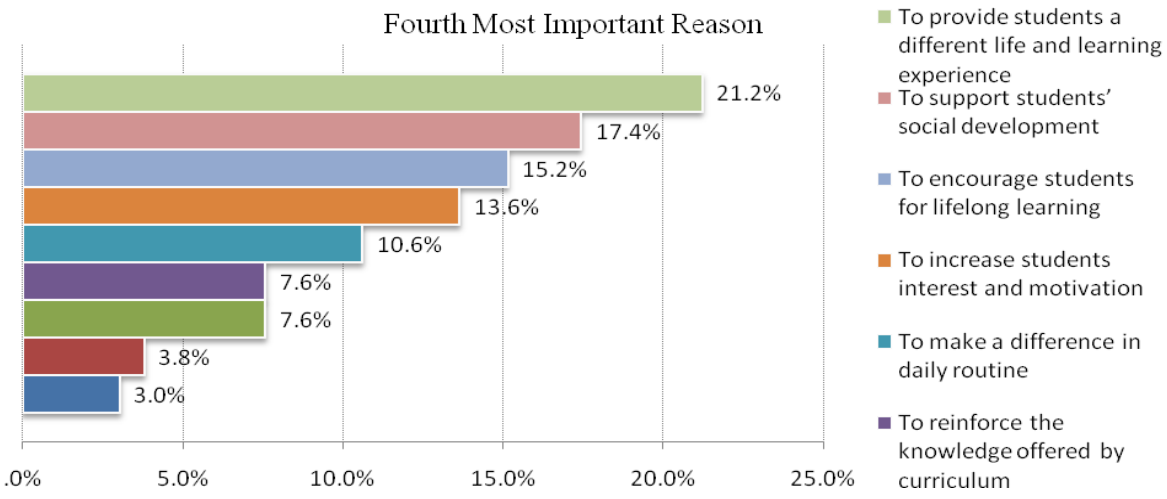


Fig. 15 The fourth most important reason for organizing field trips into NGBB

The stated most important second and third item, is also stated as the most important fourth one "To provide students a different life and learning experience" (21,2%). On the most important fourth reason list, "To encourage students for lifelong learning" is also in the first three ones. "To support students' social development" is one of the three items top on the list.

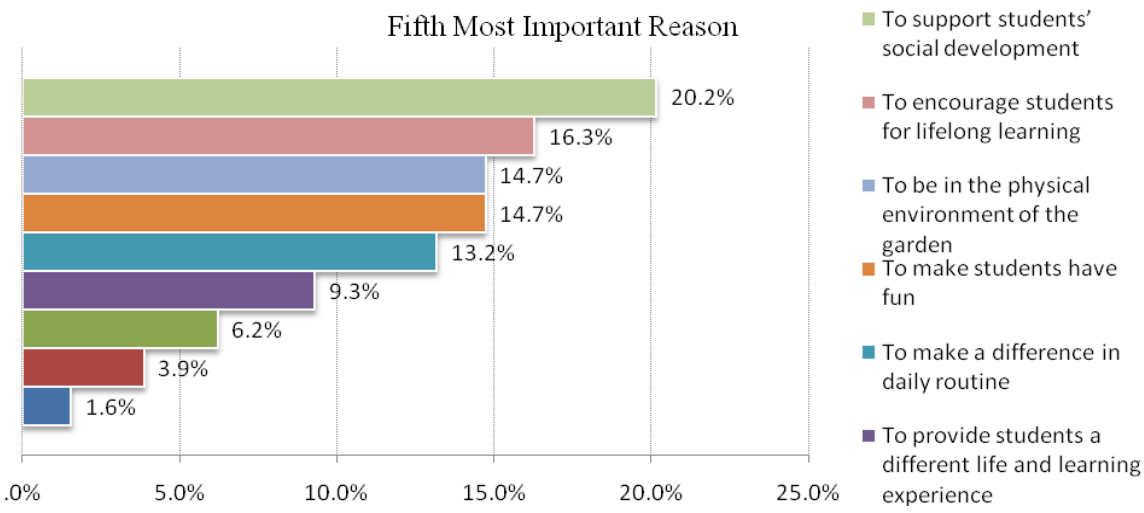


Fig. 16 The fifth most important reason for organizing field trips into NGBB

"To support students' social development" is the fifth most important reason with a 20,2% marking rate.

Section F: Analyses of The Most Important Five Factors for the Success of the Trip

In Section F of the survey, the most important five factors for the success of the field trips were tried to be identified. Teachers were asked to rank the given eleven factors; providing active learning opportunities, being a fun trip, providing a program parallel to the curriculum, providing a high quality physical environment, providing educational activities for students, applying pre-visit activities, providing real life experience based learning, providing student educational materials (by the center), having a guide during the visit, applying post visit activities, being a familiar place among teachers, in the order of importance from one to five. The number one indicates the most important reason. When the frequencies of their answers given to that question were analyzed, the following results were found.

Analysis on this section indicated that "Applying post visit activities", "Applying pre visit activities" and "Teacher familiarity with the field trip site" are

the lowest ranked reasons that are perceived as being important for the success of student field trips in total.

By studying the highest ranked ones, following figues were created (See Figure 17, 18, 19, 20 and 21). Figure 17 indicates, majority of teachers selected "Providing active learning opportunities" item as the most important factor for the success of the trip as (56,8%).

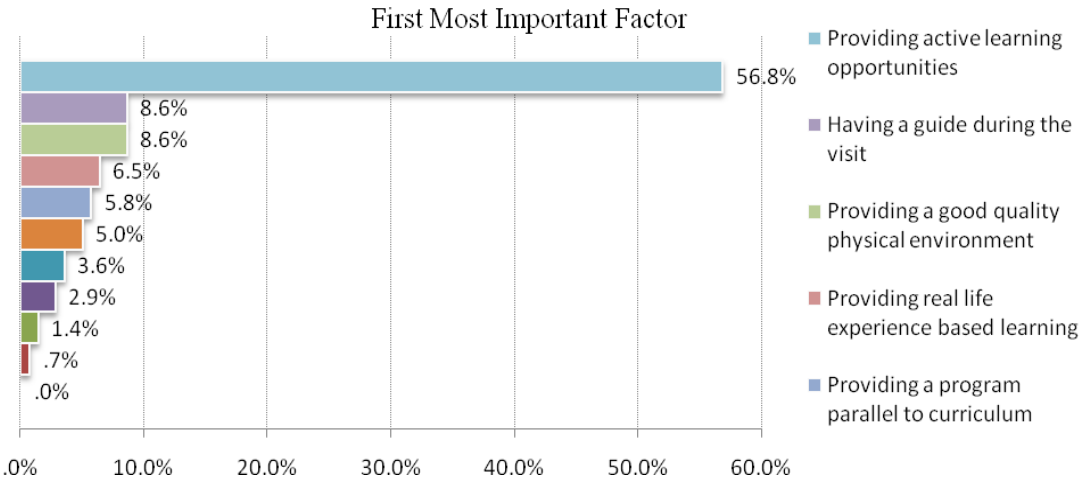


Fig. 17 The first most important factor for success of field trip

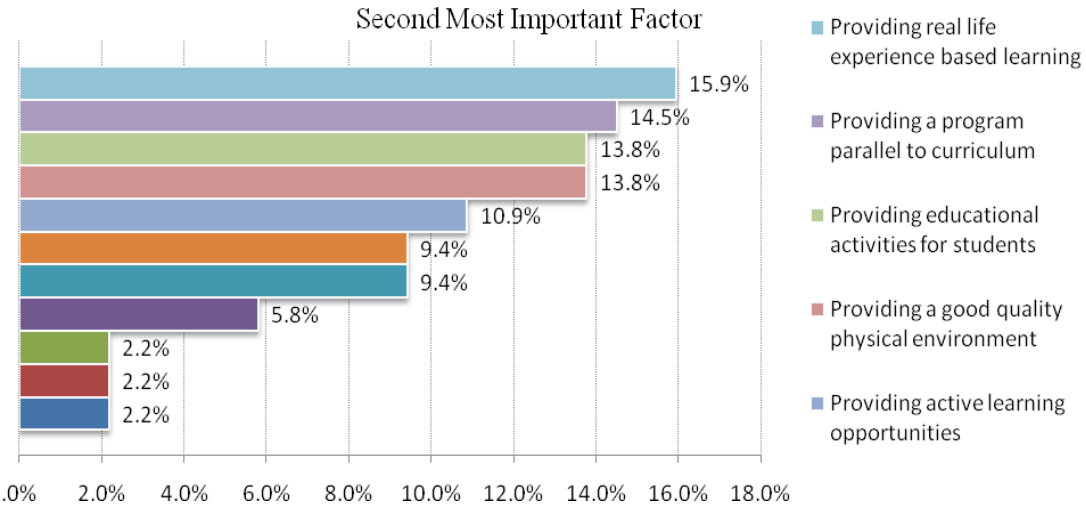


Fig. 18 The second most important factor for success of field trip

However, when we look at the distribution of answers for the most important second reason it seems that there are a few categories that have quite similar percentages. “Providing a program parallel to curriculum” is the second mostly cited option as the second most important reason by 14,1% ranking (See Figure 18). As it the first important third reason also (See Figure 19).

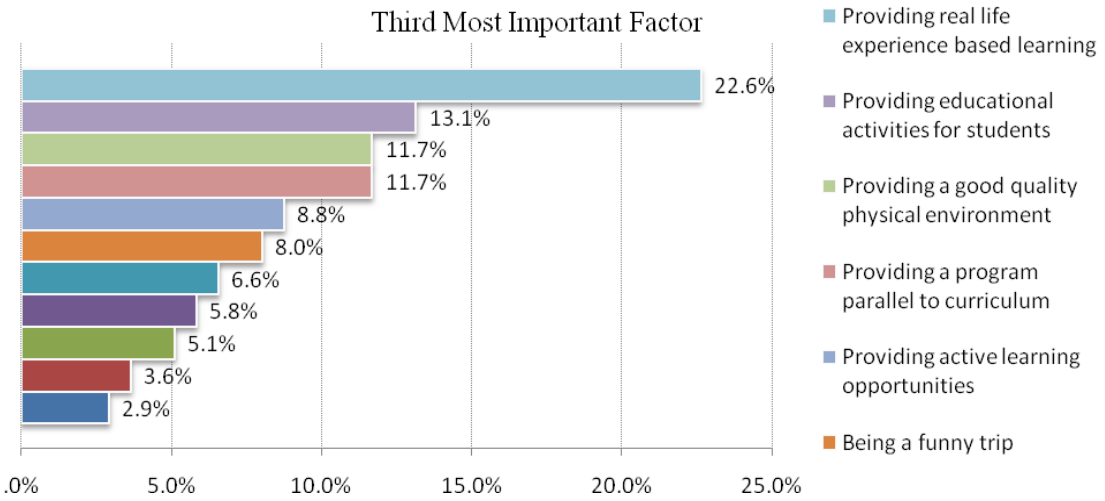


Fig. 19 The third most important factor for success of field trip

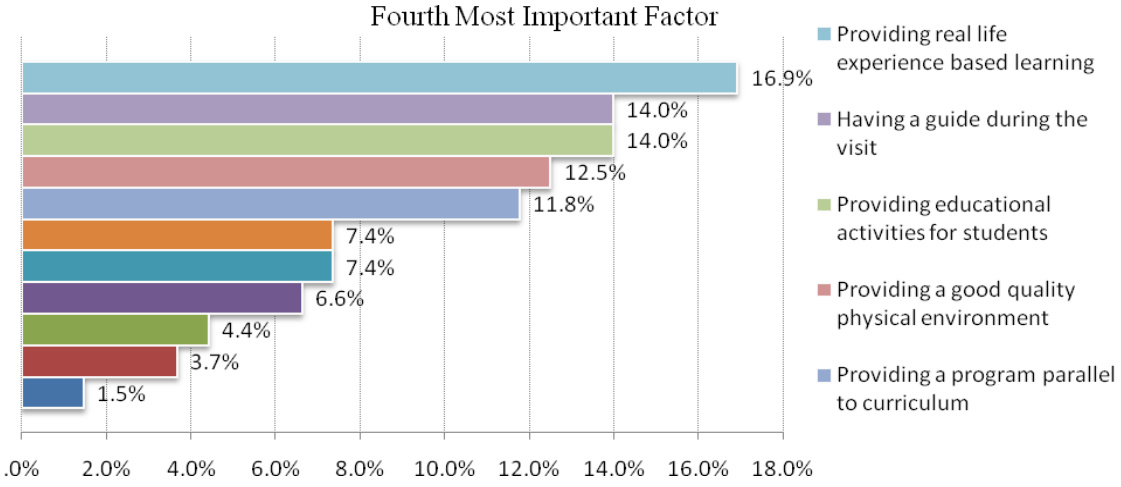


Fig. 20 The fourth most important factor for success of field trip

"Providing real life experience based learning" is the second, third and fourth most important reason as the same time (See Figure 18, 19 and 20).

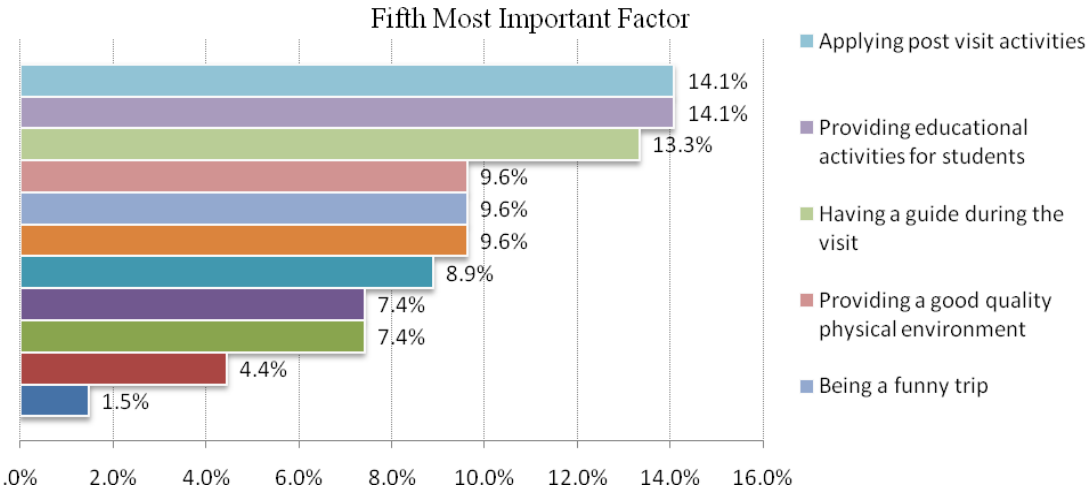


Fig. 21 The fifth most important factor for success of field trip

"Applying post visit activities" and "Providing educational activities to students" in informal learning institution were the fifth most important reasons with same percentage (14,1%).

Section G: Analysis of NGBB Experience

This section consists of four questions and it intends to study teachers' NGBB experience by asking if they participate in educational activities, what their perceived difficulty levels of some field trip arrangements as travel, cost etc are. It is asked if they did any pre-visit actities in their class or not. It is required of them to evaluate the quality of the NGBB educational activities.

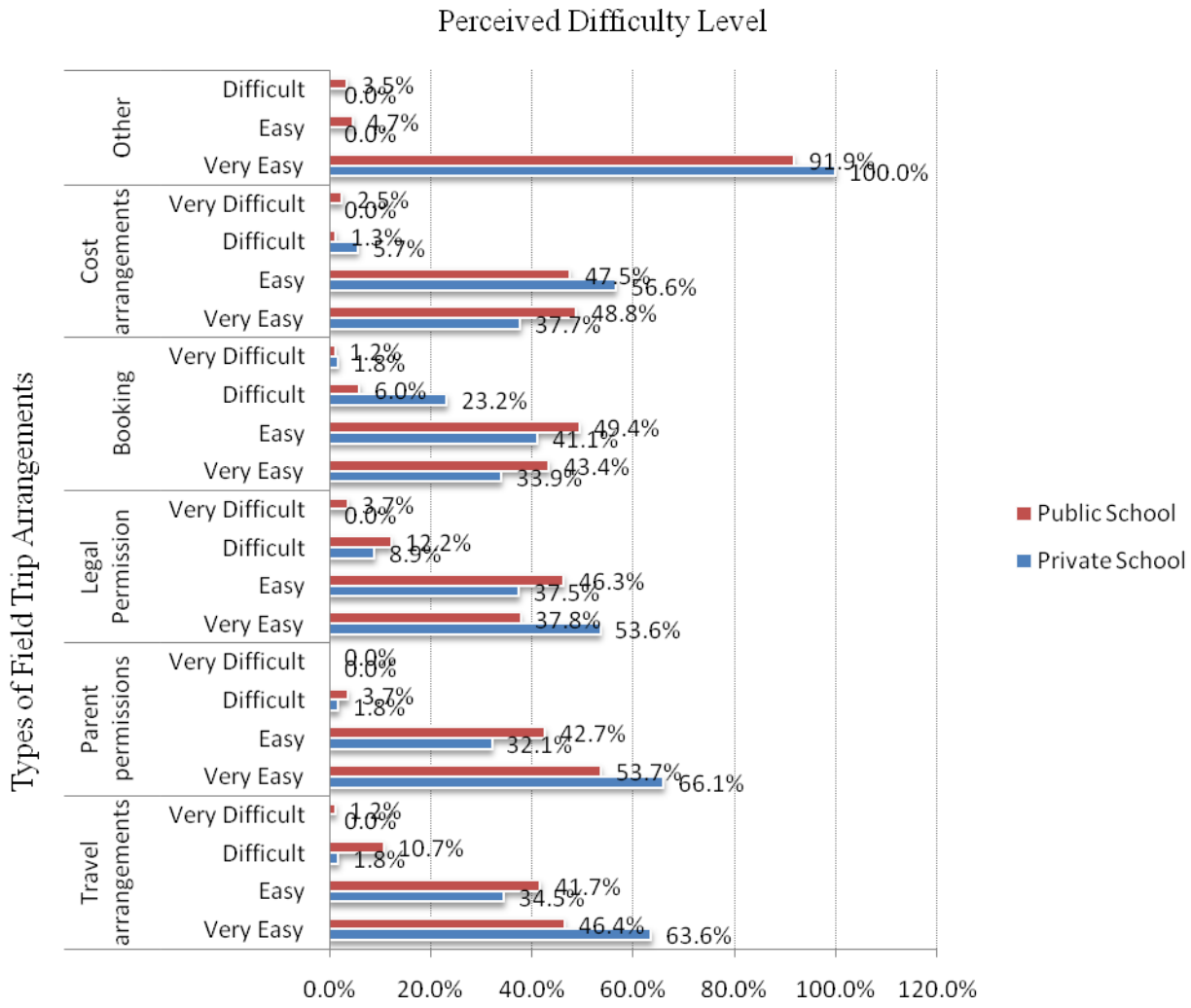


Fig. 22 Perceived difficulty level of trip arrangements by type of school

High percentages of teachers stated that travel arrangements, taking parent and legal permissions are “very easy”. Booking is seemed as the most difficult trip arrangement by private school teachers (23,2%) (See Figure 22).

A chi square analysis was needed to see if there is a significant difference on perceived difficulty level of these arrangements by school type. Results of the analysis are given in the following table;

Table 23. Perceived Difficulty Level of Trip Arrangements by Type of School

Field Trip Arrangements	$\chi 2$	df	p
Travel	6.594	3	0.086
Parent Permissions	2.239	2	0.326
Legal Permissions	4.855	3	0.183
Booking	8.966	3	0.03
Cost	4.775	3	0.189
Other	5.13	2	0.077

*p > 0,05

Chi-square analysis revealed that there is no difference in the perceived difficulty level of field trip arrangements by type of school (p > 0,05).

The third question of Section G, was the second open ended question of the survey. The question asks if elementary school teacher did any kind of preparation in their class. If they state "Yes", it asks to explain what kind of preparation they did. Table indicates the given answers to this question. The percentage of missing answers is very high (36%). The low rate of answering question may be a result of long survey.

Table 24. The Frequency and Percentage of Answers to Questions if Teachers Did any Pre-visit Preparation for the Field Trip

		Response	(*N*=149)
Did you do pre-visit preparation?		*f*	%
	Yes	82	55%
	No	14	9%
	Missing	53	36%

A careful coding procedure was applied to find what kind of pre-visit activities and preparations teachers applied by studying the affirmative answers. Out of 149, 82 of the participant teachers who took their students into the botanic garden stated that they did preparations for the field trip. Studying the curriculum, informing students

on their field related tasks, informing students about the area of field trip, informing students what kind of event in which they participate in, making technical preparation for trip and advanced preparation are the main categories (See Table 25). Three categories are found parallel to the cagories Orion (1993) mentioned: cognitive preparation, geographical preparation and psychological preparation of students so these are coded as Orion did. As can be seen form the table, the most frequently mentioned preparation is informing the students about the site (f = 36). However, the rate of missing answers among "yes" statements is also high. In other words, 22 teachers said they did preparations for the trip but they did not specify what kind of preparations those were.

Table 25. Types of Preparations Done Before the Field Trip

		Response	(N=82)
Preparation	Description	f	%
Geographical Introduction	Informing students about the area of the field trip	36	35%
Studying curriculum	Studying or repeating related issues on curriculum	14	14%
Technical preparation	Booking for the trip, arranging cost, travel etc.	12	12%
Cognitive preparation of students	Informing students on their assignment	11	11%
Teacher preparation	Getting familiar with the area of the field trip and or preparing worksheets	4	4%
Psychological preparation of students	Informing students what kind of event in which they participate in	3	3%
Missing	Coded if teacher did not specify the statement (e.g. "Yes", "Information is given")	22	22%

Lastly, it was asked to the teachers who participated in the educational activities of NGBB to evaluate these programs. Results indicated that 52,5% of teachers evaluated the quality of NGBB educational activities as very successful, as 47,5% of them stated that they are successful.

Section H: Teachers' Perceptions on Self Professional Effectiveness on Botany

Section H, includes two, four point likert typed, questions on perceived effectiveness to teach plants and whether they see it necessary to participate in any teacher training program or not. Analysis indicated that although more than half of the teachers stated they they see themselves as adequate to teach the topic of plants, 52.2% of them stated that it is necessary to participate in training programs as 43.8% of them stated it is very necessary. Frequencies of perceived effectiveness did not show signinificant differences by type of school (Figure 23).

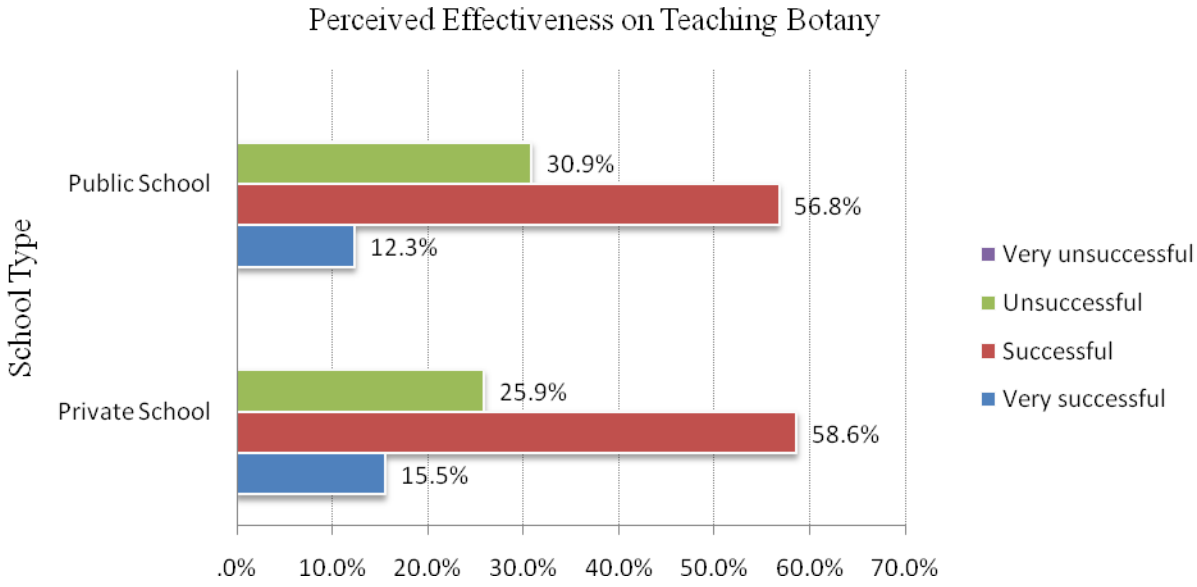


Fig. 23 Perceived effectiveness of teaching botany by type of school

A chi square analysis was conducted to study if there is a significant relation between perceived effectiveness on teaching plant issues and necessity to take teacher training courses on this issue. Analysis identified significant relationship between these two issues ($\chi 2$ (2, N= 132) = 9,034, p < 0,05).

Table 26. Perceived Effectiveness in Teaching Botany

	Perceived effectiveness *(f)*			
Teacher Branch	Very successful	Successful	Unsuccessful	Total
Class teacher	12	58	20	90
Science and Technology	6	7	7	20
Other	1	16	13	30
Total	19	81	40	140

Table 26 indicates that the majority of teachers (81 out of 140) see themselves as successful in teaching botany, and there are no teachers who see themselves as unsuccessful in teaching botany. Chi square analysis indicated that there is a significant difference in the perceived effectiveness on teaching botany by branch of teacher ($\chi 2$ (4, N = 140) = 12.733, $p < 0.05$). By referring to Table 26, it can be concluded that the perceived effectiveness is low among teachers from other branches such as mathematics or literature. Although a high percent of botany topic are taught by science and technology teachers, it can be seen by comparing class teachers that the percentage of science and technology teachers who perceived themselves very unsuccessful is very high.

CHAPTER 5

CONCLUSION

Summary of the results, discussion of the results, limitations of the study, recommendations and suggestions for further researches are the main parts of conclusion chapter.

Summary of the Results

The research indicates the reasons for teachers' personal visits, teacher roles on student field trips and the reasons for organizing student field trips and whether these reasons change according to the selected teacher characteristics and identified contextual factors.

Reasons for Teachers' Personal Visits

One of the main concerns of the study is to identify the reasons of teachers for their personal visits into informal learning sites. The coding of an open ended question asking for the reasons of teachers' personal visits indicates that personal interest, learning, social event, enjoyment, place, personal development and professional development are stated reasons, respectively. Founded categories seem close to the ones of the research of Falk et al. (1998). About 50% of teachers personally visit ILIs 2 or 3 times a year. However, findings indicate that teacher preferences for personal visits are not related with the number of informal learning sites available. This means although the number of art museums are higher than the number of aquariums in

İstanbul, the percentages of teachers who visit aquariums and art museums are nearly same. Although there is only one aquarium that is opened in 2009, it can be seen that many teachers visit the aquarium. This might be a reason of advertisements that the aquarium make to call visitors.

Teachers' Roles on Student Field Trips

Another concern of the study is to identify the field trip experiences the participant teachers offer to their students. Findings indicate that there is a difference in terms of preferred informal learning site for student field trips by type of school. By comparing and contrasting analyses and graphs, it can be concluded that science centers, zoos and art museums are visited by private schools more, while aquariums are much more popular among public schools for student field trips. Differences on the school and parent expectations, technical issues such as arranging cost and travel might be reasons of this difference. Also, it was found that more than 60% of teachers organize student field trips 2-3 times a year. The number of student field trips does not indicate any difference by type of school. Furthermore, it was studied if year of teaching experience has a positive effect on the number of field trips but no significant relation is found between teaching experience and number of field trips teachers organize. However, the branch of the teacher shows significant differences in the number of field trips organized. While class and science and technology teachers organize a similar number of field trips, teachers from other branches such as mathematics and literature organize less trips. Teachers indicate strong support from school administration for field trips and the perceived school administration support do not indicate differences by type of school.

It is found that teachers have very important roles in the organization of field trips. Teachers are the ones who decide on whether they organize a field trip or not, and the type informal learning center to which they will take their students and also the timing and the number of trips. These important roles do not show any difference by school type. Furhermore, a very significant relation was found between the preferred types of informal learning institutions for personal visits and for student field trips. In other words, if a teacher is interested in botany, s/he prefers botanic gardens for student field trips. Also, there is a significant relationship between the number of personal visits and student field trips. Teachers who visit informal learning institutions more lead more student field trips to these institutions. The perceived trip support of the school administration, the perceived difficulty level of organizing student field trips and the average number of student field trips do not indicate any differences by type of school.

Reasons for Organizing Student Field Trips

The most significant purpose of the study is to identify the reasons of teachers for organizing student field trips into NGBB. the nine identified factors that are "To connect with the classroom curriculum", "To provide students with a general learning experience and a new experience", "To encourage students in lifelong learning", "To enhance students' interest and motivation", "To provide a change in setting or routine", "For enjoyment", "To meet the school expectations", "The socialization of students" and lastly "To enjoy the physical setting". The means of all these factors are found to be very high, similar and valid reasons for field trips to NGBB. In order to understand whether the differences among the mean scores of the

factors are significantly different by the selected teacher and the contextual charecteristics, Mann-Whitney U and Chi square analyses were done because answers were not distrubuted normally. The selected teacher charecteristics are years of teaching experience, branch, university of graduation, teacher personal interest and perceived effectiveness on teaching the topic of plants. The selected contextual factors are the type of school, perceived SES of school community, teachers' role for field trip experience, NGBB experience and perceived support of school administration. There is no difference in factor scores according such selected teacher charecteristics as teaching experience, teacher interest and the perceived effectiveness to teach the topic of plants. Differences are found on F6 (For enjoyment) by graduate faculty and on F6 (For enjoyment) and F8 (The socialization of students) by branch of teacher. By considering the selected school charecteristics, the perceived support of school administration and two subcategories of teachers' roles, deciding on timing and number of field trips, do not show difference on any of factor scores. Differences are found on F1 (To connect with the classroom curriculum) by NGBB experience and on F5 (To provide a change in setting or routine) by type of school and perceived SES of school community. It is found that there are differences on many of factor scores by the perceived difficulty level of trip arrangements and teachers's roles in terms of deciding whether organize a trip or not and and type of informal learning center for field trips. However, because nonparametric tests were used, it was not possible to make differenciations among categories. This study cannot draw any further information on the interaction of differences. It was predicted when the survey was developing by the researcher that all these factors could be stated as very important reasons for organizing field trip. So, a separate section was created to ask teacher to order the most important five

reasons that are current for them in organizing student field trips to NGBB. Otherwise, it would not be possible to prioritize these factors. The found order of the five most important reasons are found as; “To increase students’ interest and motivation”, “To provide students with a different life and learning experience”, this is the second, third and fourth most important reason, and lastly “To support students’ social development” respectively.

Another ranking question asked teachers to order the most important five reasons for success of field trip experience. “Providing active learning opportunities” is the first, “Providing real life experience based learning” is the second, third and fourth as the same time and “Applying post visit activities” was the fifth most important reason that affects the success of the field trip for participants. It was found that teachers’ familiarity with the field trip site and applying post visit activities are the ones which got the lowest scores among others.

NGBB Experience

Teachers were asked to state how difficult it was to organize travel, parent permissions, legal permissions, booking, cost and other things. They state each item is very easy to handle with and this perceived difficulty level do not differ between private and public school teachers. Another finding of the thesis indicates the percentage of teachers who did pre-visit activities and what type of preparations are made before trips. The finding indicates that nearly half of teachers do pre-visit activities, and when it was discussed what kind of previsit activities they did, the majority of them stated that they inform students on the field trip area. Studying

related curriculum or repeating curriculum topics are also stated as pre-visit preparations by teachers.

Lastly, although many teachers stated that they perceive themselves as being adequate to teach the topic of plants, nearly the entire sample (96%) marked that it is necessary to participate in teacher training programs on this issue.

Discussion of the Results

The findings of the study were discussed under the following titles: roles of teachers, equal opportunities for all, reasons for organizing field trips, cultural differences and lessons for botanic gardens.

Roles of Teachers

Kisiel (2005) says that the field trip experience of students is determined largely by the teachers' agendas. Findings of this thesis also support this idea, and it indicates the significant relation between teacher agendas and field trip experiences they offer to their students. So, it should be questioned whether this is an advantage or disadvantage. First of all, having teachers interested in some topics can be seen as an advantage for reaching their students. However, this might be an obstacle for informal learning institutions also when teachers' do not have an interest on the topic they offer. By referring to McLeod and Kilpatrick (2001) it should be considered that teachers have enormous impact on students' educational paths, and informal learning institutions can provide different learning opportunities to develop their own interests in related topics. As a result of this finding, it can be suggested that the teachers' personal interest in science and science learning in informal learning contexts should

be supported. During in service training periods or university education, informal learning contexts can be introduced into teachers and awareness on the importance of informal science learning can be created.

One of the findings indicates that teachers value hands-on and real life experiences offered during field trip experiences for success of the trips. Proving hands on, concreate activities is also one of the most mentioned factors for success of the trip (Anderson & Zhang, 2003; Falk & Dierking 1992; Orion, 1993). The question comes up from this part whose responsibility to work on the success of the trip? The thesis findings indicate that teachers do not mark such items as "running post visit activities", "running previsit activities" or "being familiar with the field trip site" much which are on the list of reasons for success of trips. This can be interpreted by stating that they do not give importance to their roles in terms of the success of trips. Informal learning sites may encourage teachers to run pre and post activities by offering them options.

To sum, students' field trip experience is highly shaped by teachers. So, teachers must be aware about their impact on students' field trip experiences and informal learning institutions need to negotiate with teachers for more successful and increased number of trips.

Equal Opportunities for All

In the Turkish educational system, one of the most important distinctions lay between the private and the public sector. Private schools have much more financial and physical resources than public schools. This difference is one of the concerns of the study and it is questioned whether this factor make any difference in terms of

reasons and conditions for field trip experience. The study indicates that the percentages of private school teachers and public school teachers which organize field trips into NGBB are very close. By referring to the number of private and public school teachers, it can be said that although the total number of private school teachers are nearly one third of public school teachers, a much higher percent of them organize field trips. So, it can be concluded that private school students have many more chances to participate in informal science learning than do public school students. Fortunutely, it is found that type of school does not show any significant effect on teachers' roles on the field trip experience, the perceived support of the school administration, the perceived difficulty level of the trip arrangements such as travel, cost arrangements and on the average number of student field trips. Although some differences are found on preferred informal learning sites in terms of schools, it can be linked by the distribution of teachers with different interests into schools or the expectations of school and parent expectations rather than type of school. This is a very important conclusion in terms of social equality. These finding supports the idea of Falk and Dierking (2000) that informal learning institutions play an important role to decrease the gap between private and public schooling by reaching whole society and by offering same quality of educational opportunities for all layers of societies. So, investment in informal learning sites will have a positive effect on equal educational opportunities for all. However, there are very few informal learning institutions in Turkey and many of them do not offer structured educational facilities. So, it is needed to increase the number of these institutions and make them function properly. Furthermore, the national school curriculum should offer informal site visits and encourage teachers to organize trips by providing time for the trips. These actions can contribute to providing equal educational opportunities for all.

It was not surprising that all of the determined nine factors, for organising field trips into informal learning institutions are found important for participants. Also, anaylsis was done to study if scores differed according to some selected charecteristics. However, there are no differences in factor scores according to many very important teacher characteristics such as teaching experience, teacher interest, the perceived effectiveness to teach the topic of plants and the perceived support of the school administration. However, because factor scores do not indicate normal distribution, it is not possible to use parametric analysis methods and to conclude an interaction between selected charecteristics and factor scores. However, there are some clues that indicate paths. For example, differences are found on F1 (To connect with the classroom curriculum) score by NGBB experience. NGBB experience is divided into three categories; teachers who guided their groups themselves (those teachers generally organize field trips to NGBB just to make picnic at the garden without any educational purposes), teachers with one year NGBB education experience and teacher with two or more years NGBB education experience. Further research is needed to study these interactions. Furthermore, because it was expected to get higher means for each of identified nine factors, the ranking question is stated as a separate section in the questionnaire. Anaysis of the ranking question indicates that the increasing interest and motivation is the first most important reason for participant elementary school teachers. Although the related literature indicate teachers value curriculum related experiences (Anderson et al., 2006; Anderson & Zhang, 2003), connecting field trip experience with curriculum is not in the five first

most important reasons in this study. So, it is one of the other issues to be studied further how the curriculum connection is an important factor for organizing student field trips into other informal learning sites for Turkish teachers. As the mentioned literature indicates, students can get benefit from field trip experiences if teachers can achieve to create this link. By referring to the finding of the study, it can be said that teachers need help to link the trip experience with the curriculum. This connection should be indicated by education staff of informal learning institutions and by the curriculum.

Cultural Differences

The findings of the thesis are very parallel to the related literature in terms of teacher personal visits, teachers' reasons or motivations for student field trips, impact of teacher agendas on field trip experience and teacher held previsit activities. However, it can be concluded that there are cultural differences on some issues. For example Falk et al. (1998) claim that the "Life Cycle" is a motivation for adults to visit museums or in other words informal learning institutions. By Life Cycle, they mean adults visit museums because their parents had been taking them into these places. However, it was not one of the motivations for participants of this study. By considering the low number of museum-like informal learning institutions and their very recent history in Turkey, it can be said that it is not surprising to not have this motivation for personal visits.

Lessons for Botanic Gardens

There are a lot of conclusions that can be drawn from the thesis findings about the educational function of botanic gardens and to NGBB. First of all, there are two very pleasing findings related NGBB. Firstly, the majority of teachers stated their satisfaction from educational activities and it was found that fortunutely there is no significant difference in the accessibility of NGBB in terms of type of school. In addition, although Willison (2004) stresses that teachers come to gardens with preconceived ideas by curriculums, this thesis results also indicate the importance of "increasing student motivation" and "offering them different experiences" reasons for them by ranking question. So, it is possible for botanic gardens to go further than curriculum topics. The most outstanding conclusion that can be drawn for botanic gardens is that teacher training courses should be run in these plant science based institutions in order to be able to conserve plant diversity of the world.

Limitations of the Study

The main limitation of the study is that the purposive sampling method is used on the study, so it is not possible to generalize the findings for all elementary school teachers. The questionnaire was distributed to all elementary school teachers took their students into NGBB in the April-June 2010 period. There were 146 teachers who participated in the survey and this number is not a high number. All teachers, except two, whose students groups participated in daily educational activities of NGBB, filled in the questionnaire. However, the percentage of the teachers, who filled in the questionnaire among the ones took their students into the garden without participating an educational program, is very small. As a result of this fact, the

numbers of teachers who took their students to the garden to participate and not participate in educational programs are not equal. Also, the gender of the teacher may be an important factor, but it could not be analyzed on this study because only a very small percentage of participants were male.

When the survey was run, the researcher was the head of education department of the garden. Additionally, many of the questionnaires were personally administrated by the researcher. So, this fact may have had an influence on teacher responses. Firstly, teachers might feel that their answers are important because they will have practical implications because the findings may lead to the researcher to make improvements on educational programs of the garden. On the other hand, this fact may influence on them to give desirable answers to the questions.

Furthermore, the questionnaire developed to collect data for the study is very long because there are many identified teacher and contextual characteristics and nine factors determined as reasons for student field trips into informal science learning institutions. It was observed that the rate of giving answers decreases in the last two pages of the questionnaire. Also, this was a matter of timing. The program of the elementary school groups was recreated to provide teachers with free time to fill in the questionnaire. A group game was developed for students. Although the student guided game provided free time for teachers to fill in the questionnaire, teachers might be affected by limited time. Furthermore, there is another limitation of the study related with the instrument. Although the pilot study on the questionnaire was conducted, the pilot version of it was applied to only 30 teachers who took their students into the garden in previous years. The number of pilot study participants was very low.

Recommendations and Suggestions for Further Research

Literature states that informal science learning has an important positive effect on understanding, interest and attitudes of students towards science. However, teachers, rather than students decide whether to visit an informal learning institution or not. So, it is very important to understand teacher motivations and to conduct further research on this issue.

The study aimed specifically to determine the reasons that make elementary school teachers organize student field trips into the botanic garden. At the same garden, similar research might be developed to study the reasons for conducting student field trips by preschool and elementary school teachers.

The findings of the study may be used by educators from other informal science learning institutions to develop relevant programs with teacher expectations and to market their programs according to these expectations. This survey might be a basis for other surveys for different informal science institutions, and the data from various institutions can give us the whole picture about Turkish teachers' participation in informal science learning with their students.

Another research study, on the reasons for non-participation of teachers in informal learning institutions and science learning institutions, is necessary. This kind of data may be collected by creating an attitude scale about taking students into informal learning institutions and can help us to see the bigger picture.

APPENDICES

APPENDIX A

TURKISH VERSION OF THE QUESTIONNAIRE

"BOTANİK BAHÇESİNE DÜZENLENEN ÖĞRENCİ GEZİLERİ HAKKINDA ÖĞRETMEN GÖRÜŞLERİ ÇALIŞMASI"

Sayın Katılımcı,

Bu anket, Boğaziçi Üniversitesi, Yetişkin Eğitimi Yüksek Lisans Programı'nda yürütmekte olduğum, "ilköğretim öğretmenlerinin, botanik bahçelerine düzenlenen öğrenci gezileri hakkındaki görüşleri" konulu tez çalışmasına veri elde etmek amacıyla oluşturulmuştur.

Bu çalışma, ancak sizlerin katılımıyla tamamlanabilir. Anket sorularına verdiğiniz cevaplar sadece bu araştırmada kullanılacak ve gizli tutulacaktır. Lütfen her soruyu cevaplayınız.

Araştırmaya olan katkılarınız için teşekkür ederim.

Dilan BAYINDIR
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BÖLÜM A
Demografik Bilgiler

1- Cinsiyetiniz: Kadın _____ Erkek _____

2- Yaşınız : _____

3- Branşınız:
Sınıf öğretmeni _____ Fen ve Teknoloji_____ Diğer (Lütfen açıklayınız) _____

4- Mezun olduğunuz fakülte: Eğitim _____ Diğer (Lütfen açıklayınız) _____

5- Mezun olduğunuz üniversite: _____

6- Öğretmenlik deneyiminiz (yıl): _____

7- Kaç yıldır aynı düzeyi okutuyorsunuz? _____

8- Görev yaptığınız okul tipi:
Özel okul _____ Devlet okulu_____ Diğer (Lütfen açıklayınız) _____

9- Görev yaptığınız okulda velilerin sosyoekonomik durumunu nasıl nitelendirirsiniz?
Düşük _____ Orta_____ Yüksek_____

BÖLÜM B
Okul Dışı Öğrenme Merkezlerine Bireysel Katılım

1- Aşağıda listelenen okul dışı öğrenme merkezi örneklerinden hangilerinde bireysel olarak (öğrencileriniz olmadan) bulundunuz? BİRDEN FAZLA ŞIKKI İŞARETLEYEBİLİRSİNİZ.

a) Bilim Merkezi (Şişli Bilim Merkezi, Koç Müzesi vb.)_____
b) Hayvanat Bahçesi (Darıca Hayvanat Bahçesi vb.)_____
c) Akvaryum (Turkuazoo vb.)_____
d) Tarih/Arkeoloji Müzesi (Topkapı Sarayı Müzesi vb.)_____
e) Sanat Müzesi (İstanbul Modern vb.)_____
f) Botanik Bahçesi veya arboretum
Nezahat Gökyiğit Botanik Bahçesi _____ Diğer bahçeler (Lütfen açıklayınız) _____
g) Diğer (Lütfen açıklayınız) _____
h) Hiçbiri _____

*YUKARIDAKİ ŞIKLARDAN HERHANGİBİRİNİ İŞARETLEDİYSENİZ LÜTFEN SORU 2 VE SORU 3'E CEVAP VERİNİZ. "HİÇBİRİ" ŞIKKINI İŞARETLEDİYSENİZ LÜTFEN BÖLÜM C'YE GEÇİNİZ.

2- Bireysel olarak müzeler vb. okul dışı öğrenme merkezlerini, yılda ortalama kaç kez ziyaret edersiniz?

2-3 yılda 1_____Yılda 1_____Yılda 2-3 kez_____Diğer (Lütfen açıklayınız)_____

3- Lütfen bireysel ziyaretlerinizin sebeplerini yazınız.

BÖLÜM C
Okul Dışı Öğrenme Merkezlerine Öğrenci Gezileri

1- Aşağıda listelenen okul dışı öğrenme merkezlerinden öğrenci gezisi düzenlediklerinizi lütfen işaretleyiniz. BİRDEN FAZLA ŞIKKI İŞARETLEYEBİLİRSİNİZ.

a) Bilim Merkezi (Şişli Bilim Merkezi, Koç Müzesi vb.)_____
b) Hayvanat Bahçesi (Darıca Hayvanat Bahçesi vb.)_____
c) Akvaryum (Turkuazoo vb.)_____
d) Tarih/Arkeoloji Müzesi (Topkapı Sarayı Müzesi vb.)_____
e) Sanat Müzesi (İstanbul Modern vb.)_____
f) Botanik Bahçesi veya arboretum
Nezahat Gökyiğit Botanik Bahçesi _____ Diğer bahçeler (Lütfen açıklayınız) _____
g) Diğer (Lütfen açıklayınız) _____

2- Ortalama kaç kere okul dışı öğrenme merkezlerine öğrencilerinizle gezi düzenlebiliyorsunuz?

a) Gezi düzenleyemiyorum _____
b) 2-3 yılda bir_____
c) Yılda bir_____
d) Yılda 2-3 kez_____
e) Diğer (Lütfen açıklayınız) _____

3- Görev yaptığınız okul yönetimi, okul dışı öğrenme merkezlerine öğrenci gezileri yapmanızı destekler mi?

Her zaman _____ Sık sık _____ Bazen _____ Hiçbir Zaman _____

4- Görev yaptığınız okulu düşünerek, öğretmenlerin müzeler v.b. okul dışı öğrenme merkezlerine öğrenci gezisi düzenlemekle ilgili etkilerini belirtiniz.

a) Öğretmenler, gezi yapıp yapmayacaklarına kendileri karar verir.
Her zaman _____ Sık sık _____ Bazen _____ Hiçbir Zaman _____

b) Hangi okul dışı öğrenme merkezine gidileceğine öğretmenler karar verir.
Her zaman _____ Sık sık _____ Bazen _____ Hiçbir Zaman _____

c) Gezinin tarihine öğretmenler karar verir.
Her zaman _____ Sık sık _____ Bazen _____ Hiçbir Zaman _____

d) Kaç gezi yapılacağına öğretmenler karar verir.
Her zaman _____ Sık sık _____ Bazen _____ Hiçbir Zaman _____

BÖLÜM D

Nezahat Gökyiğit Botanik Bahçesi'ne Öğrenci Gezisi Düzenleme Nedenleri

Aşağıdaki maddeleri okuyunuz ve her madde ile ilgili olarak sizin için anlamlı olan bölümdeki sayıyı daire içine alınız.

Nezahat Gökyiğit Botanik Bahçesi'ne öğrenci gezileri düzenliyorum çünkü		Kesinlikle Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
1	öğrencilerin botanik konusuna merakı artıyor.	(1)	(2)	(3)	(4)	(5)
2	gezide öğrenciler botanik konusunda daha geniş bilgi ediniyor.	(1)	(2)	(3)	(4)	(5)
3	gezi sırasında öğrenciler değişik sosyal ortamlarda bulunmaya alışıyor.	(1)	(2)	(3)	(4)	(5)
4	gezi öğrencilerin fen bilimleri konularında okulda öğrendiklerini pekiştiriyor.	(1)	(2)	(3)	(4)	(5)
5	öğrenciler gezide eğleniyor.	(1)	(2)	(3)	(4)	(5)
6	öğrencileri okulun dışına çıkarmak istiyorum.	(1)	(2)	(3)	(4)	(5)
7	öğrenciler bahçede yeni şeyler öğreniyor.	(1)	(2)	(3)	(4)	(5)
8	okul yönetimi bu gezinin yapılmasını istiyor.	(1)	(2)	(3)	(4)	(5)
9	öğrencilerin sosyal gelişimlerini desteklediğini düşünüyorum.	(1)	(2)	(3)	(4)	(5)
10	burada öğrencilerin görmek isteyeceği pek çok bitki bir arada bulunuyor.	(1)	(2)	(3)	(4)	(5)
11	botanik bahçesine gezi düzenlemek öğrencilerin botanik bilimi konusundaki ilgisini arttırıyor.	(1)	(2)	(3)	(4)	(5)
12	gezi öğrencilerimi hayat boyu öğrenmelerine devam etmeleri için destekliyor.	(1)	(2)	(3)	(4)	(5)
13	öğrencilerimin eğlenmesini istiyorum.	(1)	(2)	(3)	(4)	(5)
14	öğrenciler için bir değişiklik oluyor.	(1)	(2)	(3)	(4)	(5)
15	öğrenciler gezi sırasında arkadaşlarıyla daha yakın ilişkiler geliştiriyor.	(1)	(2)	(3)	(4)	(5)

Nezahat Gökyiğit Botanik Bahçesi'ne öğrenci gezileri düzenliyorum çünkü		Kesinlikle Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
16	bahçenin bitki koleksiyonu çok zengin.	(1)	(2)	(3)	(4)	(5)
17	öğrenciler için farklı bir deneyim sağlıyor.	(1)	(2)	(3)	(4)	(5)
18	botanik bahçesine gezi öğrencilerin öğrenme motivasyonunu arttırıyor.	(1)	(2)	(3)	(4)	(5)
19	okul programında yer alıyor.	(1)	(2)	(3)	(4)	(5)
20	müfredatlarda öğretilenlerin gezi sırasında pekiştirildiğini düşünüyorum.	(1)	(2)	(3)	(4)	(5)
21	öğrenciler okul yılları sonrasındaki öğrenme olanaklarını keşfediyor.	(1)	(2)	(3)	(4)	(5)
22	öğrencilerin fen bilgisi / biyoloji derslerine olan ilgisini arttırıyor.	(1)	(2)	(3)	(4)	(5)
23	okul idaresi tarafından yapılması beklenen bir gezi.	(1)	(2)	(3)	(4)	(5)
24	bahçe fiziksel olarak öğrenci gezisi için uygun imkanlar sunuyor.	(1)	(2)	(3)	(4)	(5)
25	rutin programda değişiklik yapma gereği duyuyorum.	(1)	(2)	(3)	(4)	(5)
26	gezi öğrenciler için eğlenceli.	(1)	(2)	(3)	(4)	(5)
27	öğrenciler okulda öğrendiklerini gezi sırasında tekrarlıyorlar.	(1)	(2)	(3)	(4)	(5)
28	öğrencilerimi hayatları boyunca öğrenmeye devam etmeleri için teşvik etmek istiyorum.	(1)	(2)	(3)	(4)	(5)

BÖLÜM E

Nezahat Gökyiğit Botanik Bahçesi'ne Öğrenci Gezisi Düzenleme Nedenlerinin Önem Sırası

Nezahat Gökyiğit Botanik Bahçesi'ne öğrenci gezisi DÜZENLE NEDENLERİNDEN en önemli 5 nedeni aşağıdaki seçeneklerden seçiniz ve en önemlisi "1" olacak şekilde önem sırasına göre numaralayınız.

_____ Öğrencinin botanik (bitki bilimi) konusuna ilgi ve motivasyonunu arttırmak
_____ Öğrencilerin eğlenmesi
_____ Okul yönetiminin beklentilerini karşılamak
_____ Öğrencilerin sosyal gelişimlerini desteklemek
_____ Müfredatta botanik (bitki bilimi) konusunda verilen bilgilerin pekiştirilmesi
_____ Öğrencilere farklı bir deneyim ve öğrenme imkanı sunmak
_____ Öğrencileri hayat boyu öğrenmeye teşvik etmek
_____ Rutin programda ve alanda değişiklik yapmak
_____ Botanik bahçesinin fiziksel ortamında bulunmak

BÖLÜM F

Nezahat Gökyiğit Botanik Bahçesi'ne Öğrenci Gezilerinin Başarısını Etkileyen Faktörler

Nezahat Gökyiğit Botanik Bahçesi'ne öğrenci gezilerinin BAŞARISINI etkileyen en önemli 5 nedeni aşağıdaki seçeneklerden seçiniz ve en önemlisi "1" olacak şekilde önem sırasına göre numaralayınız.

_____ Aktif öğrenme imkanı sağlanması
_____ Yapılacak gezinin eğlenceli olması
_____ Gezi konusunun müfredata paralel olması
_____ Gezi yapılacak merkezin ilgili konuda donanımlı fiziksel ortam sağlaması
_____ Öğrenci grupları için eğitim etkinlikleri sunulması
_____ Gezi öncesinde ön hazırlık yapılması
_____ Günlük yaşamla bağlantılı öğrenme imkanı sağlaması
_____ Gezi yapılacak kurumun öğrencilere eğitim materyali sağlaması
_____ Rehber bulunması
_____ Gezi sonrasında etkinliklerin yapılması
_____ Öğretmenin gezi yapılacak alanı tanıması

BÖLÜM G

Nezahat Gökyiğit Botanik Bahçesi Deneyiminiz

1-Nezahat Gökyiğit Botanik Bahçesi'ne öğrencilerinizle hangi yıl ve hangi amaçla gezi düzenlediniz? BİRDEN FAZLA ŞIKKI İŞARETLEYEBİLİRSİNİZ.

	Sadece Piknik	Günlük Rehberli Eğitim Gezisi
2006	_____	_____
2007	_____	_____
2008	_____	_____
2009	_____	_____
2010	_____	_____

2- Nezahat Gökyiğit Botanik Bahçesi'ne öğrenci gezileri planlarken aşağıda belirtilen unsurların kolaylık-zorluk derecesini lütfen işaretleyiniz.

	Çok Kolay	Kolay	Zor	Çok Zor
Ulaşım ayarlama	_____	_____	_____	_____
Veli izinleri	_____	_____	_____	_____
Resmi izinler	_____	_____	_____	_____
Randevu alma	_____	_____	_____	_____
Ücretler	_____	_____	_____	_____
Diğer (Lütfen açıklayınız)	_____	_____	_____	_____

3- Nezahat Gökyiğit Botanik Bahçesi'ne gelmeden önce sınıfınızda bir gezi hazırlığı yaptınız mı? Lütfen açıklayınız.

4- Nezahat Gökyiğit Botanik Bahçesi tarafından verilen bir eğitim etkinliğine katıldıysanız, etkinliğin niteliğini nasıl değerlendirsiniz?

Çok Başarılı _____ Başarılı _____ Başarısız _____ Çok Başarısız _____

BÖLÜM H
Öğretmenlerin Botanik Öğretimi Konusunda Mesleki Görüşleri

1-Kendinizi bitkiler konusunu öğretmekte ne kadar yeterli görüyorsunuz?

Çok Yeterli _____ Yeterli _____ Yetersiz _____ Çok Yetersiz _____

2- Botanik (bitki bilimi) ile ilgili hizmet içi eğitimlere katılmanın ne kadar gerekli olduğunu düşünüyorsunuz?

Çok Gerekli _____ Gerekli _____ Gereksiz _____ Çok Gereksiz _____

Anketteki tüm soruları düşünerek, çalışma bağlamında eklemek istediklerinizi lütfen belirtiniz.

_____
_____
_____

APPENDIX B

ENGLISH VERSION OF THE QUESTIONNAIRE

"TEACHER PERCEPTIONS ABOUT FIELD TRIPS INTO BOTANIC GARDENS"

Dear participant,

This questionnaire was developed to collect data for my graduate thesis research study that is applied in Boğaziçi University, Adult Education Graduate Program on "teacher perceptions about student field trips into botanic gardens".

This study could be finalized by your inputs. All your answers will be used on this study and they will be kept secret. Please answer all questions.

Thank you for your contributions.

Dilan BAYINDIR
Boğaziçi University, Graduate Student

dilanbayindir@gmail.com

SECTION A
Demographic Information

1- Your gender: Female _____ Male _____

2- Your Age: _____

3- Your Branch:
Elemantary _____ Science and Technology_____ Other (Please explain) _____

4- Faculty of graduation: Education _____ Other (Please explain) _____

5- University of graduation: _____

6- Year of teaching experience: _____

7- How many years have you been teaching the same level? _____

8- School type you work in:
Private school _____ Public school_____ Other (Please explain) _____

9- How do you rate the socio economic status of parents you teach their children?
Low _____ Medium_____ High_____

SECTION B
Personal participation into informal learning sites

1- Please mark the out of school learning centers you have been in personally (without students) YOU CAN MARK MORE THAN ONE ITEM.

a) Science Center (Şişli Science Center, Koç Museum vb.)_____
b) Zoo (Darıca Zoo vb.)_____
c) Aquarium (Turkuazoo vb.)_____
d) History/Archeology Museum (Topkapı Palace Museum vb.)_____
e) Art Museum (İstanbul Modern vb.)_____
f) Botanic garden or arboretium
Nezahat Gökyiğit Botanic Garden _____ Other gardens (Please explain) _____
g) Other (Please explain) _____
h) None of them _____

*IF YOU HAVE MARKED ANY OF THE ITEMS ABOVE PLEASE ANSWER QUESTION 2 AND 3. IF YOU HAVE MARKED "NONE OF THEM" ITEM PLEASE SKIP ON SECTION C.

2- How many personal visits do you do into out of school learning centers (museum or etc.) annually?

Once in every 2-3 years_____Once in a year_____ 2-3 times in a year_____Other (Please explain)_____

3- Please state the reasons for personal participation into informal learning sites.

SECTION C
Student field trips into informal learning sites

1- Please mark the out of school learning centers you have organized student field trips.
YOU CAN MARK MORE THAN ONE ITEM.

a) Science Center (Şişli Science Center, Koç Museum etc.)_____
b) Zoo (Darıca Zoo etc.)_____
c) Aquarium (Turkuazoo etc.)_____
d) History/Archeology Museum (Topkapı Palace Museum etc.)_____
e) Art museum (İstanbul Modern etc..)_____
f) Botanic garden or arboretium
Nezahat Gökyiğit Botanic Garden _____ Other gardens (Please explain) _____
g) Other (Please explain) _____

2- How many times can you conduct student field trips into out of school learning centers per year?

a) I cannot _____
b) Once in every 2-3 years_____
c) Once in a year_____
d) 2-3 times in a year_____
e) Other (Please explain) _____

3- Does the school administration support you to conduct field trips into out of school learning centers?
Always _____ Generally _____ Sometimes _____ Never _____

4- Please state the impact of teachers on conducting field trips into out of school learning centers?

a) Teachers decide on whether they conduct field trips or not.
Always _____ Generally _____ Sometimes _____ Never _____

b) Teachers decide on into which out of school learning center they conduct student field trips.
Always _____ Generally _____ Sometimes _____ Never _____

c) Teachers decide on the timing of student field trips.
Always _____ Generally _____ Sometimes _____ Never _____

d) Teacher decide on how many times they conduct student field trips.
Always _____ Generally _____ Sometimes _____ Never _____

SECTION D

Reasons to conduct student field trips into the botanic garden

Read the following statements and mark the number that is meaningful for you.

I conduct student field trips into the Nezahat Gökyiğit Botanic Garden because		Strongly Diagree	Disagree	Undecided	Agree	Stronly Agree
1	students' interest on botany increase.	(1)	(2)	(3)	(4)	(5)
2	students learn more on the trip on botany.	(1)	(2)	(3)	(4)	(5)
3	students get used to be in a different social context.	(1)	(2)	(3)	(4)	(5)
4	the trip reinforces students' learning in school.	(1)	(2)	(3)	(4)	(5)
5	students have fun at the trip.	(1)	(2)	(3)	(4)	(5)
6	I want to take my students out of school environment.	(1)	(2)	(3)	(4)	(5)
7	students acquire new knowledge in the trip.	(1)	(2)	(3)	(4)	(5)
8	school administration wants us to make this trip.	(1)	(2)	(3)	(4)	(5)
9	the trip supports social development of students.	(1)	(2)	(3)	(4)	(5)
10	there are many plant species students want to explore.	(1)	(2)	(3)	(4)	(5)
11	the trip into the botanic garden increases students' interest on botany.	(1)	(2)	(3)	(4)	(5)
12	the trip supports my students for lifelong learning.	(1)	(2)	(3)	(4)	(5)
13	I want my students to have fun.	(1)	(2)	(3)	(4)	(5)
14	trips are a difference for students.	(1)	(2)	(3)	(4)	(5)
15	students build close relationships with their peers as a result of the trip.	(1)	(2)	(3)	(4)	(5)

I conduct student field trips into the Nezahat Gökyiğit Botanic Garden because		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
16	the plant collection of NGBB is very rich.	(1)	(2)	(3)	(4)	(5)
17	the trip is a new experience for students.	(1)	(2)	(3)	(4)	(5)
18	the trip into the botanic garden increases students' motivation to learn on botany.	(1)	(2)	(3)	(4)	(5)
19	it exists in the school program.	(1)	(2)	(3)	(4)	(5)
20	I believe curriculum linked learning is reinforced at the trip.	(1)	(2)	(3)	(4)	(5)
21	students identify out of school learning opportunities at the trip.	(1)	(2)	(3)	(4)	(5)
22	the trip into the botanic garden increases students' interest on science classes.	(1)	(2)	(3)	(4)	(5)
23	it is an expected trip by the school administration.	(1)	(2)	(3)	(4)	(5)
24	the garden provides appropriate physical conditions for the trip.	(1)	(2)	(3)	(4)	(5)
25	I need to make changes in the daily routine program.	(1)	(2)	(3)	(4)	(5)
26	the trip is very funny for my students.	(1)	(2)	(3)	(4)	(5)
27	students repeat what they have learned at the school.	(1)	(2)	(3)	(4)	(5)
28	I want to support my students for lifelong learning.	(1)	(2)	(3)	(4)	(5)

SECTION E

Order of Reasons to conduct field trips into Nezahat Gökyiğit Botanic Garden

Please mark the most important 5 reasons that affect the success of student field trips into Nezahat Gökyiğit Botanic Garden by marking the most important one as "1".

_____ To increase students interest and motivation
_____ To make students have fun
_____ To meet expectations of school administration
_____ To support students' social development
_____ To reinforce the knowledge offered by curriculum
_____ To provide students a different life and learning experience
_____ To encourage students for lifelong learning
_____ To make a difference in daily routine
_____ To be in the physical environment of the garden

SECTION F

Factors that affect the success of the student field trip into Nezahat Gökyiğit Botanic Garden

Please mark the most important 5 factors that affect the success of student field trips into Nezahat Gökyiğit Botanic Garden by marking the most important one as "1".

_____ Providing active learning opportunities
_____ Being a funny trip
_____ Providing a program parallel to curriculum
_____ Providing a good quality physical environment
_____ Providing educational activities for students
_____ Applying pre-visit activities
_____ Providing real life experience based learning
_____ Providing student educational materials (by the center)
_____ Having a guide during the visit
_____ Applying post visit activities
_____ Being a well known center among teachers

SECTION G

Your experience in Nezahat Gökyiğit Botanic Garden

1-Please state the year and the reason for organizing field trips into Nezahat Gökyiğit Botanic Garden? YOU CAN MARK MORE THAN ONE ITEM.

	Picnic	Daily Education Program
2006	_____	_____
2007	_____	_____
2008	_____	_____
2009	_____	_____
2010	_____	_____

2- When you organize field trip into the Nezahat Gökyiğit Botanic Garden, please mark the difficulty level of each item for you?

	Very Easy	Easy	Difficult	Very Difficult
Travel	_____	_____	_____	_____
Parent permissions	_____	_____	_____	_____
Legal permissions	_____	_____	_____	_____
Bookings	_____	_____	_____	_____
Payments	_____	_____	_____	_____
Other (Please explain)	_____	_____	_____	_____

3- Did you do any pre-activity before the trip? Please explain.

4- If you participate in any educational activity of Nezahat Gökyiğit Botanic Garden, please state its quality?

Very Successful _____ Succesful _____ Unsuccessful _____ Very unsuccesful _____

SECTION H

Teachers perceptions on self professional effectiveness on botany

1-How do you rate yourself to teach botany?

Very successful _____ Successful _____ Unsuccessful _____Very unsuccessful_____

2-How necessary is it for you to participate in service training courses on botany?

Very Necessary _____ Necessary _____ Unnecessary _____ Very unnecessary_____

Please state anything you want to add by considering the questions above.

_____

_____

_____

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