

A CASE STUDY ON THE ELECTIVE INFORMATION TECHNOLOGIES
COURSE POLICY IN LOWER SECONDARY SCHOOLS

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ABSTRACT

A CASE STUDY ON THE ELECTIVE INFORMATION TECHNOLOGIES COURSE POLICY IN LOWER SECONDARY SCHOOLS

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In this case study, the implementation of course policy in public lower secondary schools was investigated through the elective course Information Technologies and Software (ITS). The decision making and implementation processes were examined by means of observations, interviews and questionnaires. The policy implementation was examined as a single embedded case study in 18 lower secondary schools in Çankaya district of Ankara. The participants were the administrators ($N=18$), the teachers who teach the elective ITS course in two of the schools ($N=4$), and the students who take this course as an elective course ($N=171$).

The data were collected through five different data collection instruments that were developed by the researcher. The first instrument was the school administrator questionnaire that was distributed to 18 schools and was used mainly for gathering contextual information about the number of students that prefer ITS course as an elective, whether ITS course is offered or not, the number of computer science teachers and opinions of school administrators about the elective ITS course. According to contextual information obtained through the school administrator questionnaire, three schools were defined for the case study regarding students who

took the elective ITS course, teachers who taught the course, and the number of computer laboratories. In two of the schools, ITS course was taught as elective course while in one of them it was not. In these two schools, elective course decision making processes were investigated through teacher interviews and student questionnaires that included mainly open-ended items. In addition, the implementation of ITS elective course was examined through participant observations, teacher interviews, and student questionnaires. In the third school, the elective course decision making process and the reasons behind not offering ITS as elective course were investigated by the means of a detailed school administrator semi-structured interview.

The results of the study show that elective course decision making process was carried out as it is planned in the official policy. On the other hand, the insufficient number of teachers who can teach elective courses, and lack of a computer laboratory in schools prevent offering elective ITS courses. Furthermore, due to limited capacity in the computer laboratory, ITS course was not given to some of the students who even prefer to attend ITS course as an elective. In addition, results also show that while there were differences in two schools in terms of course implementation, the problems that were faced in lessons were similar in two schools. As a result, the embedded case study suggests that an effective elective ITS course policy may depend on increasing students' awareness of elective ITS course, providing necessary materials and course books, and the improvement of computer laboratory facilities.

Keywords: Elective Course Policy, Information Technologies and Software Course, Case Study

ÖZ

ORTAOKUL SEÇMELİ DERSLER MEVZUATININ BİLİŞİM TEKNOLOJİLERİ VE YAZILIM DERSİ KAPSAMINDA İNCELENMESİ: BİR DURUM ÇALIŞMASI

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Bu çalışmada seçmeli ders mevzuatının ortaokullardaki işleyiş süreci seçmeli Bilişim Teknolojileri ve Yazılım dersi kapsamında durum çalışması olarak incelenmiştir. Dersin öğrenciler tarafından seçilmesi, dersin açılması ve dönem boyunca işleniş gözlem, görüşme ve anketler yardımıyla değerlendirilmiştir. Durum çalışmasında Çankaya ilçesindeki 18 ortaokuldan belirlenen okullardaki okul yöneticileri ($N=18$), iki okulda seçmeli Bilişim Teknolojileri ve Yazılım dersini veren öğretmenler ($N=4$) ve seçmeli Bilişim Teknolojileri ve Yazılım dersini alan öğrencilerden ($N=171$) derinlemesine bilgi toplanmıştır.

Bu çalışmada veri toplamak için araştırmacı tarafından geliştirilmiş beş farklı veri toplama aracı kullanılmıştır. Bunlardan birincisi okul yöneticileri için hazırlanmış anket formudur. Bu form temelde bağlamsal bilgi toplamak amacıyla, Çankaya ilçesine bağlı 18 okula dağıtılmış ve okul büyüklüğü, bilişim teknolojileri dersinin açılıp açılmadığı, okuldaki bilgisayar öğretmeni sayısı ve okul müdürlerinin Bilişim Teknolojileri seçmeli dersine ilişkin görüşlerini öğrenmek için kullanılmıştır. Bu formdan elde edilen bilgiler doğrultusunda, durum çalışması için üç farklı okul

aşağıdaki kriterlere göre belirlenmiştir: okullardaki seçmeli Bilişim Teknolojileri ve Yazılım dersini alan öğrenci sayısı, bu dersi veren öğretmen sayısı ve Bilişim Teknolojileri laboratuvarı sayısı. Okullardan ikisi Bilişim Teknolojileri ve Yazılım dersinin seçmeli ders olarak verildiği okullardır. Bu okullarda, seçmeli derslerin seçim süreci öğretmen görüşmeleri ve öğrenci anketleri yardımıyla ve seçmeli Bilişim Teknolojileri ve Yazılım dersinin işleniş süreci gözlem, öğretmen görüşmeleri ve öğrenci anketleri yardımıyla incelenmiştir. Çalışma için üçüncü okul olarak Bilişim Teknolojileri ve Yazılım dersinin seçmeli ders olarak açılmadığı bir okul belirlenmiştir. Ders açılma süreci ve seçmeli Bilişim Teknolojileri ve Yazılım dersinin açılmamasının sebepleri seçmeli derslerden sorumlu müdür yardımcısı ile yapılan yarı-yapılandırılmış görüşmeyle ayrıntılı incelenmiştir.

Durum çalışması gösteriyor ki, seçmeli dersler seçmeli ders mevzuatında planlandığı gibi yürütülmektedir. Fakat BTY seçmeli dersini verecek öğretmen sayısının azlığı, bilişim teknolojileri laboratuvarının olmaması ya da kısıtlı sayıda öğrenci alması gibi nedenler bazı okullarda bu dersin açılmasını engellemekte ya da seçen öğrencilerin tamamının dersi alamamasına sebep olmaktadır. Seçmeli Bilişim Teknolojileri ve Yazılım dersinin işleniş sırasında öğretilen konular ve ders işleme süreçleri açısından iki okul kaynakları arasında farklar bulunmasına rağmen, yaşanan problemler benzerdir. Öğrencilerinin Bilişim Teknolojileri ve Yazılım dersi hakkındaki farkındalıklarının artırılması, MEB tarafından ders kitabı ve gerekli materyallerin sağlanması ve bilişim teknolojileri laboratuvar koşullarının iyileştirilmesinin seçmeli Bilişim Teknolojileri ve Yazılım dersinin seçilmesi, dersin açılması ve işleniş süreçlerinin verimliliğini etkileyebileceği anlaşılmaktadır.

Anahtar Kelimeler: Seçmeli Ders Mevzuatı, Bilişim Teknolojileri ve Yazılım Dersi, Durum Çalışması

To My Beloved Family

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LIST OF ABBREVIATIONS

ICT: Information and Communication Technologies

ITS: Information Technologies and Software

MNE: Ministry of National Education

TEOG: Transition Exam from Basic Education to Secondary Education

CHAPTER 1

INTRODUCTION

This chapter begins with the background of the study and then, problem statement, purpose and the significance of the study are presented successively and it is concluded with the definition of terms.

1.1 Background of the Study

The main aim of the Turkish education system is to make individuals happy and productive persons who have advanced thinking, perception, and problem-solving skills. Another aim is to acquire them moderate and healthy personality and mentality. Moreover, to acquire a sense of self-confidence, responsibility, entrepreneurship and innovation as well as a sense of arts and aesthetics is also one of the important aims of education (The Tenth Development Plan 2014-2018, 2014, World Data on Education Turkey, 2012). Furthermore, to prepare individuals for life by helping them to gain necessary knowledge, skills, attitude and habit of working cooperatively in line with their own interests, talents and abilities is also among the general aims of Turkish education (World Data on Education Turkey, 2012).

As it is stated in the general aims of Turkish education system, the role of education is to help individuals to go toward their abilities, interests, and talents to make them happy and productive persons. To accomplish this goal a transformation program will be applied in the schools. This program aims to increase sportive, artistic, and cultural activities to support physical and psychological development with ICT

integrated curriculum and less exam-oriented structure (The Tenth Development Plan, 2014-2018).

In addition, in 2005 Turkish Ministry of National Education (MNE) redesigned primary and secondary school curriculum according to the constructivist approach. The argument of constructivism is “knowledge is not independent from the learner” and it consists of internally constructed understanding of the outer world. In other words, in constructivism, individuals make their own meaning through authentic activities (Brooks, & Brooks, 1999; Duffy, & Jonassen, 1992). Moreover, constructivism proposes that student should be given a chance to take initiative of their own learning, and they should be allowed to alter the content (Brooks, & Brooks, 1999).

Elective courses were seen way of including students in to the decision-making process about their own learning. For this reason, at the beginning of 1970s elective courses were added to curriculum in the Turkish education system. The other functions of elective courses could be listed as to provide flexibility in curriculum, enabling choice for students and giving an opportunity to students to take the initiative of their own learning. The elective part of the curriculum enables students to go toward their interest, abilities, and talents and gives opportunity to meet their special needs that are not common in all students (Merritt, 2015). Moreover, elective courses allow students to reveal their interests, skills that are not obvious in other lessons. In addition, they help to students to explore their strengths and weakness (Rambo, 2011).

In Turkish education system Elective courses are provided both in lower secondary school level and Upper secondary school level. In lower Secondary schools, in other words 5th, 6th, 7th and 8th grades there are six different elective course categories, namely; Religious and Ethics, Language and Expression, Foreign Languages, Science and Mathematics, Art and Sport, Social Sciences. Under these six categories various numbers of elective courses are presented according to school conditions (MNE, 2013).

Information Technologies and Software course is one of the courses that is presented as an elective course in the lower secondary school curriculum. The aim of the course could be summarized as to help students to gain digital competences that are needed to live in the 21st century. This course is important for making students learn the 21st century skills especially information, media, and technology skills (P21 Framework Definitions, 2015). To make students effective citizens and workers of the society who can use technology effectively, information technologies and software course has a crucial role. The decision making and implementation processes of Information Technologies and Software course are important to attain its goals. Therefore, current practices related to decision-making, and implementation process of ITS course as an elective course should be analyzed and evaluated. There are some studies in the literature about ITS course that mention about the elective status, teacher perception, course implementation, and the problems related to this course.

When the literature about ITS course is analyzed, it can be seen that there are studies that investigate the effect of elective status on course's value and student motivation (Çoklar & Odabaşı, 2010; Eyidoğan, 2009; Eyidoğan, Odaşı, & Kılıçer, 2011; Öztürk & Yılmaz, 2013). In addition, some of the studies analyze the implementation process in terms of used materials and instructional strategies (Akbiyik & Seferoğlu, 2012; Şerefoğlu Henkoğlu & Yıldırım, 2012). Finally, there are also studies that evaluate the course curriculum according to teacher perception, and investigate problems related to course implementation (Akbiyik & Seferoğlu, 2012; Durdukoca & Arıbaş, 2011; Gülcü, Aydın, & Aydın, n.d.; Parlakkılıç, 2014; Şerefoğlu Henkoğlu & Yıldırım, 2012; Şişman Eren & Şahin-Izmirli, 2012).

Different from previous studies, this study investigates the elective course's decision-making and implementation processes through elective Information Technologies and Software course from the perspective of teachers, students, and school administrators.

1.2 Statement of the Problem

The secondary school curriculum includes core subjects to provide core competencies, basic and essential knowledge for life and future education and also elective subjects to enable students to select the courses that they have an interest in (MNE, 1970). The purpose of elective courses is to give an opportunity to students to direct their own learning and enable them to discover society and self (Ornstein, 2004; MNE, 1970). Therefore, elective part of the curriculum is important for students to discover both themselves; abilities, interests, dispositions, and society; education opportunities, different fields of occupation.

In Turkey, various elective courses are offered in schools in different grade levels. At lower secondary school level, approximately 20 courses are offered under six categories (MNE, 2017). To investigate the offering process and implementation of elective courses in lower secondary school level is the main interest of this study. Through the study, the implementation of elective course policy on public lower secondary schools will be analyzed via the elective Information Technologies and Software course.

Elective courses are used for students to discover themselves and to develop their special abilities, as well as to give flexibility to the curriculum. They are important both for students to cultivate themselves and for schools to meet individual differences. However, to accomplish their purposes, elective course policy should be implemented appropriately. Therefore, there is a reason to investigate the elective course implementation process and to reveal the problems related to this process. For this reason, the main concern of this study is to explore elective course decision-making and implementation process in public lower secondary schools.

When the previous studies related to this issue scanned, it can be seen that there are some studies that deal with determination of elective courses that will be offered to students, reasons that shape students' elective course selection decision, mostly preferred courses, and difficulties faced in elective course implementation process. While some of them handles these issues in undergraduate and graduate level, (Babad, 2001; Kurnaz & Alev, 2009; Schuhmann & McGoldrick, 1998; Tezcan &

Gümüő, 2008), the others handles in lower secondary and secondary school level (Akay, ırakođlu, & Yanar Hancı, 2016; Aslantaő, 2011; Deryakulu, 2007; Eőbahoglu, 2015; Karagözođlu, 2015; Kotan, 2015; Taő, 2004; Uysal, 2015). They investigate the elective programs according to teacher, student, and school principal perception. The number of studies that use observation is also limited (Akay et al., 2016). In addition, they seek the reasons to take electives, problems related to elective course programs through survey studies. But the number of studies that handles the issue in the context of one elective course is seems to be scarce in Turkish case. Therefore, this study is unique due to research method and it covers both stakeholders' opinions; students, teachers, and school administrators and course implementation process in the context of one elective course. This research aims to reveal well-functioning parts and poor parts of the elective course on the context of the ITS course.

Consequently, this study hoped to be beneficial for policy makers and practitioners to understand the elective course implementation and offering process. In addition, it will provide feedback about the elective course policy offering and implementation process.

1.3 Purpose of the Study

The main purpose of this study is to explore the implementation of an elective course policy in public schools, namely, Information Technologies and Software (ITS) course. This study aims to investigate the elective course policy as a whole process from students' preferences up to course implementation. In other words, this study analyzes the elective course decision-making and implementation process in public schools through the ITS course. In the scope of this study; elective course decision making process is analyzed with the following aspects; how the decision making process is carried out in schools, factors that affect decision making process (having IT lab, having IT teacher, etc...), reasons for selecting this course (students' preferences; students interest to this course, etc.) and the elective ITS course implementation process itself. The course implementation is analyzed at four

dimensions; aims and objectives, content, instructional process and evaluation techniques.

To accomplish this purpose following research question guided the study;

How is the ITS course policy put into practice in 7-8 grade in public lower secondary schools regarding the perceptions of school administrators, teachers, and students?

1.4 Significance of the Study

The aim of education is to raise sophisticated persons who possess the knowledge, skills, and attitudes needed to be an active member of society (Varış, 1978; OECD & MNE, 2005). In addition, education also aims to help people to realize their own potential to be successful and happy in their personal and professional life. Moreover, another responsibility of the school is to prepare students to career by introducing professions to them. When general aims of the Turkish education system is analyzed, it can be seen that to help students to develop their own capacity, make them a responsible, self-aware and productive citizen, and to prepare them for their profession are among the aims of the Turkish Education. To accomplish these aims school curriculum consists of core subjects and elective courses. Especially, elective courses are seen as opportunities to reveal and foster students' unique abilities. The purpose of elective courses is to give the opportunity to students to go through their interests and personal dispositions. Through elective courses, students have an opportunity to develop themselves, explore new areas or subjects.

In the elective course system, it is expected that students select certain courses from a pool of options that might interest them. Moreover, elective course system is used as a mean to give a chance to students to arrange their learning events within the knowledge of parents, class teacher, and school counselor.

To achieve the elective courses their goals students should be able to select and take appropriate elective courses for their interest and dispositions. Therefore, to

describe the elective course decision making and implementation process and to reveal the problems in this process will be helpful for improvement of this process. For that reason, this study aims to explore the elective course decision making and implementation process on the basis of elective Information Technologies and Software course. The decision making and implementation process of Information Technology and Software course are important to attain its goals. Therefore, current practices related to the decision making and implementation process of ITS course as an elective course should be analyzed and evaluated. Although there are some studies in the literature that handles elective courses in terms of teacher, student, and school administration perception, there are not enough studies that analyze the elective course offering process as the whole process in the context of one elective course. Therefore, this study is unique in terms of examining the elective course policy as a whole process from decision-making to implementation in the context of ITS course. In addition, most of the previous studies uses survey method to investigate this issue. In this study, case study method is used and data is collected through school administrator questionnaire, students' questionnaire, teacher interview, and observation from. Elective course policy handled from perspectives of school administrators, students, and teachers. The results of this study are expected to be helpful to reveal well-functioning and weak sides of elective course policy. By this way, it will contribute to the improvement of elective course policy to design better processes in terms of offering and implementing the elective courses.

The analysis of the elective course decision making process is hoped to contribute to the ongoing debate on the elective course policy and will give feedback to policy-makers about the elective course policy. In addition, it is hoped to help the stakeholders to have a better understanding about the elective course offering and implementation process by presenting examples of some cases from different schools. Consequently, it is expected that the findings of this study may play a role in the execution of decision making and implementation processes both in terms of policy development and class learning.

1.5 Definition of Terms

Elective Course: Elective courses (or electives) are optional, alternative classes in which students choose to enroll, and which are outside the core curriculum (Merritt, 2015).

Elective Course Policy: A set of ideas that guide and determine the implementation of elective courses in schools officially by Board of Education and Discipline.

Information and Communication Technology (ICT): Technologies that are used to communicate and create, manage and distribute information. A broad definition of ICTs includes computers, the internet, telephones, television, radio and audiovisual equipment (Pernia, 2008, p.11).

Information Technology and Software course (ITS course): The course that aims to teach effective use of information and communication technologies with an ethical and productive manner (Board of Education, Information Technology and Software Curriculum, 2012). Before the 2012, the name of the course was Information Technologies (IT), in this study, Information Technologies (IT) and Information Technology and Software (ITS) refers to the same course.

Primary Education: Primary education institutions consist of the four-year compulsory primary schools (1,2,3,4th grades), and four-year compulsory lower secondary schools (5,6,7,8th grades) (National Education Statistics, 2013/2014)

Lower Secondary School: A school for children that includes grades five to eight (National Education Statistics 2013/2014)

CHAPTER 2

LITERATURE REVIEW

This chapter includes the general overview about the elective courses and the reason behind adding elective courses in the curriculum and also aims to present studies that are carried out on this issue. In addition, some information about the Information Technologies and Software course is also presented in this chapter.

2.1 Elective courses

Elective courses can be defined as optional or alternative classes that students are allowed to choose from a pool of courses (Merritt, 2015). Turkish Ministry of National Education (MNE) defines elective courses as the courses that are determined according to physical conditions and characteristics of the environment and MNE also states that the students are free to choose them according to their interests (1970). The difference of electives from required courses are required courses give emphasis on academic content and skills while elective courses concentrate on personal development (Darby, 2006). The most important and fundamental characteristic of elective course is student choice (Christenbury, 1981). In other words, electives are generally designed around special subjects that are outside the core curriculum and students are free to enroll one of them. (Cooke, Kummer, 2011; MNE, 1970; Ljuca, Lozo, Simunovic, Bosse, & Kadmon, 2009). The function of elective courses in the curriculum is twofold; they both serves as special interest education function or serves to supplement the core courses for further general education (Klohr, 1953). In other words, elective courses could be the courses that support courses that are placed in the core curriculum. This type of

elective courses also designed to enhance academic knowledge of students. In addition, they could be special courses that appeal to special needs and dispositions of students.

Elective courses give some opportunities to curriculum and school. The first one is that they give flexibility to the curriculum (Cavanagh, 2007; Merritt, 2015). Students are provided with variety of courses and allowed to take courses according to their needs. In this way, curriculum is organized in a way that students can arrange the courses according to their dispositions and interests. So, curriculum attains flexibility by addition of elective courses.

The second benefit of elective courses is they have potential to meet students' individual interests and needs. Electives are important to respond individual needs of students (Polat, Özoğlu, Yıldız, & Canpolat, 2013). Individuals are different in terms of their readiness, abilities and interests, therefore, students should be allowed to access individualized instruction, textbooks, courses and teachers that appeal to meet their needs and interests (Baker, 1961; Creese, Gonzalez, & Isaacs, 2016). Elective courses have variety of options and students have opportunity to take the course that is appropriate for their interests and dispositions. Thanks to elective courses, curriculum gain ability to respond individual needs of students by providing course choices for them. Therefore, elective courses are important for providing diversity in the curriculum to meet individuals' different needs.

The third benefit of elective courses that they enable students for self-discovery and development. Through the elective courses, both students and their teachers explore the areas that students have ability or interest in (Cooke & Kummer, 2011; Demir & Ok, 1996). In other words, students are given opportunity to disclosure their hidden talent via elective courses (Demir & Ok, 1996). Moreover, they also help students to develop aesthetic and artistic abilities (Ülgen, 1992). Elective courses also pave a way for improving students' analytical skills as well as artistic abilities. As it is explained, due to variety of options students find opportunity to be recognizant of different areas and test and develop their abilities in these areas.

The fourth advantage of elective courses is they enable students to gain awareness and competence about various career areas (Barr & Gibson, 2016; Merritt, 2015; Ülgen, 1992). In elective courses, various hands on experiences and different career areas are presented to students. By means of these authentic experiences students both familiarize with career options and check themselves through different career options (Cook, Dill-varga, Jablonski, & Stewart, 2016).

The fifth advantage of elective courses is they increase student motivation through the school. Elective courses enable educators to recreate school climate in a way that students get pleasure from being in school. In addition, elective courses are the areas that teachers can provide a variety of authentic experiences to promote students' talent and experiences (Brown, 2016). Due to authentic experiences, and appropriateness to students' interests, elective courses become more attractive for students. In addition, according to a study, a course seems more interesting to students when the course is offered as elective even if the instructor and used materials are the same (Darby, 2006). Therefore, elective courses have opportunity to decrease absenteeism and regenerate lost interest in school.

The last advantage of elective courses is they enable the application of democratic education in schools. In democratic education, students are not passive, they take initiative and become active designers of their own learning. (Bennis, 2016). The key issue in democratic education is student participation in decision making processes about teaching and learning, evaluation and other activities in the learning environment. Since elective courses give opportunity to students to decide the subject that they will learn, and enable student participation in decision making process, it allows the application of democratic education in schools (ERG, 2015).

Elective courses also have some drawbacks. Some of the drawbacks results from the design of elective course curriculum and the others emerge due to the application of the elective course policy.

One of the drawbacks that are coming from the design of elective course curriculum is time and material related problems. Intended weekly course hours could be inadequate and materials could not be appropriate to create intended target behavior

on student. Therefore, ill-planned courses in terms of weekly course hours and inappropriate or insufficient materials could impede student satisfaction on the course and creation of intended learning outcomes. The second drawback that comes from design of elective course curriculum could be misleading course descriptions. Course descriptions could not be representing the course content so students could be misguided. This causes the mismatch in students' interests and course. Therefore, misleading course descriptions also one of drawbacks of elective course curriculum (Christenbury, 1979, 1981).

The other part of the drawbacks originates from the implementation of elective course curriculum. The first one is scheduling of elective courses. Normally date and time of elective courses could not coincide with required courses not to limit students' right to choose course that is interesting for them. Therefore, it is one of the drawbacks of elective curriculum is that elective and required courses are placed at the same time on weekly schedule. Furthermore, teachers' incapability to create appropriate teaching and learning processes for students also prevents students from exploring and developing their abilities. Therefore, incapable teachers could also be a drawback for elective curriculum. The other drawback that arises from the implementation of elective curriculum is falsified student choice. In other words, if students are not given chance to choose the course that interest them this also prevent elective courses to attain its goals. On the other hand, students could be inexperienced and they do not have enough knowledge to choose course that satisfy their needs. In such a situation, students' inability to choose the appropriate course for them can be seen as the drawbacks of elective curriculum (Christenbury, 1979, 1981).

In summary, elective courses have both advantages and drawbacks. Advantages of elective courses could be summarized as flexibility in curriculum, meeting of individual needs, opportunity to self-discovery and development, recognition of different occupation opportunities, development of democratic school environment, and increase in student motivation toward school. In addition, the drawbacks of elective courses could be categorized as drawbacks resulted from design of elective curriculum and drawbacks resulted from application of elective course policy in

schools. The drawbacks that arise from design of curriculum is time allocation and lack of source materials. On the other hand, the drawbacks resulted from application of elective course policy can be summarized as scheduling, teachers' incapability and falsified student choice.

2.2 History of Elective Courses

Idea of elective course has its origins on progressivism which is a pedagogical philosophy (Christenbury, 1981). Progressivism claims that students learn best when curriculum coincide with student interests (Cohen, 1999). Therefore, progressivism argue that curriculum must be arranged according to students' needs, interests and abilities. In addition, student initiative is the key point on progressivism. Progressivist proponed that teaching and learning processes should enable self-directed learning, discovery and active engagement of student with subject being learned. Moreover, they think that academic subjects interfere with student interests and self-directed learning since they are determined by adults without asking students' opinion. Therefore, they defend that curriculum should have options, that can be modifiable according to student interest, abilities, intended professional career (Labaree, 2005). These options were placed the curriculum as elective courses.

The entrance of elective courses in education system dates back to the end of the nineteenth century. In 1869, in the opening speech, Harvard president Charles W. Eliot recommended that elective courses should begin to be offered to students from the sophomore year (Eliot nd. ss cited in Christenbury, 1981). Later, in 1892, Eliot proposed that, without elective courses, secondary education would not be able to successful in broadening students' mind and he added that elective courses should be started to be given from the fifth grade (Eliot, 1898. as cited in Christenbury, 1981).

In 1935, with effect of progressivism, it was thought that curriculum should be arranged around well-selected experiences. It is proponed that, realistic experiences

could be a way for both meeting students' needs and to create enthusiasm in students through the school. In addition, it is also proposed that, realistic experiences would be a better way to prepare students for real life and to meet their curiosity (Christenbury, 1981). By this way, elective courses were seen as a way of providing diversity, and transformation in core curriculum, and to enthuse students and teachers through the school (Merritt, 2015).

According to Cox (1964), in 1959-60 period, US conducted a survey which including 50 states to determine the elective courses that would be taught in schools. According to results of this survey, Music, Business Education, Art, Social studies, and English were determined as elective courses that would be taught in the schools. After that plans for this courses were initiated by state department of education for five year trial period (Cox, 1964; Cox & Ramer, 1962). Through the end of 1960s elective courses spread around and showed its success on some areas like English (Christenbury, 1981). Through the 1970s, US started to offer elective courses to raise public awareness in secondary schools about common social problems. Curriculum was designed thematically about these problems. There were variety of courses that mention the issues such as environmental education and energy, career education, moral education, sex education, raising children, substance abuse and prevention, teen pregnancy prevention (Cetron and Gayle, 1991; Christenbury, 1979; Kirst, 1982. as cited in Merritt, 2015). By this way, elective courses are used as a mean both to fight social problems and to raise conscious individuals for society. Through the end of the 1980s, the number of elective courses started to increase rapidly. Secondary schools started to offer numerous elective courses that are different from the academic content and it was observed that many students took this courses to fulfill their credit requirements (Cetron and Gayle, 1991. as cited in Merritt, 2015). According to Christenbury (1979), this situation caused some problems. The student success in competency testing declined. Therefore, the rise of the elective curriculum stopped and golden era run out (Christenbury, 1979). At these times, the common needs of students were started to be discussed again and some report were prepared on this issue. One of these reports was named as Paideia Proposal is written by Moritmer Adler and The Paideia group. This proposal

defends the universal education for K-12 grades and also states that K-12 education should consist of required courses. On the other hand, Adler also indicates in his proposal that, electives should be offered only on foreign language learning. (Adler,1982. as cited in Merritt, 2015). Through the end of 1990s, Adler's ideas affected the curriculum policy so, the number of elective courses were decreased in curricula and a common nation-wide curricula was started to be used (Merritt, 2015).

To sum up, elective courses emerged with effect of progressivism in the beginning of 1880s. The purpose was to make students decision makers in their own learning process and to enable them go toward their interest. Through the time, it was carried the responsibility of raising public awareness on social problems. In addition, the weight and importance of elective courses changed over the time. While through 1960s and 70s elective courses had their golden era, in 1980s they started lose their importance and common curriculum trend started to raise again.

2.3 Elective Courses in Turkey

The first applications of elective courses started in secondary schools with the curriculum development studies for secondary schools. In 1954-1955 academic year, a curriculum development commission was established to develop a high school curriculum with 22.10.1954 decision dated and 230,35.24996 numbered decision of Turkish Ministry of National Education (MNE, 1983). The commission that was consist of 35 teachers who studied in İstanbul Atatürk Kız Lisesi, developed a draft curriculum for high schools (Demirel, 1992).

At the end of the studies of this commission, it was decided that new program should center the individual and give needs and interests prominence. In addition, it is also decided that the main goal of the program should be to raise good person and good citizen, therefore, this program should enable student development and enculturation to be an active citizen of society (Varış, 1978). Through this ideas 1954-1955 academic year, the draft curriculum was prepared and in 1955-1956

academic year, it is piloted in İstanbul Atatürk Kız Lisesi. The weekly course schedule for İstanbul Atatürk Kız Lisesi in 1955-1956 is given below (MNE, 1983);

Table 2. 1 1955-1956 Academic Year İstanbul Atatürk Kız Teknik Lisesi Pilot School Course Schedule

REQUIRED COURSES	I	II	III
Turkish	5	5	5
Social Sciences	5	5	5
Science	5	5	5
Math (A and B sections)	5	5	5
Physical Education	3	3	2
Special courses	8	8	8
Religious Course	1	1	1
Guidance	1	1	1
Free Time	2	2	3
Total Weekly Course Hours	35	35	35
SPECIAL COURSES			
1. German			4 or 6 hours
2. French			4 or 6 hours
3. English			6 hours
4. Art			6 hours
5. Music			2 hours
6. Tailoring			2 hours
7. Cooking			2 hours
8. Home Economics			2 hours
9. Child Care			2 hours
10. First Aid			2 hours
11. Typewriter			2 hours

- 1 Total course hours per week for required courses is 23 hours.
2. Every academic year, students should choose 8 hours special course.
3. Special courses are designed for one-year period.
4. Students are not required to take same course for two or three years.
5. Students are given a guidance for special course selection.

The courses stated as special courses are the first implementations of elective courses in the Turkish Education system. As it is understood from the table, the aim of special courses was to gain life skills to students.

According to VIII. National Education meeting reports (1970) nation-wide implementation of elective courses goes back to 1970s. In VIII. National Education meeting, lower secondary school courses were presented in two group as required courses and elective courses. Moreover, the function of elective courses was given

as to enable students in exploring their interest and abilities and orientate them future education or enable them to acquire life skills. In this meeting, elective courses are defined as courses that are determined according to conditions and characteristics of the environment and students are free to choose one of them (MNE, 1970).

When IX. National education meeting reports (1974) are analyzed, it can be seen that elective courses took place extensively in this report. In this meeting, lower secondary school curriculum structure, functions and aims of elective courses in this curriculum and implementation of elective courses were explained in detail. It is stated that to prevent misleading and early orientation, a common education is given in lower secondary school. In addition, it was reiterated that lower secondary school curriculum consists of common courses to give academic skills and elective courses to meet students' individual needs. In addition, in this meeting the aims of elective courses were explained as the following;

- To enable students to understand and develop their interests and abilities
- To eliminate the inequalities due to school and the environment
- To establish relationship between the school and environment to enable students to know their environment and to make easier students' adaptation to their environment.
- To orientate students a variety of occupations (MNE, 1974).

As can be understood from the IX. National Education Meeting decisions, in Turkish education system, elective courses are included to program to create an area for students that allow them to know themselves, to explore interests, and abilities and to orientate them various occupations. By this way, it is tried to provide that students make wise choices for their future education and profession.

Moreover, in this meeting the implementation of elective course curriculum is explained in detail. It is stated that 8 hours is allocated for elective courses per week in weekly course schedule. If school facilities are not appropriate for the elective courses, time could be reduced to 4 hours per week. Furthermore, it was also indicated that the time and kind of elective courses is decided by teachers' board by

considering student interests, school facilities. In addition, determination of teachers who give the elective courses are made by school administrator and teachers board among the school teachers (MNE, 1974). These explanations show that school administrator and teachers board were have an important role in the implementation of elective courses. The list of elective courses that are proposed for schools are given below;

Table 2. 2 *National Education Meeting Elective Course List*

Elective Courses	Time Period as Years	# hours per week
(*) Occupational and Technical Education	1	4
Woodworking	1-3	2-4
Metal Work	1-3	2-4
Modelling Works	1-3	2-4
Electricity Works	1-3	2-4
Cardboard Works	1-3	2-4
Technology	1-3	2-4
Motor knowledge and Application	1-3	2-4
(*) Local Handcrafts (Embroidery, wool work, weaving, carpeting etc.)	1-3	4
(*) Home Economics	1-3	4
Clothing	1-3	2-4
Handcrafts	1-3	2-4
Home Management	1-3	2-4
Child Development and Education	1-3	2-4
Nutrients and Nutrition	1-3	2-4
Society and Family Relationship	1-3	2-4
Practical Medical Knowledge	1-3	2-4
(*) Applied Farming	1-3	4
Practical Husbandry	1	2
Practical Forestry	1	2
Practical Fishery	1	2
Practical Apiculture	1	2
Practical Poultry Husbandry	1	2
(*) Business Management	1-3	4
The Cooperative System	1-3	1-2
Bookkeeping	1-3	1-2
Marketing	1-3	1-2
Typewriter	1-3	1-2
Hotel and Restourant Services	1-3	1-2
Tourism and Environment Analysis	1	2
(*) Fine Arts Education	1-3	4
Choir	1-3	1-2
Musical Instruments	1-3	1-2

Table 2. 2 (Continued)

Painting	1-3	1-2
Sport	1-3	1-2
Dramatization	1-3	1-2
Rhetoric and writing	1-3	1-2
Photography	1-3	1-2
Camping	1	1-2
Traffic education	1	1-2
Library Education	1	1-2
Foreign Language	1-3	2-4

As can be seen in the table the diversity of elective courses was pretty much. In addition, when the type of elective courses was analyzed, it can be understood that most courses are aimed at giving occupational skills or developing abilities or interests. Furthermore, some of the courses such as nutrition and home management were devoted to develop life skills in students.

When the national education meetings after IX. meeting were analyzed, it can be seen that there is not any important development about the elective courses. In XII. National education meeting, it is emphasized that schools should have elective courses that addressing the needs of schools, regions and requests (MNE, 1988). In XV. National Education Meeting, it was stated that elective courses should be made functional in 6, 7, and 8th grades (MNE, 1996). Furthermore, in XVI. National Education meeting, it was declared that elective courses should be introductory for various occupational areas and future education possibilities as well as developing students' interests and abilities (MNE, 1999). In 1998, Board of Education decided to abolish some of the elective courses and to combine some of them. By this way, the number of elective courses were decreased to the seven in secondary schools with the 180 numbered decision. According to this regulation, weekly course hours for elective courses are decided as 3 hours for 4th and 5th grades and 2 hours for 6, 7 and 8th grades. (MNE, 1998). The table that shows the elective courses were offered in 1998-1999 academic semester given below.

Table 2. 3 1998-1999 Academic Semester Elective Course List in for Lower Secondary Schools

Name of the Course	Time Period as Years	# hours per week
Computer	1-5	1-2
Drama	1-3	1-2
Rhetoric and Writing	1-5	1-2
Second Foreign Language	1-3	1-2
Tourism	1-3	1-2
Agriculture	1-3	1-2
Local Handcrafts	1-3	1-2

Moreover, there was a striking statement in this decision that the elective courses that will be given in schools are determined by school administration by considering school facilities, students' needs and interests and parent opinions (MNE, 1998). The statement indicates that the determination of elective courses was given to school administrators instead of students. In this decision both decrease in number of elective courses and determination of elective courses by school administrators are against the philosophy of elective course. In 2005, the weekly course hours of elective courses decreased to 2 hours between 6th and 8th grades. By this way, 28 of 30 hours are allocated for required courses while two hours for elective courses. Another change in 2005 weekly course table was the determination of elective courses that will be taught to students were given to teachers' board. In addition, according to 2005 weekly course schedule, there were 8 elective courses that are advised by the MNE. The elective course list according to 14.02.2005 dated and 192 numbered decision is given below (MNE, 2005).

Table 2. 4 2005 Dated Elective Course List for Lower Secondary Schools

Name of the Course	# hours per week		
	6 th Grade	7 th Grade	8 th Grade
Foreign Language	2	2	2
Art Activities (Drama, Theater, Folk Dance etc.)	2	2	2
Sport Activities (Wrestling, Soccer, Basketball etc.)	2	2	2
Computer	1	1	1
Chess	1	1	1
Thinking Training	1	1	1
Folk Culture	1	1	1
Agriculture/Husbandry activities	1	1	1

As could be seen in the table, instead of tourism and rhetoric courses in 1998 course schedule, chess and thinking training courses are added in 2005 and also some of the courses were combined.

After that, in XVII. National Education Meeting, it was indicated that number of elective courses should be increased in primary education. (MNE, 2006). However, until 2012 there was not any significant increase in the number of elective courses. In 2012 with 69 numbered decision of the Board of Education and Discipline number of elective courses were increased up to 20 courses under six main categories (MNE, 2012b). Another important development in 2012 was that the determination of elective courses that will be taught in an academic year is given to students. It was stated that the aim of elective courses are to enable students to explore and develop their interests and abilities, therefore, the elective courses will be selected by students under guidance of their parents (MNE, 2012a). Finally, in XIX. National Education Meeting, it is decided that the weekly course hours in lower secondary schools should be 30 hours and 5 hours of them should be allocated for elective courses (MNE, 2014).

In summary, elective courses are present in the Turkish education system since the midst of 1950s. Although, the role of elective courses stated as similar from 1950s to this time, the number and variety of elective courses have changed through time. The other change were the decision makers of the elective courses. Previously, elective courses that are taught to students were determined by school administration or teacher board but at present this decision is given to students and parents.

2.4 Current Situation of Elective Courses

The number of elective courses increased after the change in primary education law that is done at March 30, 2012. The law that changes primary education law was come in to operation by publishing in April,11 2012 (Official Gazette, number: 28261). In this law, it is stated that elective courses that are organized according to

students' talents, development and preferences are offered in lower secondary schools and religious lower secondary schools to support students' future education. It is also stated that elective course list is determined by Ministry of National Education (Official Gazette, number: 28261). After that a new weekly course table was published with the Board of Education 69 numbered and 25.06.2012 decision dated decision. According to this table number of elective courses that could be offered to students increased in 21 and the choice to determine the elective courses that will be taught in semester is given to students (MNE, 2012b).

After that Board of Education updated the weekly course list with 28.05.2013 decision dated and 22 numbered decisions. Course list is given in Table 2.5.

Table 2. 5 *Elective Course List: 28.05.2013 number 22*

Elective Courses		Grades			
		5	6	7	8
Religious, Moral and Values	Quran	2	2	2	2
	Life of Prophet	2	2	2	2
	Basic Religious Knowledge	2	2	2	2
Language and Expression	Reading Skills	2	2		
	Authorship and Writing Skills	2	2	2	2
	Living Languages and Dialects	2	2	2	2
	Communication and Presentation Skills			2	2
Foreign Language	Foreign Language	2	2	2	2
Science and Mathematics	Science Applications	2	2	2	2
	Math Applications	2	2	2	2
	Environmental Education			2	2
	Information Technologies and Software			2	2
Art and Sport	Visual Arts	2/(4)	2/(4)	2/(4)	2/(4)
	Music	2/(4)	2/(4)	2/(4)	2/(4)
	Sport and Physical Activities	2/(4)	2/(4)	2/(4)	2/(4)
	Drama	2	2		
	Intelligent Games	2	2	2	2
Social Sciences	Folk Culture	2	2	2	2
	Media Literacy			2	2
	Law and Justice		2	2	
	Thinking Training			2	2
# of hours that could be selected		6	6	6	6

A change related Information Technologies and Software course was done. This course was added as compulsory course in 5th and 6th grade course list and remained as elective course in the 7th and 8th grade course list (MNE, 2012b). As could be seen in the table, there are 21 different elective courses are determined under 6 main categories. The implementation rules for elective courses are announced with the 2668 numbered and 31.08.2012 dated circular letter. According to this letter the purpose of elective courses is stated as to enable students to discover and develop their talents. In addition, the choice of elective courses is given to students. It is stated that elective courses will be chosen by students under the guidance of parents. Moreover, this letter also explains that the introduction of elective courses is done on the Ministry of education web site and 5th graders could get help from this web site for course introductions. Furthermore, it is also indicated that the courses that are chosen by 10 students could be opened as elective course. In addition, other striking issue in this circular letter is while the number of elective courses that students need to take in regular lower secondary school and religious lower secondary school is the same in 5th grade, in the other grades religious lower secondary school students could take less elective courses per week. To explain while regular lower secondary school students can choose 8 hour elective course per week, religious lower secondary school students can choose 4 hour elective course per week (MNE, 2012a). After that in 2013, the number of hours that could be selected is decreased the 6 hours per week for all lower secondary schools. Moreover, it is advised that a day in the week could be allocated for the elective courses and all of the elective courses could be offered in that day. By this way, students from different grade levels could took the same course in the same level. (MNE, 2013).

Until 2017, elective courses were implemented according to rules mentioned above. In 2016-2017 academic semester elective course list was updated with the 10 numbered 20.02.2017 decision dated decision (MNE, 2017a). When the course list is compared with the 2013, it is seen that the only change is Urban Culture course is added to the course list. This list is valid for the preferences that will be done for 2017-2018 academic semester. After that in 28.02.2017 an explanation is published

by MNE related to elective course offering rules. According to this explanation number of weekly hours separated for elective courses remained as 6 hours per week for all grades for regular lower secondary schools but it is decreased to two hours for 5th, 6th, and 7th grades and to 1 hour for 8th grade for religious lower secondary schools. Furthermore, the number of elective courses that are offered will be decreased by school to 10 with the new regulation. In other words, school will choose the 10 elective course between the 21 courses according to school facilities and will offer students' preference and students will make selection among these 10 courses that is determined by the school administration (MNE, 2017b).

In conclusion, elective course system had many changes in last five years. The pleasing change can be assumed to be increase in the elective course choice and giving the decision making to students but with the 2017 change the number of elective courses are limited by the school administration again.

2.5 Elective Courses in Other Countries

Elective courses have an important place in a secondary school curriculum since it provides flexibility in curriculum and gives an opportunity to students to participate in the decision-making processes in schools. Therefore, elective courses take place in various countries school curriculum. In most of the countries, students are allowed to choose elective courses from a predefined list. According to European commission report (2005), some of the European countries such as Italy, the Czech Republic, Denmark, Estonia, Slovenia, Sweden, and England has elective courses and in these countries, schools have right to decide on elective courses that will be taught in the academic semester both at primary and secondary level. On the other hand, Spain, Latvia, Holland, Hungary, Slovakia, and Portugal also offer elective courses in schools but in these countries, schools are not completely autonomous about the determination of elective courses. In addition, Denmark, Italy, Hungary, Slovakia, England includes the parents into decision-making process about the elective courses (EURYDICE, 2005). The general situation in European countries

is given above. In the following part, elective courses are explained on the country basis.

According to information gathered from European commission web site (2016) about the description of national education systems, France do not have elective courses in primary school, on the other hand, there are elective courses in lower secondary schools. Lower secondary schools are separated in two parts in France. While the aim of the first part is to make easier students' adaptation to school, the aim of the second part is to orientate students to future education according to their dispositions and abilities. In the second part, restricted elective courses are included in the curriculum. In this part, foreign languages like Latin, Greek, and Technology are given as restricted elective courses (EURYDICE, 2005, 2016; Gültekin, 1998).

Canada provides optional subjects in the secondary school. Secondary schools last three or four years according to state. In the first two years of secondary school, compulsory subjects are placed in the curriculum. In the last two years, the number of compulsory courses is decreased and optional subjects are added to the curriculum to enable students to examine different subject areas. Optional subjects are also seen as a way of giving students a chance to go toward their interests and to specialize on a subject for their further studies. The courses included in the curriculum are differ according to state. (Döbert, Döbert, Klieme, & Sroka, 2004). In the Ontario, which is the second largest province of the Canada, "Computer Studies" are provided in grades 10 to 12 (The Ontario Curriculum, 2008) and "Technological Education" subjects are provided in 11th and 12th grades as optional subjects of the secondary school (The Ontario Curriculum, 2009).

In England, there is a national curriculum for both primary and secondary schools. The Curriculum is divided into four key stages. Key stage 1 and 2 which includes ages 5 to 11 is applied in primary schools and key stages 3 and 4 which includes ages 11 to 16 is applied in secondary schools. The curriculum consists of core subjects and foundation subjects that are focused on special areas. (Döbert, Döbert, Klieme, & Sroka, 2004, EURYDICE, 2017). Math, Science, and English are the core subjects in both primary and secondary schools. In addition, art and design,

computing, design and technology, geography, history, music, and physical education are among the foundation subjects. Both core subjects and foundation subjects are presented as compulsory courses in the curriculum. In addition to these, in key stage 4, optional subjects are added to the curriculum. These are music, dance, drama, media arts under the subject of arts, design and technology, geography and history under the title of humanities and modern foreign languages. The course “computing” that aims to develop digital literacy in students is presented as a compulsory course in all stages of the curriculum (EURYDICE, 2017).

In Finland, primary and lower secondary schools are integrated. Students start school at age of seven and between 1-6 grades, they took class instruction, after that, between 7-9 grades they took subject-specific instruction. Finland has a national core curriculum. Objectives for education and required time for compulsory and elective subjects are defined in the curriculum. Although minimum required time for core subjects are set in the curriculum, schools have a right to integrate different subjects in curriculum thanks to flexible time allocation. Between, 1-6 grades, usually common curriculum is implemented and students take same courses. Beginning from the 7th grade optional courses are added to the curriculum. The decision on the optional subjects that will be taught is left parents (EURYDICE, 2017).

In the United States, students start school at age of five and primary education continues until the age of 11 and between ages 12-18 secondary education takes place. The federal government has a limited control over the education policies. Policies are determined by the state on the local level. Therefore, curriculum changes between states and schools according to aims of state and school. However, mathematics, science, reading and writing skills, history, and geography are the subjects that are generally taught in elementary schools. In addition to these, music, art, physical education and foreign languages are among the subjects that are given in primary education. In secondary school, there are core courses that students required to take. General science, social sciences, mathematics, English, physical education are the core courses that are generally taught to students. In addition to core courses, students are given right to take elective courses to support their

prospective education. Elective courses start to be given in 9th grade and they constitute the half of the course load until 12th grade. Elective courses that are provided to students are also changes between schools. Students have right to choose appropriate elective courses for their future education or career plans. Between 9th and 12th grades, students are given guidance to plan their future education and career, by this way, they have a chance to select subjects that could be appropriate for their plans. Students who want to continue on University generally prefer the courses such as mathematics, physics, biology, chemistry, social sciences and English Literacy (Corsi-Bunker, nd)

Germany does not have elective courses in primary school level. Elective courses start on the secondary school level in 5th grade. Compulsory and elective courses could be changed according to school type. However, mathematics, German, natural and social sciences, and the first foreign language is generally provided as compulsory courses in lower secondary schools. On the other hand, art, music, and sport could be offered as compulsory or elective according to school type. In addition, second foreign language also could be given as elective course according to the type of school. Weekly course hour for elective courses differs according to school type. (EURYDICE, nd)

To conclude elective courses takes places in curriculum in different countries. In most of the countries, elective courses are given in the secondary school level to make students know themselves and take right decisions about their further education and occupation.

2.6 Entrance of Computer Science Course in the Turkish Education System

The meeting of Turkey with computers back to 1960s. The first computers are used in Turkish Highway Institution in 1960, and then expanded to universities, banks and private institutions. After its introduction to universities, Ministry of State, Turkish Scientific and Technical Research Institution and Ministry of Education started studies for computer use and computer aided education. The use of

computers in Ministry of National Education started in 1960s in Test and Research Office for evaluation of exams. Moreover, there was a need for staff to use these computers; hence, to train this staff a program started in Bahçelievler Industrial Vocational High School in Ankara. In the following years, computer programs were opened in other vocational and technical high schools (Ekici & Yılmaz, 2013; Keser & Teker, 2011).

The first attempt for information technology course in Turkey is started with establishment of the “Specialized Commission on Computer Education at Secondary Schools” by the MNE in 1984. This commission prepared a report named as The Specialists’ Report on Computer Education in Secondary Education, and then first implementations were made according to this report. Report included issues such as starting of computer education in secondary schools, teacher training for computer education courses, and recruitment of needed equipment. Through the recommendations of this report, an elective computer course curriculum was prepared and accepted by Board of Education and Discipline in 1987 with 22 numbered decisions (Keser & Teker, 2011; MNE, 1987). Until 1990 some preparations were done in schools for information technology course such as teacher training, acquisition of computers, and needed software. Between 1990-1999, there were studies on computer assisted education. In addition, a project is started with support of World Bank named as “Project on the Development of National Education” within the context of this project, 53 schools are made as “Computer Piloting Schools” and 182 schools are made as “Computer Laboratory Schools” to expand the use of computers, and computer assisted education (OECD & MNE, 2005).

Computer literacy course was added to the primary education curriculum in 1998-1999 academic semesters. Its curriculum is accepted by Board of education with the 180 numbered and 26.08.1998 decision dated decision. The name of the course was computer course and it was given as elective course for 4th grade to 8th grade. The allocated time for this course was 3 hours per week in 4th and 5th grades and 1-2 hour per week in 6th to 8th grades (MNE, 1998). After that in 2005, with the 192 numbered decision, computer course decided to offered 1 to 8th grade as elective

course and the number of course hours decreased to one hour per week (MNE, 2005).

Computer course was named as Information technology course in 2007. Moreover, it is started to be given 1st grade to 8th grade as elective course by Board of Education and MNE with 04.06.2007 decision dated and 111 numbered decision. It was decided to be offered as 2 hours per week for 4th and 5th graders and 1 hour per week for other grades (MNE, 2007).

In addition, with the 20.07.2010 decision dated and 75 numbered decision, information technologies course is removed from primary school 1-5 grades and kept in secondary schools 6th, 7th and 8th grades one hour per week (MNE, 2010)

Moreover, in 2012 the name of the course is changed as Information Technologies and Software with the board of education 69 numbered and 25.06.2012 decision dated decision and course hour increased to two hours per week in 5th, 6th, 7th, and 8th grades as elective course (MNE, 2012b).

After that, in 2013 Information Technologies and Software became compulsory course in 5th and 6th grades as two hours per week with the 22 numbered and 28.05.2013 dated decision. On the other hand, it remained two hours per week as elective course for 7th and 8th grades (MNE, 2013).

To sum up, the introduction of computer education in primary school curriculum goes back to late 1990s. Through time, course take different status in curriculum as elective and required in the different grade levels.

2.7 Importance of Computer Science Education

Each era has its own characteristics and requirements. Steam power, combustion engine, and electricity were the main characteristics of industrial society. This era when we live is named as information society so information and communication technologies (ICT) are the key characteristics of this age.

Information society can be defined as “knowledge-led society” (Webster, 2014, p.2). The ideas, knowledge and skills became important values in this society. With the change in values, the type of knowledge that needed to survive in society also

changed and informational abilities became important demanded skills to survive in the society. Digital skills are seen as key component of the future (European Commission, 2015). Not only ICT sector, the other sectors in the market needs ICT skilled employees due to digitalization of the study processes. Today many of daily tasks are done through online environments such as banking transactions. In addition, government also started to provide services on the online environment through e-government services. Therefore, both to provide this service and to benefit from these services digital skills gain importance.

The change in the society has also changed the type of economic production and occupations. The type of economic production of this society is information and technology production (Webster, 2014). The product of information society is computer related areas, electronics, programming and robotics. (Özkan, 2009). Therefore, software developers, computer network architects, computer hardware engineers, media creators became necessary persons for both today and future. According to European Commission (2015) report, the demand for skilled person in the ICT sector could be 825.000 by 2020 in Europe if no precautions are taken. To have a place in the global market and to produce value added services, countries should raise the persons that have necessary skills. In this regard, computer science education has an important place both to raise productive citizens for society and professionals in computing area.

Computer science course aims to give students ICT skills and digital competences that are needed to live in the technology driven society. In addition, to meet children with computer science at early ages and to orientate them computer related professions are among the other purposes of the course. Therefore, this course important for countries' economic and cultural development.

2.8 Computer Science Education in Other Countries

Digital competence and ICT skills became an integral part of our society. Therefore, countries intend to give these skills in schools and it is thought that changing school

curricula from primary school to university could be helpful for raising digitally skilled persons (Rüßmann et al., 2015). A study conducted in 2014 by European commission shows that 12 European countries give programming and coding. The European countries that give programming course in their curriculum are Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Greece, Ireland, Italy, Lithuania, Poland, and Portugal. On the other hand, Belgium, Flanders, Spain, Finland, France, Luxembourg, Netherlands are countries that intend to integrate computer programming in their curriculum. The rationale for the course are stated as “fostering logical thinking skills, problem solving skills, meeting students with computer science and fostering employability” (Balanskat, & Engelhardt, 2014). Following section explains implementation of computer science course on country basis.

Finland uses interdisciplinary approach. They give ICT skills in an interdisciplinary manner. ICT skills are defined as competency areas in the core curriculum of Finland in primary and lower secondary level. To explain, there is no separate computer science subject in their subject list. Instead it is stated that, ICT skills will be developed through the other subjects. It is also indicated that competency areas should be assessed in the subject assessment period. In upper secondary schools, there is a similar situation in Finland. ICT skills are presented via “cross-curricular themes” (Eurydice, 2017). ICT skills are integrated in the cross-curricular themes. And these theme do not have subject boundary and they could be handled in any subjects indicated in subject list. By this way, students are encouraged to gain ICT skills (Eurydice, 2017). Additionally, government also offers an option for schools that school may provide ICT as an optional subject in upper secondary schools (Eurydice, 2017).

Computer Science has a great importance in United States. There are many community and governmental attempts to engage students in computer science activities (Heintz, Mannila, & Farnqvist, 2016). Although US education system is de-centralized, there are community initiatives to prepare a Computer Science curriculum with the participation and agreement of different states and organizations (Smith, 2016). These organizations aim to develop a framework for

computer science course that can be used through K-12. The purpose of this framework is to define basic knowledge and skills that can help students to live in digital society (K–12 Computer Science Framework).

England also one of the countries that give computer science as a separate subject in their curriculum for both primary and secondary level. In addition, it is presented as compulsory subject in primary and lower secondary school level (Balanskat, & Engelhardt, 2014). The main aims of this course is providing fundamental principles and concepts of computer science, gaining computational thinking abilities and making students productive users of ICT (National curriculum in England, 2013). In addition to governmental attempt, there are also community initiatives that aims to encourage computing education in schools (Jones, 2013). These community initiatives also help teachers' professional development by supporting them in terms of sources, material and training (Computing at School, nd.).

In Poland educational system, computer science course is given as compulsory in primary school. Primary school divided in two stages. First stage includes grades one to three and second stage includes grades four to six. In the first stage of primary school, integrated teaching model is applied and digital skills are also given as integrated with other activities (Eurydice, 2017). In the second stage, computer science course is given as a separate subject. It is given one hour per week in fourth to sixth grades. In secondary school level, between 7 and 9 grades it is also given one hour per week for two years (Sysło, & Kwiatkowska, 2015).

Australian curriculum has changed in 2015. In this period, Digital Technologies, and Design and Technologies courses are added to the curriculum. The aim of these courses are to make students develop computational thinking skills and ICT skills through digital technologies, and to taught programming (Digital Technologies, 2017). In Australian education system, duration of compulsory education is 10 years and the first 6 or 7 years constitute primary school depending on state and between 7-10th years constitute the secondary school. The objectives of Digital technologies course are spread out in ten years. In other words, students took digital

technologies course as mandatory for ten years both in primary and secondary school (Australian Curriculum).

Greece is also one of the countries that gives ICT education in primary school level. Primary school consists of six grades and ICT education is given in all grades. Primary school subjects are taught by single teacher. On the other hand, there are specialist teachers to taught the lessons such as ICT, art, music and Physical education (Eurydice, 2016). The purpose of this course indicated as developing logical thinking and problem solving skills in students, to taught programming to students and encourage them to have a profession on ICT sector. In addition, developing ICT skills in students is also one of the purposes of this course. Greece offers ICT course as selective subject in primary school. ICT subject is given as compulsory subject only in first grade of upper secondary school (Balanskat, & Engelhardt, 2014).

To sum up there are different approaches about application of the computer science education among the countries. To explain, either computer science subject put in to curricula as separate subject or it is integrated as interdisciplinary theme. In addition, this course is given as elective or compulsory in different countries on different grade levels. On the other hand, although the name of the course changes in countries, the aims are generally same; developing ICT skills, logical thinking skills, programming skills and encouraging students to have ICT related professions.

2.9 Computer Science Education in Turkey

To keep up with the needs of era and to raise citizens who can survive in this era digital skills should be gained in the early ages. Therefore, just as other European Countries Turkey also has Computer Science course in its curriculum.

Computer science course added the primary school curriculum as an elective course in 1998-1999 academic year with the 180 numbered and 26.08.1998 decision dated decision of Board of education (MNE, 1998). Until today course have some status

and name changes. Today the name of the course is Information Technologies and Software and it is not given in primary school level. It is given in secondary school level as compulsory course in 5th and 6th grades and as elective course in 7th and 8th grades. It is given as 2 hours per week in stated grades (İlköğretim Kurumları Haftalık Ders Çizelgesi, 2017).

General aim of the course is to make students use ICT technologies productively and effectively. In addition, to make them responsible citizens in terms of ethical use of ICT is also one of the general aims of ITS course. This course also aims to develop digital competences in students, guide them to use ICT tools for their learning and social interactions. In addition, to foster their problem solving skills and to introduce them programming is also among the purposes of the course. The course curriculum has three levels as basic, intermediate and advanced and teacher can start one of them according to students' readiness levels. (ITS Curriculum, 2012).

2.10 Related Studies

There are different studies in the literature, which focus on the implementation of elective courses. Some issues such as determination of elective courses that will be offered to students, reasons that affect students' elective course selection decision, motivators for elective courses, mostly preferred courses, and difficulties faced in elective courses are mentioned in some studies in the literature. These studies and their findings will be summarized in the in the following section.

Mostly Preferred Courses

The first issue that draws attention in the literature is the mostly preferred courses. Literature shows that in previous years mostly taught elective courses in primary schools were Information Technologies, Supplementary Courses, Art and Sport activities and Chess (EARGED, 2008). On the other hand, a study done by Özü, (2015) also have findings that support these findings; Information technologies course is found as mostly preferred course and it is followed by Media Literacy

course. A newer study conducted by Karagozoglu shows that mostly preferred courses among 5 graders are Mathematics Applications, Quran and Foreign Languages and least preferred courses are Visual arts, Music, and Drama. In addition, same study shows that students think that elective courses should be courses like Visual arts, Sport while parents think that elective courses should be the courses that can help students in required courses and they see elective courses as a mean to foster students' academic skills (Karagözoğlu, 2015). Another study which is carried out in 2015 by Uysal shows that mostly preferred courses among 7th graders is Sport and Physical Activities, and it is followed by Mathematic Applications, Music and Science applications. On the other hand, the least preferred courses are French and Law and Justice.

To sum up, studies which are done in 2015 shows that the mostly taught elective courses could be collected under two groups; courses that support main courses such as Math and Science applications and courses that satisfy students interests and relaxes them as Art and Sport activities.

Reasons to Select

The other issue that is important in the elective course selection processes are the factors that affect students' preferences. There are different studies that handle this issue.

The studies that investigates course selection reasons could be handled under two groups as studies conducted among university students and studies conducted among secondary and lower secondary school students. The first group is the reasons that university students are taking in to consideration in their elective course selection processes. Studies shows that content description, appropriateness of time, easiness of the course, contribution to professional and personal development, contribution to knowledge, instructor status, course instructor, students' interest and abilities, having friends on the course, course up-to-dateness, prior courses, teaching and learning processes, and grading system are considered by the

university students in the course selection process (Babad, 2001; Kurnaz & Alev, 2009; Schuhmann & McGoldrick, 1998; Tezcan & Gümüő, 2008).

The second group are the reasons that shaping the decisions of lower secondary school and secondary school students. One of the study which is conducted with high school students shows that the factors that affect students' elective course selection are liking the subject, liking the teacher, course's contribution to personal development, and its' usefulness on the future and university admission (Anderson, 2006).

The studies conducted in the lower secondary school level shows that gaining more knowledge, developing themselves, increasing grade point average, reviewing the subjects learned in the other courses, relaxing, taking easy courses and having friends on same course are motives that orientate students in course selection process (Eőbahoglu, 2015; Kotan, 2015). On the other hand, parents and teachers are also crucial actors that have role in lower secondary school students' course selection processes. But there is a contradiction between the students and parents' opinion about the course selection. While students states that courses should be the courses that apply to their interest, desire and abilities, parents think that elective courses should contribute to main course (Karagözođlu, 2015). On the other hand, another study conducted with lower secondary school students shows that while students indicate that they consider course contribution in the selection process, teachers state that students are effected from outsiders in the course selection process. They also indicate that students are either impressed by others in the selection process or they make meaningless choices (Akay et al., 2016).

In conclusion, elective course's contribution to personal development and knowledge, course teacher, having friends on the course, usefulness for the future and easiness of the course are the common considerations between university students and lower secondary and secondary school students. On the other hand, university students also consider content description, appropriateness of time, course up-to-dateness, prior courses, teaching and learning processes, grading system while choosing elective courses. In addition, lower secondary school

students give importance on increasing grade point average, reviewing the subjects learned in the other courses, and relaxing issues during their course selection process.

Persons who Orientate Students in Selection Process

The other issue in elective course selection process is the persons that affect students' elective course preferences. Studies indicate that parents have considerable influence on lower secondary school students' preferences (Akay et al., 2016; Eşbahoglu, 2015; Kotan, 2015; Uysal, 2015). In addition, students' elective course preferences are affected by their friends, and teachers (Akay et al., 2016; Eşbahoglu, 2015; Kotan, 2015; Uysal, 2015). Moreover, school administrators are also among the people who orientate students in course selection processes (Akay et al., 2016). Uysal's study (2015) that is administered with 5, 6, and 7th graders also supports these findings. According to this study, students take their parents' opinion mostly and secondly they take their friends' opinion. Studies also show that school counsellors are among the least advised persons, they only referred by students whose parents are illiterate or have low educational level (Aslantaş, 2011; Uysal, 2015). Öztürk and Yılmaz (2013) also indicates that parents select elective courses according to their socio-cultural values without taking students opinion. They explained that in the Turkish context getting community approval and setting goals according to expectations of society is important than individuals' unique interest and dispositions. Since, academic achievement is seen important than personal development in our society as studies showed (Karagözoğlu, 2015; Uysal, 2015) parents select courses that can contribute students academic achievement.

In conclusion, although the right to choose elective courses are given to the students by MNE, and it is expected that students select courses according to their interests, the reality is that choices are affected by other persons.

Informing Prior to Selection Process

Students satisfaction is affected from their expectations and the expectations could be more realistic if students have information about the courses offered. Therefore, to increase students' satisfaction from the course, getting information is important prior to selection.

When the literature is analyzed, situation is not seem pleasing. A study which is done with primary school students shows that students think there is not enough information about the elective courses prior to selection process (Karagözoğlu, 2015). Another study conducted by Eşbahoğlu (2015) also supports this argument and indicates that there is not any informative activity during the course selection process. On the contrary, Uysal (2015) revealed counter finding about this issue. The 5, 6, and 7 graders who are the participants of Uysal's study agree that elective courses are introduced prior to selection. Moreover, teachers also agree with elective courses are announced to parents prior to elective course selection process.

In conclusion, there are contrary opinions on this issue. This could arise from differences in schools. While students are informed in some schools, they are not informed in others.

Determination of Elective Courses

The factors that are affecting the opening of the elective course are also important in terms of healthy management of elective course policy. This issue was investigated by Özütl (2015) and he found that school administrators indicate that students' preferences are the first factor and it is followed by the presence of a teacher who can teach the course and school facilities. On the other hand, teachers think that availability of school facilities are the first factor that are considered in the opening of the elective courses. An older study shows the similar results in different order. According to a study dated 2008, availability of school facilities are showed as the first factor that is considered in the opening of the elective courses by school administrators, and it is followed by the presence of a teacher that can

teach the course (EARGED, 2008). It is pleasant to see that students' preferences are more important in these days. Another study carried out by Uysal (2015) also found that some of the elective courses are not opened due to school facilities and lack of teachers that can teach the related course.

To sum up, student choices, school facilities, presence of teachers who will taught the course are the factors that are taking in to consideration in opening process of elective courses.

Determination of Teachers to Teach Elective Courses

The teachers have crucial role in the effectiveness of the courses. Therefore, determination of teachers who teach elective courses is important in terms of the success of the course. To this end, Eşbahoğlu (2015) investigated this issue in his study. According to results, the teachers who have a similar major are selected for the elective course and no in-service training is given to teachers. This finding also supported by Öztürk and Yılmaz (2013), their reseach also indicates that teachers who have similar major are assigned for electives in the first order. The second option is the teacher that have less course load. Moreover, if there is not any teacher who can give the course schools tried to recruit teacher from the outside of the school. The older study shows that appropriateness of teacher major for the course, teachers' course load and presence of teachers that took in-service training related to given elective course were the factors that are considered in the determination of teachers (EARGED, 2008)

In conclusion, when there is not a teacher to teach the elective course, teachers that are chosen from others. In this process, having similar major, having less course load and taking in-service training about related elective course are the criteria that are used in determination of teachers.

Usefulness of Elective Courses for Students

Elective courses are seen as an opportunity to meet students with new areas and to enable them test themselves in these areas. Theoretically, it is expected that students develop their knowledge and understanding on new areas and discover their talents on these areas through elective courses. But the critical questions are what is going on in the reality and how stakeholders experience the benefits of elective courses. This issue was also investigated by some researchers. The studies that investigate this issue summarized below.

The benefits of elective courses for students stated by students and parents as revealing students' talents, meeting their individual differences, increasing their self-confidence, raising attention toward school (Karagözoğlu, 2015). Teachers and school administrators express the benefits of elective courses for students as giving general knowledge and information that could be beneficial in daily life and contributing their world knowledge (Taş, 2004; Uysal, 2015). The other benefit stated by students is elective courses are helpful for students' decision making processes related to their profession. On the other hand, teachers and school administrators are not in the same opinion with students; they think that elective courses are not helpful for students' choice of profession (Uysal, 2015). On the contrary, the other study done by Deryakulu, (2007) proponed that there is a relationship between the elective course and students career choices. This research indicates that students who take computer courses in their education have computer self-efficacy and this situation makes students prone to go beyond computer related career.

To sum up the benefits of elective courses could be listed as revealing students' talents, meeting students' individual differences, increasing their self-confidence, increasing the motivation toward school and orientation for professions.

Teaching and Learning Processes in Elective Courses

Teaching and learning processes is the other important issue related to elective courses in terms of playing role in students' elective course preferences. By considering this issue some studies investigated how subjects are taught in elective courses. Results of a study that is conducted with primary school 5th and 6th grade students show that teachers try to include activities that students can enjoy during the lessons. In addition, the activities that can foster, and reinforce learning which is gained in core courses, are also included in the elective courses. Moreover, same study also shows that in some elective courses, there are some activities which are not indicated in that course's curriculum or students are left free. In addition, the same study shows that some students indicated that no subjects are taught in the courses (Akay et al., 2016). Another study done by Taş (2004) also shows that mostly used teaching methods in elective courses are lecturing, questioning and practicing.

In conclusion, while in some of the elective courses enjoyable activities, and review based activities shaping the teaching and learning processes, in some no subjects are taught.

Evaluation in the Elective Courses

Evaluation is one of the basic elements of the teaching and learning processes. It is seen as opportunity to follow student development and to give feedback for students. Therefore, evaluation processes in elective courses is also investigated by various researchers.

There are opposing ideas about the evaluation on the elective courses. To explain, half of the teachers' advocate that there should not be grade based evaluation. The reason for this idea is showed as when there is grade based evaluation, students took easier courses rather than appropriate courses for their interest. On the other hand, the other half think that there should be grade based evaluation otherwise students underestimate the elective courses (Eşbahoglu, 2015). In another study conducted

by Uysal (2015), students defend that elective courses should not be graded. On the other hand, teachers proposed students' success on elective courses should be evaluated by grading. As a reason they state that student give more importance to the course when it is graded. When mostly used evaluation methods are investigated paper-based exams, and written expression emerges as mostly used evaluation methods and objective tests are as least used ones (Taş, 2004).

To sum up, evaluation on elective courses is controversial issue. While some stakeholders think there should not be grade based evaluation, other think that elective courses also should be graded to keep students' motivation.

Problems Related to Elective Courses

The main problems hinder the healthy implementation of elective courses could be collected under three groups as school conditions, teacher related problems, and equipment related problems.

The mostly faced problems in elective course implementation arises from school conditions. Literature shows that the schools have difficulty in allocating appropriate place for elective courses (EARGED, 2008; Özüt, 2014) . In addition, physical facilities of the schools are inadequate for the implementation of the elective courses (Eşbahoglu, 2015; Uysal, 2015). It is frequently stated that schools do not have enough number of classrooms for elective courses (Karagözoğlu, 2015). Moreover, crowded classrooms are the mostly faced problems in the elective course implementation process (Uysal, 2015).

The second group of problems are teacher related problems. The main problem is schools do not have teachers who have appropriate major for elective courses. Therefore, teachers who are from different major teach the elective courses. As a result, lack of teacher and the mismatch between the teachers' branch and the course that they taught constitute problem in elective courses (EARGED, 2008).

The third group of problem is equipment related problems. Schools have difficulty in meeting needed equipment and supplies for elective courses. The lack of course

book, inadequacy of appropriate printed materials, and lack of equipment are major problems that hinders the implementation of elective courses (EARGED, 2008; Eşbahoglu, 2015; Karagözoğlu, 2015; Özü, 2014).

To sum up, school facilities, lack of materials, and lack of teachers are the problems faced in implementation of elective courses.

Course Status

Student motivation toward the course is one of the factors that affect the course success. Therefore, some of researchers studied the effect of course status on students' motivation. Uysal (2015) took teachers' opinion on this issue in her research. According to results, students' motivation in elective courses are better when the course is students' own preference. In other words, when the courses are taken by influence of others like parents and friends, students became less motivated toward course. Another study administered with computer science teachers also investigated same issue and found similar results. The results indicate that while some of teachers think that elective status can increase student motivation toward the course, other think that elective status could result in the underestimation of course by students (Eyidoğan, 2009; Eyidoğan et al., 2011). Besides, there are some teachers think that elective status could be helpful to decrease students' anxiety toward the course (Eyidoğan, 2009). On the contrary, another study propones contrary findings about this issue. According to results of this study, teachers think that elective status neither increased students' motivation or interest toward the course nor decreased their anxiety (Öztürk & Yılmaz, 2013).

In conclusion, there are opposite opinions about the effect of course status on its value. To explain, while some group of teacher thinks that elective status leads to underestimation of course, others think it could motivate students toward the course.

Computer Science Course

This part focuses on the studies that handle computer science course. Frequently used methods in teaching and learning processes and problems faced in computer science course are as follows.

The teaching and learning processes in computer science course also investigated by researchers and it is found that demonstration, lecturing, practice and questioning are found as frequently used activities. (Akbiyik & Seferoğlu, 2012; Şerefoğlu Henkoğlu & Yıldırım, 2012). Moreover, problem solving, group work, and discussion are the second mostly commonly used activities in the computer science course (Akbiyik & Seferoğlu, 2012) In addition, when frequently used materials are investigated course book and handouts are found as mostly used course materials. (Akbiyik & Seferoğlu, 2012)

The mostly faced problems in computer science course is time management problems and technical inadequacies. Some of the studies conducted with computer science teachers show that time management is a crucial issue in computer science courses. Teachers indicated that they spent some time on off task activities such as arrangement of computer lab, opening and preparation of computers, therefore, teachers have difficulty in complete activities indicated in curriculum (Seferoğlu, 2007; Şerefoğlu Henkoğlu & Yıldırım, 2012).

The other issues that affect the course efficiency is technical problems and lack of adequate infrastructure in schools (Gülcü, Aydın, & Aydın, n.d.; Şerefoğlu Henkoğlu & Yıldırım, 2012). In addition, another study also mentioned this issue and lack of instructional material, crowded classrooms, outdated computers and equipment are showed among the problems of computer science course (Durdukoca & Arıbaş, 2011; Parlakkılıç, 2014; Şişman Eren & Şahin-Izmirli, 2012).

In conclusion, demonstration and lecturing are mostly used teaching methods in the computer science courses. Besides, technical problems and inadequacy of the materials are the problems that affect the effectiveness of computer science course.

2.11 Summary of the Literature

Elective courses are on the curriculum since 1880s in the world, and they are in Turkish education system since 1950s. Elective courses were putted in the curriculum for various reasons such as discovery and development of talents and to create democratic school environment. Elective courses are applied in various countries in different levels. The application changes between countries. While in some countries schools are free to determine courses that will be taught students such as England, in some of them schools are not autonomous to determine elective courses. In Turkey, elective courses that could be taught in the schools are defined by MNE and schools responsible for the opening the courses that students want to take. Intention is opening courses that applies to students' interest and desire and enable students to develop themselves on new areas. But literature shows that there could be some problems during the implementation of elective courses such as falsified student choice, meaningless choices, lack of appropriate place, teacher and equipment.

On the other hand, when the method of studies that is covered in this literature review is analyzed, it could be seen that mostly used research method is survey ($n=11$) method. In addition, case study ($n=3$) method is also used to investigate elective courses. Moreover, two of the studies did not indicate a specific method, instead they used a more general definition as qualitative research. The data collection tools of the studies covered in this literature review are questionnaire ($n=13$), interview form ($n=5$), documents ($n=2$), observation form ($n=1$). When the participants of the studies are analyzed it can be seen that students ($n=12$), teachers ($n=9$), parents ($n=1$), school administrators ($n=6$), instructors ($n=1$) constitute the participants. And also it is remarkable that most of the studies that are covered done in lower secondary school level.

Table 2. 6 *Studies Covered in Literature Review*

Author	Method	Data Collection Tool	Participants
Akay, Çirakoğlu, & Yanar Hancı, 2016	Case Study	Semi-Structured Interview Written Opinion Form Observation Form	5th and 6th Grade Students Teachers
Babad, 2001	Survey	Questionnaire	Undergraduate 5th and 6th Grade Students
Eşbahoğlu, 2015	Qualitative	Semi-Structured Interview	Teachers Parents School Administrators
Kotan, 2015	Case Study	Semi-Structured Interview Document Analysis	Secondary School Students Teachers School Administrators
Öztürk and Yılmaz, 2013	Qualitative	Questionnaire Interview	Teachers School Administrators
Schuhmann & McGoldrick, 1998	Survey	Questionnaire	Undergraduate Students
EARGED, 2008	Survey	Questionnaire	Teachers School Administrators
Taş, 2004	Survey	Questionnaire	6, 7, and 8th Grade Students Teachers
Uysal, 2015	Survey	Questionnaire	5, 6, 7th Grade Students Teachers School Administrators
Özüt, 2014	Survey	Questionnaire	Teachers School Administrators
Eyidoğan, 2009	Survey	Questionnaire	Teachers
Aslantaş, 2011	Survey	Questionnaire	9th Grade Students
Deryakulu, 2007	Survey	Questionnaire	8th Grade Students
Karagözoğlu, 2015	Survey	Questionnaire	5th Grade Students
Tezcan & Gümüş, 2008	Survey	Questionnaire	Graduate Students
Kurnaz & Alev, 2009	Case Study	Questionnaire Interview Form Document Analysis	Graduate Students

Information Technologies and Software course is also one of the courses that is offered as elective course for 7th and 8th graders in lower secondary school. This course is important for students to gain requirements of knowledge lead society. Hence, the implementation of this elective course should be investigated. Besides, as could be seen in the table, the mostly used method to investigate elective course implementation is survey, the number of studies that go schools and observe the

situation in natural setting is limited. Therefore, this study aims to handle elective course implantation process in its natural setting on the context of Information Technologies and Software course.

CHAPTER 3

METHOD

This chapter explains the design of the study. This chapter starts with a brief restatement of the research problem and research question. And then, it continues with the description of the research method of study and sampling procedures. Later on, participants, data collection instruments, data collection, and analysis procedures are delineated. Finally, the trustworthiness of study and ethical issues are presented.

3.1 Research Problem and Research Questions

The main concern of this study is to investigate the elective course policy in public lower secondary schools through the Information Technologies and Software (ITS) course. This study aims to explore elective course offering process, factors that affect the elective course offering in the schools, reasons behind student selection, and elective course implementation process within the concept of ITS elective course. In the scope of study, elective course offering and implementation processes are explored by means of observation, interview and questionnaires. The following research question guides this study;

How is the ITS course policy put into practice in 7-8 grade in public lower secondary schools regarding the perceptions of school administrators, teachers, and students?

3.2 Overall Research Design

To have a deeper understanding about the elective course offering and implementation process, qualitative case study was used as the research method of this study. Merriam (2009) defines case study as in-depth description and analysis of a bounded system. Creswell (2007) makes a more comprehensive definition for the case study which is “a qualitative approach in which the investigator explores a bounded system (a case) or multiple systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information” (p.73). As can be understood from the definitions, the key issue in the case study is collecting in-depth, comprehensive and systematic data from multiple sources about the covered subject (Creswell, 2007; Merriam, 2009; Patton, 2002). According to Merriam (2009) case study should be preferred as a research method when a researcher needs to insight, discovery, and interpretation (p.42). In addition, in a case study, the questions may address a description of the case and the themes that emerge from studying it (Creswell, 2009, p 130). Similarly, in this research, the researcher also wants to have a rich description of the elective course offering and implementation process.

Moreover, Yin (2003) proposed that case studies are used when "why" or "how" questions are asked as research questions, when a researcher has little or no control over the events and when the focus is on a contemporary phenomenon within some real-life context. (p.1). In other words, according to Yin, there are three indicators to choose the type of research method; type of question, the degree of control of researcher on investigated issue and degree of contemporaneity. The case study is used when contemporary events are investigated and relevant behaviors cannot be manipulated. (Yin, 2003, pp.7-8). Moreover, Stake (2005) indicates that case study is used for understanding of real cases in real situations. When the purpose of this study is analyzed, it can be seen that case study will be appropriate research method for this study. In this research, our phenomenon is Information Technologies and Software (ITS) course as an elective course and this study aims to explore the elective course offering and implementation process in schools through ITS course. It is thought that case study design will allow the researcher to analyze and identify

the elective course policy in a detailed and comprehensive way; therefore, case study is used as research method for this study.

The particular research design of this study is explorative and embedded single case design. According to Yin (2003) explorative case study is used when there is “no clear, single set of outcomes” (p.15). Moreover, the purpose in explorative case study is to explore the different outcomes of investigated issue. In this research, implementation of elective course system was explored in three different schools. Since, school conditions are different the outcomes also different. Therefore, explorative design is used to examine the different conditions of elective ITS course in three different schools. Embedded Single case design with multiple units were used as research design. Yin (2003) indicates that single case design could be used when the case "representative or typical case". The intent of single case design is to gather the information about a common situation and context (p.41). The common case is the elective ITS course offered in three schools in Çankaya District as a single embedded case (Figure 3.1).

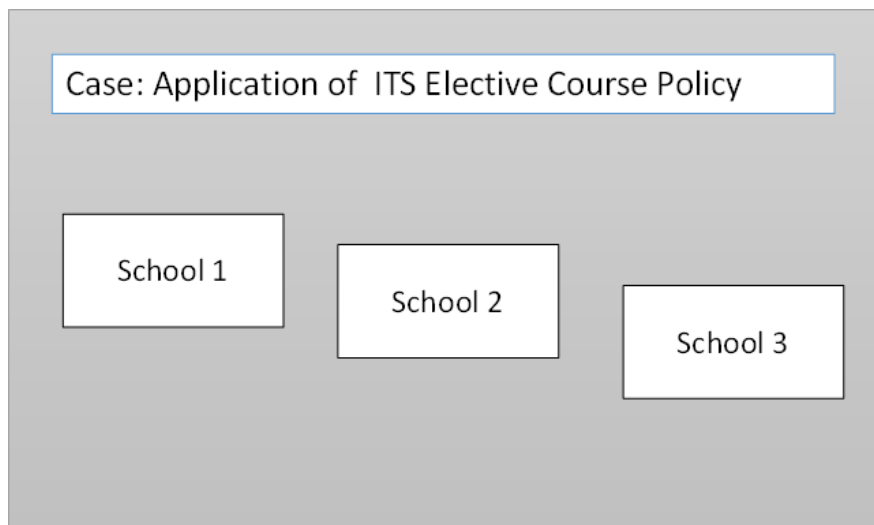


Figure 3. 1. Embedded case study

In this study, three representative schools with different sizes and facilities were selected from the sample and data was collected from these schools. Therefore, three different schools are the unit of analysis of this study. The findings gathered

from these school assumed as illustrative for the schools in the same sample. Moreover, this study is conducted in lower secondary schools. ITS course is offered as an elective course in 7th and 8th graders, therefore, data were collected from the 7th and 8th grade students. The figure 3.2 shows the details of the design of the case study.

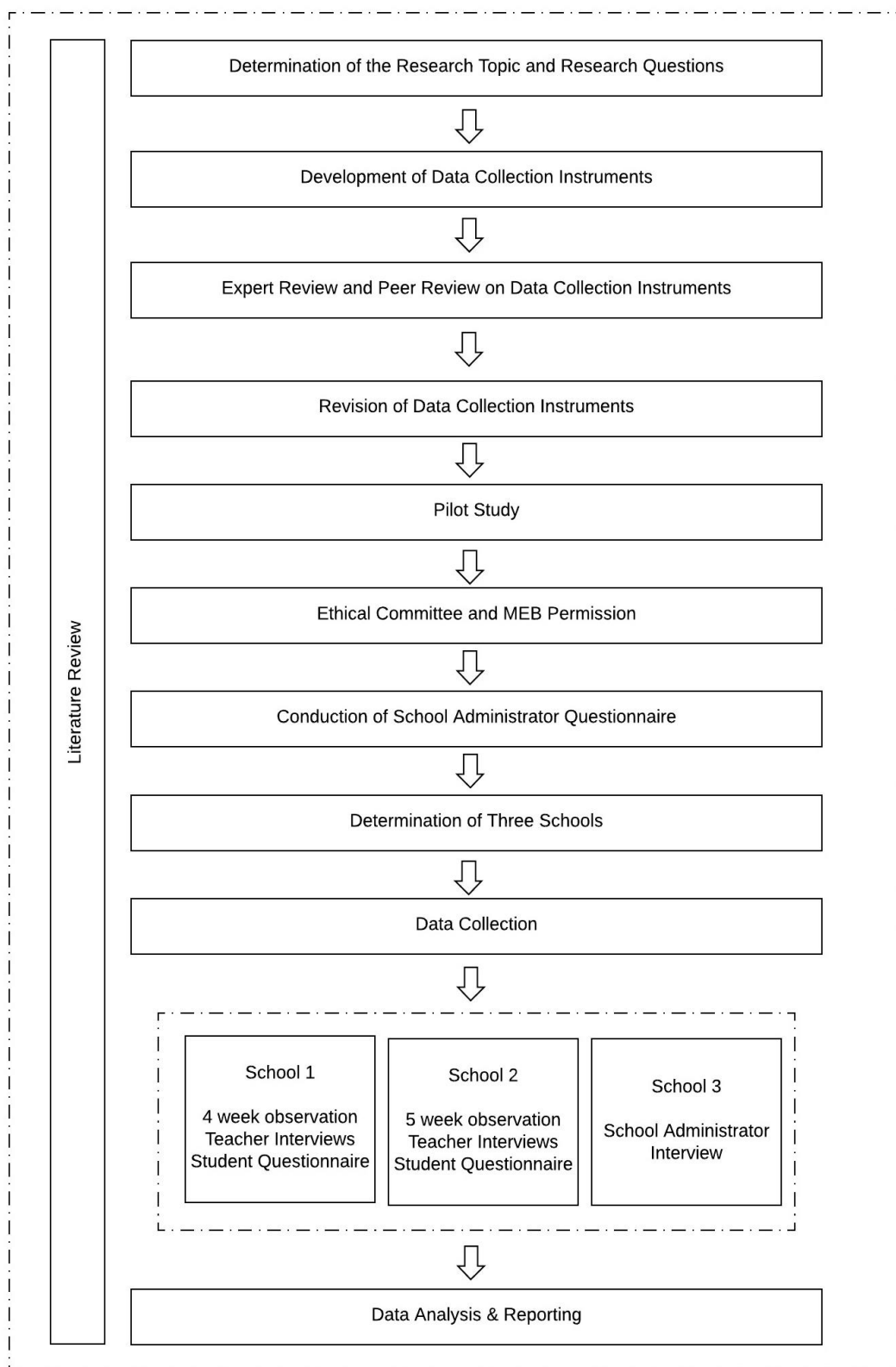


Figure 3. 2. Overall design of the study

3.3 Sampling Procedure

The lower secondary schools which are located in Çankaya district of Ankara were examined to identify the unit of analysis. The schools were determined by using purposeful sampling method. Purposeful sampling is used when researcher intends to discover the investigated issue and wants to have a deeper understanding of the situation. The aim of purposeful sampling is to find the cases that could provide more information about the investigated issue (Merriam, 2009). Hence to obtain in-depth information about the phenomenon of the study, purposeful sampling method was used. The procedure that is used for sample selection is explained below;

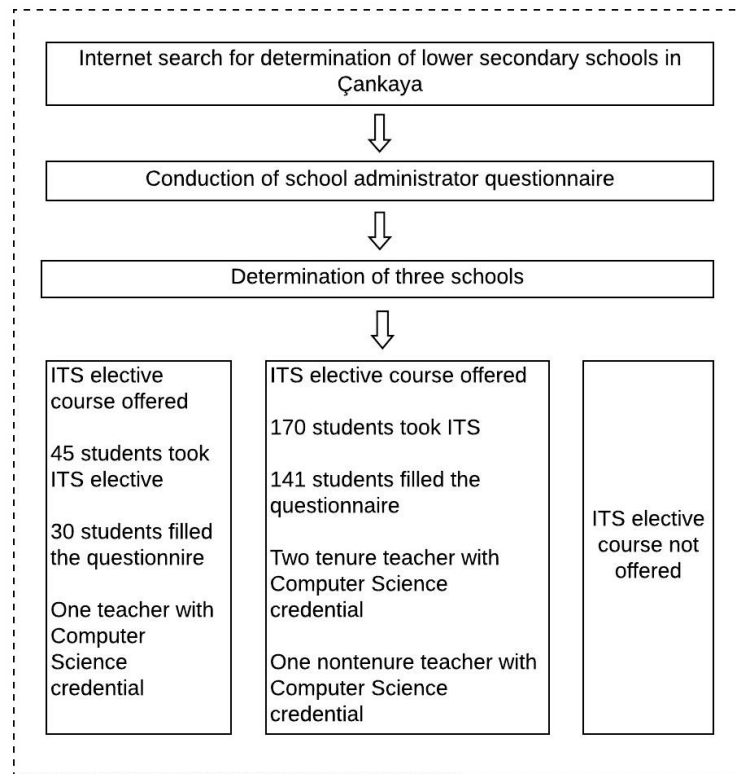


Figure 3. 3. Participant selection process

Firstly, the lower secondary schools which are located in Çankaya ($n=56$) were determined and a questionnaire was applied to school administrators of 18 schools to gather information about these schools. Based on questionnaire results, three lower secondary schools were purposefully selected for this case study. The criteria

were used in the selection of schools were number of students who take the elective ITS course, number of teachers who gives this course and the facilities of the school. The schools were determined by using following criteria. For the selection of first school following criteria were used; one computer teacher and at least one class who took ITS course, at least one computer lab and lab facilities were not so good. The criteria for the second one, more than one teacher, and at least three different class for each grade level namely 7th and 8th grades and at least one computer lab with better facilities. For the third school not to open ITS course was used as a selection criterion. After the school administrator questionnaire was conducted in schools the results were analyzed quickly and three schools were determined. The characteristics of the first school were ITS course was offered as an elective course by a teacher who has a major of computer science education, and there was only one computer science teacher in this school. In addition, there was a computer lab and school administrator stated that there were problems due internet connection and outdated hardware. Moreover, there were 45 students who take ITS course as an elective course. In the second one, ITS course was also offered as an elective course and there were three teachers with computer science credential. In addition, there were approximately 170 students who take ITS course as an elective course. Besides, school administrator indicated that they use fiber internet connection and computer lab was renewed with the effort of teachers. For the third school, the school with no ITS course offered were selected to explore the reasons behind not to open ITS course. School contexts are elaborated in the next section.

3.4 Characteristics of Participants

The participants of this study are composed of administrators, the teachers who teach elective ITS course in two schools and the students who take the elective ITS course in selected schools. The demographic characteristics of participants are summarized in the following table.

Table 3. 1 *Demographic Profiles of School Administrators*

Participant	Gender	Duty	Managerial Experience	Major	Degree
1	Male	Deputy headmaster	28	Technology Design	BS
2	Male	Deputy headmaster	10	Technology Design	BS
3	Male	Deputy headmaster	10	Technology Design	BS
4	Female	Deputy headmaster	3	Science	MS
5	Male	Deputy headmaster	8	Science	BS
6	Male	Deputy headmaster	10	Turkish	MS
7	Male	Deputy headmaster	8	Special Education	BS
8	Male	Deputy headmaster	8	Physical Education	BS
9	Male	Deputy headmaster	10	Psychological Counselling and Guidance	BS
10	Female	Deputy headmaster	1	Special Education	BS
11	Male	Deputy headmaster	8	Science	BS
12	Female	Deputy headmaster	3	Turkish	MS
13	Male	Deputy headmaster	4	Science	BS
14	Male	Deputy headmaster	23	Technology Design	BS
15	Female	Deputy headmaster	3	Turkish	MS
16	Male	Deputy headmaster	20	Technology Design	BS
17	Male	Principal	18	Classroom Teacher	BS
18	Male	Principal	5	Science	MS

In the beginning of the study, school administrators of 18 lower secondary schools in Çankaya are visited and information about the number of computer science teachers, whether ITS course offered or not and opinions about the elective ITS course are collected. The demographic information about the school administrators are given in the Table 3.1. In lower secondary schools, there are deputy headmasters who are responsible from offering and the arrangement of the elective courses. Therefore, most of participants are deputy headmaster. In addition, 14 of the participants are male, while four of them female. Moreover, administrators who constitute the participants of this study have average 10 years of experience on administration. When school administrators' major is analyzed, Science ($n=5$) and Technology Design ($n=5$) constitute the majority. In addition, it is also remarkable that most of the participants have undergraduate degree ($n= 13$).

Table 3.2 *Demographic Profiles of Teacher Participants*

Participant	Gender	Age	University of Graduation	Degree	Experience	Major
1	Male	36	Gazi University	BS	14	Computer Science
2	Female	37	Ankara University	BS	14	Computer Science
3	Male	36	Ankara University	BS	12	Computer Science
4	Female	24	Karadeniz Technical Uni.	BS	1	Computer Science

Table 3.2 shows the demographic profile of teacher participants of study. Four ITS teachers from the two different schools constitute the teacher participants of the study. Two of them are female, while two of them are male and the average of ages is 33. Two of the participants are graduated from Ankara University, while one of them Gazi University and the other one Karadeniz Teknik University. All of the participants have an undergraduate degree. Moreover, while two of them have 14 years of experience on teaching, one of them has 12 years and the other one has 1-year experience. Finally, major of all teachers are Computer Science education.

School 1

This school is placed in the one of the center districts of Çankaya province and it is a whole day school. This school has a computer lab with 20 computers. There was one computer science teacher in this school whose major is Computer Science. This teacher gives the required ITS course for 5th and 6th graders and elective ITS course for 7th and 8th graders. At the same time, he was responsible for technical maintenance of computer lab, interactive whiteboards placed in the classrooms and other computers used in the school.

There were 80, 7th grade students in this school. Among 7th graders, 45 of them preferred ITS elective course in their course selection processes, However, 15 of them were accepted in this course. In addition, there were 153 8th grade students in this school and 80 of them indicated ITS course as a preference in their elective course selection petition but 30 of them were accepted in this course. In the data

collection process, there was one elective ITS class for 7th graders and two elective ITS classes for 8th graders.

The demographics of students who participate in this study are given in the Table 3.3.

Table 3. 3 *Demographics of Students Participating from School 1*

		<i>f</i>	%
Gender	Female	6	20
	Male	24	80
	Total	30	100.0
Age	12	2	7
	13	12	40
	14	15	50
	15	1	3
	Total	30	100.0
Grade	7th Grade	13	43
	8th Grade	17	57
	Total	30	100.0

As seen in Table 3.3, 80 % of participants are male and 20% of participants are female. When the ages of participants are analyzed, it can be seen that 50 % of the participants are at the age of the 14 while, 40% of them at the age of 13, 7% of participants are at the age of 12 and 3% are 15. Moreover, when the distribution of participants by grade is analyzed, it can be seen that 43 % of participants are at 7th grade while 57 % of them are at 8th grade.

School 2

The second school which is also located in the Çankaya province. This school has two computer labs. One of the labs has 20 computers the other one has 21 computers. There were three computer science teachers in this school whose major is Computer Science. All of the teachers were giving elective ITS course for 7th and 8th graders as well as they were giving required ITS course for 5th and 6th graders. One of them took responsibility of technical maintenance of computer lab, interactive whiteboards placed in the classrooms and other computers used in the school.

School 2 was relatively large size when compared to school 1. There were 284, 7th grade students and 309 8th grade students in this school. 85 of the 7th graders and 82 of the 8th graders preferred ITS course as an elective course and all of them took this course. There were 7 elective ITS classes; 4 of them consist of 7th graders and 3 of them consist of 8th graders.

The demographic information about the student participants from school 2 are given in the table 3.4.

Table 3. 4 *Demographics of Students Participating from School 2*

		<i>f</i>	%
Gender	Female	36	25
	Male	105	75
	Total	141	100
Age	12	3	2
	13	64	45
	14	71	50
	15	3	3
	Total	141	100
Grade	7th Grade	64	45
	8th Grade	77	55
	Total	141	100

Table 3.4 shows that 105 of participants are male and 36 of them are female. In addition, 50% of them at the age of 14 while 45 % are at the age of 13. When the grades of participants are analyzed, it can be seen that 55% of participants are 8th graders and 45% of participants are 7th graders.

School 3

School 3 is also placed in the Çankaya province. This school has a tenure computer science teacher and a computer laboratory. This teacher was giving the compulsory ITS course for 5th and 6th grade students. There were 94 7th grade students and 142 8th grade students in this school. Elective ITS course was not opened in this school. School administrator show as reason that, this course was not selected by students.

3.5 Data Collection Instruments

Data collection tools of this study are composed of school administrator questionnaire, student questionnaire, teacher interview form, school administrator interview form and observation form (see Appendix D). All of the data collection instruments were created by researcher by reviewing related literature. In addition, all of the data collection instruments were shown to two PhD students and a computer science teacher to ensure face validity and content validity. In addition, a pilot study is conducted to test data collection instruments. The detailed information about the tool development and piloting processes are given in sections 3.9 and 3.10.

3.5.1 School Administrator Questionnaire

School administrator questionnaire (see Appendix D.1) was developed by researcher and applied to school administrators. It was used for gathering information about the schools. With the help of this questionnaire information related to number of students that prefer ITS course as elective course, whether ITS course is offered or not, whether there is a computer lab for this course, and if ITS course is offered, the credential of teacher who gives this course were identified. According to results of this questionnaire, three schools were determined.

3.5.2 Student Questionnaire

Student questionnaire form (see Appendix D.2) was used to gather students' ideas about offering and implementation process of elective ITS course. Questionnaire form includes items that investigate courses that are selected by students as first choice, second choice and third choice, the reasons behind their selection, the persons that orientate them to this course, and the source and type of introductory information that are available prior to selection and course implementation. By the

help of this questionnaire, the researcher tried to explore the course selection process and implementation process.

3.5.3 Teacher Interview Form

Teacher interview form (see Appendix D.3) was used for gathering information about the elective ITS course from the teacher viewpoint. Merriam (2009) states that interviews are necessary to understand the persons' interpretation about the incidents around them. With help of the teacher interview form, elective course offering and implementation process was also investigated in terms of teacher viewpoint. A semi-structured interview form is used to gather teachers' opinions. The questions are parallel with the questions that are placed in student questionnaire and administrator questionnaire.

3.5.4 School Administrator Interview Form

School administrator interview form (see Appendix D.4) was used for gathering data from the schools where ITS course is not offered as an elective course. This form includes semi structured interview questions. The purpose here is to learn the reasons for not to offer the ITS as an elective course and to collect information about the elective course offering process in this school.

3.5.5 Observation Form

Observation form (see Appendix D.5) was used as a guide for researcher in the field to collect data about the context. According to Yin (2003) contextual conditions are important and they need to be covered in case studies. Therefore, the facilities, physical conditions of the class that ITS course is taught, physical setting and course implementation process were observed and field notes were taken. Observations were conducted around the themes that physical arrangement, the

sources used during the course, teaching and learning activities, teacher role, and students role.

3.6 Data Collection Procedures

Data collection started after the permission was taken from the Ministry of National Education. Data were collected in 2016-2017 spring semester. The first part of data collection was the conduction of school administrator questionnaire to the schools, which are located in the Çankaya District of Ankara. In this scope, school administrator questionnaire is conducted between 10th - 14th April 2017 to 19 school administrators from different schools. The purpose was to gain information about the number of Computer Science teacher in school and their status, number of students that took ITS as elective course and school administrators' opinions on ITS course as an elective course. One of the school administrators did not want to fill out the questionnaire, therefore, data were gathered from 18 schools.

After that, 3 schools were selected between these schools according to criteria determined before. Then the second phase of data collection started. In this phase, student questionnaire form was applied and observations were made at two of the schools. Student questionnaire was applied to students to explore their elective course selection process and the factors that affect them to select ITS as an elective course. At the same time, course implementation process was also investigated in this survey with the help of open-ended questions about the elective ITS course. In addition, semi-structured interviews were done with ITS teachers who give elective ITS course. Interviews were done in the school setting, in the free times of teachers. Interviews were done in computer labs and each of them took average 30 minutes. Moreover, 5 week observation was done between April 17 and May 26, in these two schools. In this process, lessons in different classes were observed and notes were taken on a pre-prepared observation form about the ITS elective course implementation. In school 2, one of the lessons are also observed by two persons. One of them was a computer science teacher and the other one was an intern

computer science teacher. A sample of the observations done by these two persons and myself are presented on Appendix F.3.

Time line for observation process is given in the table below;

Table 3. 5 *Observation Schedule for School 2*

Date	Grade	Time	Subject
19.04.2017	7th Grade	09:20-10:50	Code.org
10.05.2017	7th Grade	09:20-10:50	Code.org
17.05.2017	7th Grade	09:20-10:50	Code.org
24.05.2017	7th Grade	09:20-10:50	Code.org

In school 1, 8th graders were not attending the classes due to TEOG exam. Therefore, researcher did not observe the course implementation in 8th grade in school 1.

Table 3. 6 *Observation Schedule for School 2*

Date	Grade	Time	Teacher	Subject
20.04.2017	7	13:35-15:05	Teacher 2	Excel
20.04.2017	7	10:20-11:55	Teacher 2	Excel
20.04.2017	7	08.30-10:05	Teacher 1	MIT App Inventor
04.05.2017	7	13:35-15:05	Teacher 2	Scratch
04.05.2017	7	10:20-11:55	Teacher 2	Scratch
04.05.2017	7	08:30-10:05	Teacher 1	MIT App Inventor
05.05.2017	8	13:35-15:05	Teacher 1	MIT App Inventor
05.05.2017	8	10:20-11:55	Teacher 3	MIT App Inventor
05.05.2017	8	08:30-10:05	Teacher 3	MIT App Inventor
11.05.2017	7	13:35-15:05	Teacher 2	Scratch
11.05.2017	7	08:30-10:05	Teacher 1	Arduino
11.05.2017	7	10:20-11:55	Teacher 2	Scratch
12.05.2017	8	10:20-11:55	Teacher 1	Arduino
18.05.2017	7	08:30-10:05	Teacher 1	Arduino
18.05.2017	7	08:30-10:05	Teacher 1	Exam
18.05.2017	7	10:20-11:55	Teacher 2	Scratch-Dx Ball Game
18.05.2017	7	13:35-15:05	Teacher 2	Scratch-Dx Ball Game
25.05.2017	7	08:30-10:05	Teacher 1	Thinkercad
25.05.2017	7	10:20-11:55	Teacher 2	Exam
26.05.2017	8	10:20-11:55	Teacher 1	Exam
26.05.2016	8	08:30-10:05	Teacher 3	Independent Study

School 2 was relatively crowded and there were 7 different classes for elective ITS course. Researcher wanted to observe the situation in different classes with different teachers and students. Therefore 21 different lesson is observed in this school.

3.7 Data Analysis

Data were analyzed by using both quantitative and qualitative techniques.

Quantitative Data

Quantitative data were gathered through school administrator and student questionnaires. For the analysis of quantitative data descriptive statistics were used. Demographic information and students' ideas about the course selection process were analyzed on SPSS 22 quantitative analysis software and presented as frequencies and percentages. The frequencies and percentages of student answers were calculated through the SPSS 22 quantitative analysis software.

Qualitative Data

Qualitative data were gathered through interviews, observation forms and open-ended questions of questionnaires. Creswell indicates that case studies require detailed description of the case and its settings (2007, p.163). As seen, Creswell suggests giving the detailed description about the setting and different aspects of the case. Therefore, the participants, context, conditions, offering and implementation process of ITS elective course were investigated through the analysis of data come from observations, student questionnaires, and teacher interviews. By this way, detailed information gathered about these issues. Content analysis was used for the analysis of qualitative data. Content analysis enables the emergence of predefined themes and dimensions about the investigated issue. Merriam (2009, p. 205) explains the content analysis as "simultaneous coding of raw data and the construction of categories that capture relevant characteristics of the document's content". Coding of raw data is the first step of content analysis. After that these codes are reexamined and grouped under common themes. Following that data are organized according to codes and themes. In addition, data

are described and associated with each other according to themes. Finally, findings are interpreted according to research questions (Yildirim and Şimşek, 2013). In this study, these four steps are applied in the analysis of qualitative data. In addition, the quotations are also presented in the results part to ensure the reliability of the study. Since, data is originally in Turkish, quotations were translated and translations were checked by a person who is an instructor in an English prep school in a foundation university. Original-translation matrix for quotations were given in Appendix G.

The first source of qualitative data came from open ended questions of school administrator questionnaire form. One of the filled questionnaires could be seen on Appendix E.1. Firstly, School administrators' answers are grouped according to related question. For example, answers that are given by all participants for the first open ended question are grouped and read by researcher. This process applied for all open ended questions. And then, the parts seen as important highlighted and named by myself. After that these parts were grouped under themes, opinions of administrators about ITS, course opening, course benefits and problems faced in implementation process. After that it was seen that school administrators mention same issues under different questions so the frequency of a related issue is seen more than school number. And then I decided to group answers by school. The answers that come from the same school collected together and text was recoded so that answers that come from one school could be counted one time. By this way, frequencies reflected the actual situation. The answers were grouped under administrator opinions, opening process, benefits and problems were reported.

The second source of qualitative data was the audio recorded interviews which were done with teachers and school administrator of school 3. The first step of analysis was to prepare data for analysis. To prepare these data for analysis, audio recorded interviews were transcribed. After data was prepared, following steps were used. Data were grouped according to schools. To explain, there was one teacher in school 1. Therefore, answers of this teacher was read and coded. And then, findings are reported in the school one part. On the other hand, school 2 have three computer science teachers and interviews were done with all three of them. The results that come from these three teachers were collected together and coded. The analysis was

done on the MAXQDA 12 qualitative analysis software. Firstly, each interview form was read one by one and the meaningful parts were coded with an appropriate name. After that codes were reread and some of them collected under joint-codes. Finally, codes were presented under the titles of opening process, conditions to open the course, reasons, subjects, course aim, teaching and learning process, evaluation process and problems.

The third part of qualitative data was open-ended questions collected through the student questionnaires. A sample filled questionnaire can be found on Appendix E.2. The analysis of data come from open-ended questions of student questionnaire was done by using MAXQDA qualitative analysis software. To analyze the student data, the following steps were applied. Firstly, student answers were read and significant parts were highlighted. The meaning of this parts were analyzed and named. By this way, first codes were driven. After that data set was reread and some of the codes were grouped under joint codes. During this process, the themes that explains research question started to emerge. After that the codes and themes were reread and organized according to research questions. Codes were collected under four main themes as selection process, teaching and learning, evaluation and problems. After that coded parts were shown two PhD students and discussed on the codes. After this discussion some of the codes were joined under the same theme. And also they recommended to change the name of some codes. For example, in elective course selection reasons I named the code as to increase GPA, they recommended to chance desire to increase GPA. Since, their recommendation found logical the name of the codes was changed as desire to increase GPA, desire to increase knowledge. Finally, findings are examined and reported.

The last part of qualitative data were the observation forms. The data come from observation forms were analyzed without using an analysis software. Firstly, observation forms were copied and read by myself. After that I reread the forms and coded. The codes clustered under five themes as sources, teacher role, student role, teaching methods and problems. After that 3 out of 25 forms were coded by another person who is a PhD student specialized in educational sciences. Examples of the coded forms by non-participant coder and myself could be seen in Appendix

F.1. Later, codes were compared and discussed with the non-participant coder. Then, it was recognized that the expressions that were used in teaching methods similar to expressions in teacher and student role. To illustrate, student role is practicing method is practice. Therefore, it was decided to collect codes under four themes as sources, teacher role, student role and problems. After that results were reported under these themes. Also, photos were taken of the tasks done by students during observations to validate the observation data.

3.8 Quality of the Research

Qualitative and quantitative research have different philosophical roots, and different assumptions about reality (Merriam, 2009). Due to their assumptions and philosophical perspectives, their research design also differs. Due to these differences, set of procedures that are used to test quality of research are named different from quantitative research. Lincoln and Guba (1985) offered alternative terms which are credibility, dependability, transferability, confirmability for the judgement of the quality in qualitative research.

Credibility: Tries to ensure that the study measures or tests what is actually planned (Shenton, 2004). In other words, credibility deals with whether the results of the study are matched with the reality. There are some strategies to improve credibility; triangulation, member checking, long-term observation, peer examination (Merriam, 2009). Following methods were used in this study to increase the credibility of the study;

Triangulation was used to ensure credibility. Multiple data sources were used to increase the credibility of the study. Interviews were done with teachers, and school administrators to analyze the issue from different perspectives. Moreover, student questionnaire also gave chance to handle issue from student perspective. In addition, multiple data collection methods were used; interviews, observations and questionnaire were used. Furthermore, “long term and repeated observations” (Creswell, 2009, p.199) are also one of the techniques used in this study to ensure

credibility. Totally 25 different lessons from two schools are observed for five weeks. In addition, one of the lessons was observed by two other observers and three different observation forms were coded separately. After that codes were compared to each other. It was seen that the codes were generally match each other (see Appendix F.3). Finally, in the analysis process the codes driven by the researcher are examined by a doctoral student.

Transferability: It is defined as “degree to which the findings of study can be applied to other situations” (Merriam, 2009, p.223). In qualitative research, the way of ensuring transferability is giving thick descriptions about the study. According to Lincoln & Guba (1985) researcher is responsible for giving detailed information about the study in qualitative research. To provide transferability, the characteristics of the context were explained in detail. Moreover, number of participations, data collection methods, number and length of data collection sessions are explained in detailed in the method chapter clearly. By this way, the information for replication of study in other context is provided and it is given a chance to reader to understand the results in the context of the study.

Dependability: Dependability means that “if the study is repeated, in the same or similar context, with the same methods, and with the same or similar participants, similar results would be obtained” (Lincoln & Guba, 1985, p.290). According to Lincoln & Guba (1985) to ensure dependability, researcher should give chance to reader to examine the product and process passed through to gather this product. Therefore, data collection and analysis processes should be explained in detail to the reader (Merriam, 2009). To ensure dependability, thick descriptions were made; the research design and implementation details were explained in the method section of the study. Moreover, data collection and analysis procedures were also explained in detail. The other strategy to ensure dependability is taking the views of a different person about the codes. This is called inter-coder agreement (Creswell, 2009). To ensure inter-coder agreement 3 of 25 observation form were coded by another person who is a PhD student. Process as follows; firstly, three of coded forms was showed to other person and discussed on the codes. After that, another three uncoded form was given to this person and wanted to code these

forms. In this process, researcher and other person coded the same forms separately. After that the codes were compared and the agreement was calculated. From 57 codes 17 items were coded differently by the researcher and other person. According to formula advised by Miles & Huberman (1994) agreement was calculated and 71 % agreement was found between researcher and other person. Miles & Huberman (1994) states that it is normal to found 70% agreement at first. Finally, coders discussed on the items that were coded differently and they go on consensus. In addition, student questionnaire results also shown two different persons who are the PhD students in educational sciences. The codes were analyzed by these persons and discussed on the codes with these persons. Their opinions and advises were gathered about the coding and needed corrections were done on the codes. Moreover, during analysis period some of the quotations were presented in the results. Since these quotations were translated originals were also added in appendix. Original-Translation matrix is given in Appendix G.

Confirmability: According to Lincoln and Guba (1985) confirmability refers to “degree to which findings of study are determined by subjects and conditions of the study not by biases, perspective or interest of the researcher” (p.290). To ensure confirmability Lincoln and Guba (1985) recommend to provide an audit trail and to keep reflective journal. To ensure confirmability, researcher role part is added to study and researcher qualifications, background and her role during the study is explained in this section. Moreover, data collection and analysis processes were also explained in detail in the methodology section of study as an audit trail.

3.9 Validity and Reliability of Data Collection Instruments

Validity is defined as “appropriates of the measures for the specific inferences, decisions or consequences” (McMillan, & Schumacher, 2001, p.181). Creswell also explains validity as “making meaningful and useful inferences from the scores on an instrument” (2009, p.235). Moreover, reliability is defined as “consistency of measurement results” (McMillan, & Schumacher, 2001, p.181). There are some strategies to ensure reliability and validity of the research. Following section,

indicates the applications that were made to ensure the validity and reliability in this research.

To ensure validity and reliability of data collection instruments, a comprehensive literature review has been made. At the end of this literature review process, data collection instruments were developed; the questionnaire and interview questions were prepared according to literature review results. After that these instruments were examined by two graduate students and a computer science teacher to ensure the content and face validity of these instruments. Both graduate students and computer science teacher were informed about the aim of the study. At the end of this process some of the questions in student questionnaire were shortened, some of expressions in the questions were also changed to make them clear and easier to understand for students. Moreover, teacher interview form was also examined by two peers who are the PhD students in educational sciences and computer science teacher. At the end of this examination, some of the questions were combined since they investigate similar things. In addition, alternative questions were added to use in case of misunderstanding. Besides, probe questions were added to help researcher to be more focused during the interview. Observation form, questionnaire and interview forms for school administration were also examined by peers but there were no major changes in these forms. Furthermore, all of the data collection instruments were prepared under the guidance of the advisor of this study and she provided a detailed feedback and some aspects related to wording and logical structure of data collection instrument were changed. The other issue to ensure validity and reliability of the study was the pilot test. A pilot test was also conducted in this study. Following section gives information about the piloting process.

3.10 Pilot Study

Yin (2009) indicates that pilot study helps researcher to have accurate insight about both the method of the study and other important issues about the study. Creswell (2009) also states that pilot study is important to ensure the validity of data

collection tools and also to improve their language and format. Therefore, a pilot test was also conducted in this study. Researcher conducted pilot study for the following purposes. Firstly, this was the first study that researcher is conducted therefore, she needs some experience about it. For this reason, pilot study was seen as an opportunity for researcher to gain experience on data collection on the field. The other purpose of pilot study was to test and refine the data collection tools. And finally, pilot study helped researcher to clarify the ideas about data analysis technique and helped her to gain experience about data analysis.

Pilot study was conducted in 2016-2017 fall semester, with a different sample that was planned to use in actual study. In the scope of this pilot test, school administrator questionnaire was applied to four school administrator from different schools. In addition, an interview was carried out with a school administrator. Since, interviewee did not give permission for voice record, school administrator interview was not recorded. Researcher took notes during the interview. Moreover, student questionnaire and teacher interview forms were piloted in a school which is located in the Sincan province of Ankara. Student questionnaire was applied to 22 lower secondary school students who took ITS as an elective course. In addition, an interview was conducted with the computer science teacher who gives elective ITS course in this school. During the pilot test, it was also asked the participants about the clarity of language used in the questionnaires and interviews.

At the end of the pilot study, following decisions were made. Firstly, the number of demographic questions in school administrator questionnaire was increased, to gained detailed information about the administrators' background. In addition, it was seen that in the school administrator questionnaire some of the questions about number of students in 7th and 8th grade levels and number of students who took elective course made confusion. Therefore, these expressions were highlighted. Secondly, some changes were done in student questionnaire. Number of demographic questions were increased to have more information about their experiences. In addition, some of the questions were shortened and some expressions were changed. Moreover, researcher was intending to conduct questionnaire in the online platform. But there were problems related to internet

connection and MEB filter during the pilot study. Therefore, online questionnaire was not reached in the school. Therefore, it was decided data will be collected on the paper in the actual study. Thirdly, there were some changes in the teacher interview form. Teacher interview form was criticized in terms of recurring questions and number of questions. Teacher indicated that there were too many questions in the interview form and also some of the questions investigate the same thing. These criticisms were taken in to consideration; similar questions were combined and number of questions were decreased. Finally, researchers' ideas about the data analysis technique became apparent while analyzing pilot results.

3.11 Researchers' Role

As it is widely known, researcher is the primary tool in the data collection and analysis processes in qualitative research. Therefore, researchers' past experiences, world view, and dispositions affect their interpretation of study findings (Merriam, 2009). Hence, it is important to express the researcher's background information, biases, and dispositions (Creswell, 2009; Merriam, 2009;). For these reasons, following part is allocated to explain researcher's background and her role in this study.

I have an undergraduate degree on Computer Education Instructional Technology department. Therefore, I am familiar with the developments in ITS course. In addition, I know the curriculum for this course and also I have even little experience on teaching ITS course in a real school environment. Therefore, I think that my experience on this environment helped me to understand the participants of study. In addition, I am a graduate student at Curriculum and Instruction department. Although, I do not have any research experience before, I took both qualitative and quantitative research method courses. Therefore, I have theoretical knowledge of doing a research. I also think that my knowledge of methodology became helpful for me to gather valid and reliable data through the research.

Through the study, I collected all of data by myself. I visited the schools for conduction of school administrator questionnaire. In addition, I made interviews with teachers and school administrators, made observations and applied student questionnaires. Within these process, I introduced myself as researcher. I was participant observer in the observation process. I took “observer as participant” (Merriam, 2009, p.124) role through the observation process. In the process, students were informed about my observer role but they see me as an intern teacher and ask help when they need. This process helped me to make better contact with students. I think that this contact helped students to give intimate responses to questionnaires.

3.12 Ethical Issues

In qualitative studies, ethical issues are important in terms of protection of participants. Participants’ privacy and confidentiality should be considered in every stage of qualitative research (Creswell, 2009). Therefore, some precautions are recommended to protect the rights of participants. The precautions that were taken to protect the privacy and confidentiality of participants are explained below;

One of the precautions that is recommended by Creswell (2009) is taking Institutional Review Board approval for the study. In this study, researcher took approval from METU ethical committee. Documents that show the committee approval could be seen in Appendix A. The second precaution to provide participants’ rights was to draw up an informed consent form that shows the purpose of research, expectations from the participants, period of data collection and rights of the participants (Creswell, 2009). In this study, researcher also prepared informed consent form for both school administrators and teachers and gave them before they participated in the research. Informed consent forms can be seen in Appendix C. Moreover, since, some of the participants in this study consists of lower secondary school students, another form was prepared for parents both to inform them about research and to take their approval for students to participate in this study. Furthermore, data of this study collected from lower secondary schools.

Therefore, to inform schools about data collection and to take their approval was another ethical issue in this study. For this process, researcher sent summary of the research, list of the schools that intent to collect data, data collection instruments, consent form and a copy of METU ethical committee approval to MNE. The approval was taken from MNE is given in Appendix B. In addition, through the data collection process, purpose of the study, expectations from the participants, and their rights to quit the study was reminded to participants verbally before they engage in the study. Moreover, pseudonyms were used for the schools, namely school 1 and school 2, and for the teachers, in the research report to protect their identities.

3.13 Timeline of the study

This study was designed in the 2015-2016 academic year spring semester and data were collected in 2016-2017 spring semester. Detailed timeline of the study is given in the table below.

Table 3.7 *Timeline of the Study*

Months	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	
Literature Review	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Determination of Research Topic and Research Questions	x	x																				
Development of Data Collection tools										x												
Expert Review and Peer review on Data Collection Tools											x											
Revision of Data Collection Tools												x										
Pilot Test													x									
Minor Revisions on Data Collection Tools														x								
Ethical Committee and MEB Permission														x	x							
Conduction of School Administrator Survey																x						
Determination of three Schools																x						
Data Collection Tools School1 & School2 Observations and Teacher Interviews																x	x					
Data Analysis and Reporting																		x	x	x	x	

3.14 Limitations

The followings are the limitations of the study;

1. The data were collected in the context of elective Information Technologies and Software course in a determined case, therefore, results should be evaluated in this context.
2. The elective course decision-making and registration period could not be observed.
3. The classes were not observed in a prolonged manner.
4. Except one lesson, all of the lessons observed by only researcher.
5. Parents were not reached to understand their expectations of the course within the case examined.

3.15 Chapter Summary

This chapter covered the overall design of the study. The procedures that applied through the study are explained in detail through the chapter. The research design and justification behind to use this design is also expressed in the chapter. In addition, data collection instruments are introduced and implementain of data collection procedures are also communicated in the chapter. Moreover, the precautions to ensure trustworthiness of the study is also explained in detailed.

CHAPTER 4

RESULTS

The results that were obtained through the school administrator questionnaire, teacher interview, student questionnaire and observation are explained in this chapter. They are presented successively in the following pages.

4.1 School Administrators

The first part of study was to gain information about schools to determine two schools that observations, teacher interviews and student questionnaires administered. To this end, 18 school were visited and school administrator questionnaire conducted. By the means of this questionnaire, school administrators' opinions were gained about the ITS course as an elective course. In the following section, school administrators' opinions about the ITS elective course are presented. Results of are presented in this section with frequencies. Frequencies shows number of school administrator that states this item.

School Administrators' Opinions About the ITS Course as an Elective Course

In the questionnaire, it was asked to school administrators about their opinions on ITS course as an elective course. Most of the administrators indicated positive ($n=12$) opinion about the ITS course as an elective course. They indicated elective ITS course could be beneficial for fostering interested students and developing students' competence and abilities on computational processes. On the contrary, some of them proponed that some of students have abilities that this course provides for them, therefore, it is a decent decision to offer ITS course as an elective course for needed students. Administrator 18 confirm the elective course application. He

expresses that it is an appropriate practice to offer elective courses enabling students to take lessons in line with their interests and desires and to develop their talents.

Administrator 10 mentions the importance of ITS elective course in terms of students' choice of profession. He states that this course is important in order for the children to choose a profession related to this area and to direct other people around them. Administrator 4 states the benefits of elective ITS course in terms of students' daily life. She indicates that ITS course increases students' knowledge and experience about Information Technologies. She exemplifies this situation as students are helping teachers to use smart boards in other lessons.

In addition, Administrator 2 found positive elective course policy in terms of orientation of students through their interests. He expresses his pleasure by saying it is appropriate that children who are interested in the computer area separated and educated in their own fields. On the other hand, school administrator 1 think that there is no need for ITS course since people can use computers. He states that everyone uses computer, there is no need for a lesson to teach computational processes. On the other hand, he also adds giving this course as elective is an appropriate way to give the digital competences for students who need. He expresses his confirmation by saying offering ITS course as an elective course is decent and beneficial in terms of teaching basic computer literacy.

Some of the school administrators ($n=3$) think there is no need for ITS elective course. They indicate as reason that children already have the competences that this course offers. School administrator 12 proponed that we are living in information age, and students already use computers; they are doing their lessons via MORPA campus and EBA. She proponed that students use smart boards better than her. Therefore, she thinks that there is no need for ITS course. On the other hand, Administrator 14 think that ITS course is not applied as it is planned. He thinks that Information Technologies and Software course do not reach its goal since students see this course as an opportunity to play game.

When the school administrators' comments are analyzed it could be said that school administrators find ITS elective course beneficial in terms of developing students'

knowledge and abilities on computers and development of basic computer literacy. In addition, they also think that this course could be beneficial for students to orientate them computer related professions. The benefits could be summarized as following Table 4.1;

Table 4. 1 *Benefits of ITS Course According to School Administrators*

Benefits elective ITS course	<i>f</i>
Enhancing students' knowledge	3
Enhancing students' knowledge on digital devices	3
Fostering the interested students	3
Developing the talents of students	1
Orientating computer related professions	1
Giving basic computer literacy	1
Developing computer usage ability	1

The other part of the school administrators ($n=2$) do not think elective courses are useful. They think that elective courses are cause problems in school management. Administrator 13 show as reason that it is hard to arrange weekly course schedule of elective courses. He also adds that the philosophy and meaning of elective courses is not understood by teachers and students. Therefore, he sees elective courses problematic.

School administrators have contrary opinions about the ITS course as an elective course. Some of them supports offering the ITS course as an elective and find it useful to foster interests and to enable students to go beyond their interest. On the other hand, the other part of the administrators thinks that there is no need for ITS course.

Among the schools that school administrator questionnaire conducted, in the 8 school 7th graders preferred ITS as an elective course and in the 7 of them this course opened. In addition, in 6 school 8th graders preferred ITS as an elective course and 4 of them opened this course for 8th graders. When school administrators are investigated about the reasons not to open ITS course, the results that are presented in Table 4.2 were found.

Table 4. 2 *Reasons Hinders to Open ITS Course*

Reasons	<i>f</i>
Course is not preferred	5
No quorum was provided to create a group	2
Insufficient number of computers in computer class	1
Insufficient number of teachers	1
No computer class in school	1
ITS course overlapped with other courses that students took	1

As could be seen in the table the most frequently stated reason for not to open the course that course is not preferred by the students. The other reasons are insufficient number of students to create group, in sufficient number of computers in computer class, lack of teacher, lack of computer class. The insufficient number of computer science teacher is also one of the problem that prevents elective ITS course opening. School Administrator 1 explains the situation as ITS course is compulsory in 5th and 6th graders and teachers' time table becomes full with these grades. He adds that more teachers are needed to open elective ITS course.

School administrators also indicated that students did not select ITS course due to TEOG exam and they go courses that can help them in this exam. School administrator 5 and 6 explain this situation as we have an exam based education system therefore, students choose courses that could help them in TEOG such as Mathematics, Science Applications and Writing Skills

It could be understood from the school administrators' expressions that mostly preferred elective courses are Math applications ($n=3$), Science applications ($n=3$), Writing Skills ($n=1$), and English ($n=1$).

The last issue that school administrators mentioned is the problems that faced related to ITS elective course. The Table 4.3 shows the problems that are stated by school administrators.

Table 4.3 *Problems Faced in The Implementation of ITS Elective Course*

Problems	<i>f</i>
Outdated Hardware	3
Outdated Software	2
Lack of Equipment	2
Problems in Internet Connection	2
Insufficient Number of Teachers	2
Crowded Classrooms	1
Scheduling Time Table for Electives	1
Misunderstanding about Elective Course Philosophy	1

As could be seen in the table, outdated hardware and software is one of the problems stated by school administrators. School administrator 5 mentioned they have difficulty in finding up-to-date and licensed operating system and programs. Moreover, school administrator 2 and 8 indicated that outdated hardware and software hinders ITS course to reach its goal. The other mostly stated problem was lack of equipment. School administrator 2 explains that lack of equipment in ITS course is also one of the factors that prevent ITS course to reach its goal. School Administrator 3 summarized the problems as following;

School Administrator 3: 80 students preferred, but because the number of computers in the computer laboratory are limited and there is one teacher, 2nd group could not be opened and these students could not take Information Technologies and Software course although they selected this course. I do not think ITS course reaches its goals because the number of computers in the laboratory is insufficient, the number of teachers is insufficient, the internet is inadequate, the capacity of computers is inadequate.

In the context of study, school administrators' opinions about the ITS elective course is investigated. According to findings while some of the school administrators find ITS course beneficial and support its given, some of them find it unnecessary. Some of the administrators think that ITS course is an opportunity to foster interested students. They state ITS course could be helpful for students who are interested in computers to develop themselves in this area. In addition, they also state that this course increases student interest toward computers and can orientate them go beyond computer related professions. Besides, enhancing

students' knowledge, increasing students' knowledge on digital devices, giving computer literacy, enhancing students' computer usage ability are stated as the benefits of ITS course. On the other hand, some of the school administrators think students have the competences that this course presents for them and they add no need to offer elective ITS course. Additionally, some other part of school administrators, declare they do not support the idea of elective courses and they also add that elective courses breaks the school order and it is difficult to arrange the weekly course schedule with elective courses.

According to information gathered from school administrators in some of the schools there are students who do not take the course although they prefer. The mostly stated reasons is that there was not sufficient number of students to create a class. The other reasons not to open elective ITS course lack of teacher, absence of computer lab, insufficient number of computers in lab and overlapping in weekly course schedule. Besides these, there are some problems that prevents the effective implementation of elective ITS course. Outdated hardware and software, lack of equipment, problems in internet connection and crowded classroom are problems that are stated as preventing ITS course to reach its goal.

4.2 Teacher Interview Results

This section presents the results that are gathered from through teacher interviews. The results of the interviews conducted with teachers in school 1 and school 2 are given successively.

4.2.1 School 1-Teacher Interview Results

Findings that were gathered through teacher interview are presented in this part. In school 1 there was one computer science teacher who gave elective Information Technologies and Software course. An interview was done with this teacher and experiences, opinions and advices about the ITS elective course were gathered.

Results of interview are presented in this section with frequencies. Frequencies shows the number of times the item repeated by the teacher.

Elective Course Selection Process

Elective course selection and opening process in school 1 also investigated in terms of perspective of teacher who teach ITS elective course.

Firstly, teacher's experiences about the elective course opening process was investigated. According to teacher, the courses that are presented in weekly course schedule by MNE were recorded in to system and students were asked to declare their preferences via online environment or petition. Students makes their selection for the next year. Teacher indicates that school administration do not have any influence on the elective courses that will be taught in semester. He explains this issue as the condition that is considered in course opening process is student selection. According to teachers' statement, the courses that are selected by 10 students were opened in the semester. Teacher also asked about the reasons that makes students select ITS course as an elective course. It is understood from the teacher's expressions that students' positive attitude toward the course ($n=4$), desire to engage in non-academic activities ($n=3$), and liking teacher ($n=2$) are the motives that direct students to select ITS as an elective course. Teacher also indicated that students select this course since they have interest in course ($n=2$), like the course ($n=1$), and find it easy ($n=1$). He explains student course selection process by stating that students select this course either they like teacher or have interest in course. He also adds that another reason that makes a student select this course is students' thoughts about other courses. He expresses this issue as students think other courses, such as mathematics and English are difficult, and they also think they can take better grades in this course in an easier way, so they are selecting this course. He also adds that other than these issues, the rest who select this course are the students who have interest in technology, who want to gain information about the developing technology and software.

In addition, teacher also added that there were also students who come this course to play game ($n=2$) or to listen music ($n=1$). He expresses this issue as student

prefer taking ITS course and play computer games or listen music rather than taking mathematics course and solve problems. Teacher's statement show that students prefer elective courses that have lower workload or they can relax on it.

According to teacher the other factor that make students to select ITS course as elective course is liking teacher ($n=2$). He explains this issue as saying that the basic reason in elective course selection is teacher of the course; if students like the teacher, they are select the course.

Teacher also indicated that students were under the influence of their parents in the elective course selection process. He stated that teachers also give some advises to students in elective course selection processes according to students' abilities but students could not decide on elective courses that apply their interest since their parents decide on the elective courses.

To sum up, students' attitudes toward the course, desire to engage in non-academic activities and liking teacher are the factors that make students select ITS as an elective course.

Teaching and Learning Processes

Teacher defines the aim of the course as to raise people who can use computers effectively to solve their problems and follow technological trends. In addition, to foster problem solving skills, teach the effective usage of word processor, and presentation software are stated as other purposes of this course.

According to teachers' statement the subjects that are taught in the course are determined by teacher according to students' needs ($n=3$) and desire ($n=2$) in accordance with ITC course curriculum. In addition, teacher also indicates that software that can be beneficial for students in other courses are also included in the lesson plan.

School 1- Teacher: Since, I have been giving this course for five years, I can follow students' development procedures...I prefer the programs that are appropriate for students among the programs I follow regarding the abilities that students need to improve...Since word processor and presentation software are the needed and expected programs by the students, we need to focus on these programs.

When the students' preferences on subjects are asked teacher indicated that creating web sites, photo editing, game development are the subjects that are demanded by students to learn. In addition, the scope of the course is also asked to teacher. According to teacher's expressions the subjects that are taught in the ITS course could be summarized as various presentation software ($n=6$), programming ($n=4$), word processor ($n=3$), preparing poster ($n=2$), design ($n=1$) and creating animation ($n=1$). Teacher also indicated that problem solving skills, and developing algorithm are also taught through activities on online self-learning environment. He expressed that they were focusing on preparing poster, preparing presentation, design and programming in 7th graders. He also added that 7th graders were studying on code.org, which is an online platform to teach programming skills for children, to develop problem solving skills, and algorithm development. Besides, he expressed that this form a basis for visual programming and coding. He explained that through these activities, he tried to teach the steps they consider in case of being a programmer.

Teacher also asked about the materials that are used in the course. He stated that there is no guidebook for teacher and course book for students. He expressed that they have only curriculum. He also added that web sites were used for supplying materials for courses.

The evaluation procedures that are used in the elective ITS course are listed by that teacher as performance based evaluation and project based evaluation. According to teachers' statement two performance based evaluations are done in one semester and one term project is assigned. Teacher also added that in-class behaviors of the students are also evaluated to create behavioral change in students.

Teacher's statements also show that they faced with problems in the implementation of ITS course. Mostly stated problem is internet connection problems. Teacher stated that internet disconnections during the lesson hinder the flow of lesson. He also stated that although, other schools proceed to fiber internet connection, there is no fiber internet connection on this school so internet connection speed is low. This also causes problems during the lesson such as access to internet sources and sharing files with students.

School 1- Teacher: ... Due to the problems with fiber connection and different reasons, since we do not have ready-made documents, we need to get most them from the internet. We fall behind the schedule because we are faced with internet disconnection, problems in file sharing and network problems.

The other problem stated by teacher is outdated hardware and technique equipment. Teacher indicated that the computers and equipment did not comply with technology. He complained that they have difficulties when using some programs.

The last problem that is stated by teacher is related to course opening process. Teacher indicated that teachers are not offered for consideration in the elective course opening process about the students' abilities. Teachers' opinions are not taken while classes are defined.

School 1- Teacher: It is not asked about students' abilities to teachers. I do not have authority to inform school administration about the students' abilities. I cannot give advice and say the administration that this person can select this course or cannot. There is a lack of guidance.

Teacher also has some advices to make elective ITS course more efficient. He made advices related to elective course offering process, ITS course content and evaluation criteria. Teachers' first advise was related to offering process. Teacher indicated that parents affect students' course selection decision but they do not have awareness about the importance of ITS elective course in terms of students' future and their career. Therefore, he states that teachers should be in touch with families and inform them.

School 1- Teacher: Informatics is a sector that is important for future career and daily life, but families are not aware of that. Families are not aware that students' competences should be optimized in this area. Families think that their children can use computer, if student can run the computer out and use the keyboard. They state that their children can get a password to a computer, but they cannot even do that. Regarding students' improvement, we cannot evaluate this by coming together with the family.

The second advice of teacher is related to course content. Teacher thinks that ITS course content should be enriched to foster students' development and to encourage them to be more productive. He states that the subjects such as programming or game development could be more appropriate to encourage students to be more productive.

School 1- Teacher: It is needed that students' horizon and imagination should be broadened. In order to have productive students, it is necessary to focus on different applications such as programming, and game design. And also the content needs to be filled with applications that are appropriate to students' interests.

The last advice is about the evaluation processes. Teacher states that students' participation on national or international informatics projects could bring additional score on their TEOG point. By this way, students could be encouraged to attend these type of organizations and to produce more project.

School 1- Teacher: Perhaps additional points can be given in TEOG exam in case of joining an international project. I think children will be more productive if they are in an environment that they can come up with projects and contribute to social projects. A different assessment criterion for participation in such projects, related to the awards received, or the number of participation in projects should be included in this system in some way.

In this part, ITS elective course opening and implementation process was investigated in terms of teacher perspective. According to teacher's expressions opening of course is dependent on student selection. If ten students prefer ITS as elective course this course is opened. In other words, according to teacher, the basic factor that affects course opening in this school is student selection. It is also inferred from teacher's ideas that, the factors that motive students to select this course are students' attitudes toward to course, desire to engage in non-academic activities, and liking teacher. Teacher also adds that students were not free in their decision making process. He states that families were shaping students' decision about elective courses. Moreover, he also adds that teacher also gives advises for students in elective course selection process but final decision belongs to families. Therefore, students could not choose courses appropriate to their abilities or interests. In this regard, teacher suggests to contact with the families to increase their awareness about the elective courses and ITS course as an elective course.

The aim of the course is stated as to make students solve their problems by using digital devices and to make them follow the technological trends. To accomplish these purposes; programming, design, usage of various software, creating animation are taught in the course. As teacher indicates, since there is not any course

book or guidebook for teacher, teacher produce content by himself appropriate to objectives that are determined by Board of Education and Discipline. He also adds that he tries to select subjects that are appropriate student desire and meet their needs. He states that his primary source during the lesson is web sites and they perform most of the activities on online self-learning platforms. Therefore, internet connection is a key issue for them and it is understood that internet connection problems they faced during the lesson, hinders the lesson.

4.2.2 School 2-Teacher Interview Results

School 2 has three computer science teachers who taught elective ITS course. In the scope of study, opening and the implementation processes of elective ITS course were investigated in terms of teachers' perspective. For this reason, semi-structured interviews were conducted with three teachers. Findings that were gathered through these interviews are presented in this part with frequencies. Frequencies shows the number of times the item repeated by the teachers.

Elective Course Selection Process

ITS course selection and opening processes were investigated in terms of teachers' perspective. Teachers were asked to talk about the elective course opening process in school 2. According to teachers' expressions, students are asked to fill a form that indicates their elective course preferences for the next year. Teachers indicated that student selection is enough to open the course; school administration do not have any influence on the elective courses that will be taught in semester. Teachers stated that when there are students who select this course, course is opened as an elective course.

The reasons that makes students select ITS course as an elective course were also asked to teachers to investigate the reasons in terms of teacher perspective. According to teachers, students' interest in course ($n=3$), teacher ($n=2$), desire to learn new things ($n=2$), desire to have enjoyable time ($n=1$), contribution of elective course on TEOG exam ($n=1$), opportunities that course provides ($n=1$),

and course content ($n=1$) are listed as motives by teachers that make students select ITS course as an elective course. Teachers expressed that students have interest in ITS course and they select this course to satisfy their curiosity. Teachers also think that the second important motive that makes students select an elective course is teacher. They expressed that if students think that teacher could meet their needs and can teach something, they select the course. According to teachers, the other motive that directs students to select ITS as elective course is desire to learn new things. Teachers expressed that since students know the teachers and teaching and learning processes from 5 and 6th grade, they know that they can learn new things in this course and they select this course as elective. Teacher 1 also explained that students classify elective courses in two groups as the courses that can help them to have enjoyable time and the courses that can provide benefit in TEOG exam. She also added that students consider the opportunities that ITS course provide for them and course content while choosing ITS course as an elective course. She emphasized that students select this course since this course gives opportunity to study with computers and internet and assure of learning something. To sum up, teachers think that students select ITS course since they have interest in course, they want to learn new things and trust on teachers and content about they can learn with them.

In addition, from the teachers' expressions it is understood that introduction of ITS elective course is done through school web site ($n=1$) and compulsory ITS courses ($n=2$). Teachers emphasized that they talk about the elective ITS content, and activities that could be done in this course in compulsory courses. In addition, they also added that the course content, handouts and presentations that are prepared for ITS elective course is also shared on school web site. By this way, students could have information about the elective ITS course before selection.

When the course aims are asked to teachers, five main aims for elective ITS course were listed. The first aim that is stated by all three teachers are to make students conscious use of technology and internet. Teachers indicated that students are exposed to technology and internet in every part of their life. They use these platforms for their communication such as social media or academic life such as

preparing a homework. Therefore, teachers think that students' awareness on technology and internet should be raised. They added that students should be informed about the harms and effective usage of the social media and internet. Therefore, to make students conscious users of technology and internet is stated as one of the aims of elective ITS course. The second mostly stated aim is to encourage students to have an ICT related profession. Teachers explained that there is a need for persons who can study on ICT sector. Therefore, students who have ability should be explored and directed to related areas. So, to make students realize that ICT could be changed in to a profession is also shown as an aim of ITS elective course. The other aim of this course is stated by the teachers as to make students informed about the new technologies. They stated that this course is important to make students keep with the developments of the era. Therefore, to make students be informed about the developments in technology is indicated as another aim of the elective ITS course. The other aim of this course is stated as to make students solve their problems using ICT. Teachers explained that in this course students' ICT competence is tried to increase to make them solve their problems by using ICT. The forth aim of the course is stated as to increase the cognitive abilities of the students. Teachers indicated that to develop students' algorithmic thinking skills and problem solving skills were stated among the aims of ITS elective course. The last aim of the ITS elective course is stated as to taught basics of programming to students.

Teaching and Learning Processes

In the scope of study, the subjects that are taught during the semester in elective ITS course is also asked to teachers. According to teachers' statements, subjects were determined by the group of computer science teachers in the school in the beginning of the semester. In addition, teachers also indicated that they examined web sites to see what other teachers in other schools teach before determining the subjects. Teacher listed the taught subjects as programming, 3D design, mobile application development, graphic design, spread sheet, presentation software, shooting and editing video, cyber security, and effective usage of social media. Teacher 1 emphasizes that the purpose is not to make students write complicated

programs. She explains that the purpose is to introduce the subjects, to make students understand the basics of the subjects and to broaden their horizon.

From the teachers' expressions, it is understood that lecturing ($n=2$), solving technical problems ($n=2$), demonstration ($n=1$), motivating students ($n=1$), questioning ($n=1$), and informing students about the objectives ($n=1$) are the activities that are done by teachers during the lessons. On the other hand, practicing ($n=4$), working in groups ($n=3$), and listening ($n=1$) are the activities that students perform during the lessons according to teacher. Teachers indicated that they firstly start with motivating the students and informing them about objectives. Then they explain the subject by showing the steps and give time to students to apply these subjects. The general flow of the lesson is summarized as above by teachers. They also added that, they organize group work activities and competitions in the lessons to make the course more attractive.

The materials that teachers were used both in the planning and implementation of the course is also asked to teachers. According to explanations, there were no course book for elective ITS course. On the other hand, teachers indicated that they were bought computer science books ($n=3$) for themselves and prepare activities for students by benefiting from these books. In addition, they also expressed that they also benefited from some web sites on the internet ($n=2$) and ITS course curriculum ($n=1$) while planning their lessons. The sources that are supplied for students are listed as handouts ($n=3$) and teacher prepared presentations ($n=1$). It is also emphasized by the teachers that the major source for the students is the teacher in elective ITS course. Teachers indicated that they make some research before the course, they prepare handouts and presentations for students and they teach in the lesson.

The evaluation procedures that are used in the elective ITS course are also asked to teachers. Teachers expressed that they were used different evaluation procedures during the semester. They were used performance based evaluation ($n=4$), portfolio ($n=3$), and paper-pencil exam ($n=2$). Teachers indicated that portfolio ($n=2$) and performance based evaluation ($n=1$) are more appropriate for this course. Teacher

3 expressed that performance based evaluation and portfolio are more appropriate for this course but due to insufficient number of computer and difficulties in collecting students' product, they sometimes have to use paper-pencil exam. Teacher 1 adds that process and product evaluation must be done together in this course, therefore, creating portfolio for students and making evaluation based on this portfolio is more appropriate for this course.

Teacher's statements also show that they faced with problems in the implementation of ITS course. These problems could be listed as level differences between students ($n=3$), crowded classrooms ($n=2$), lack of continuity between grade levels ($n=1$) and difficulty of arranging course schedule for elective ITS course ($n=1$). Teacher 1 complained about the level differences between students and lack of continuity between grade levels. She expressed that she wants to finish lecturing in 7th grade and study on projects in 8th grade. She also indicated that there were students who come from different schools or different teachers, and this caused level differences between students. Therefore, she lectures again in 8th grades and there is no time to study on projects. The other problem is stated as crowded classrooms. Teachers expressed that in this course students should be given opportunity to apply taught subjects. But when there were too many students both all of the students do not have chance to apply the subject and least little thing done by a student could distract other students. Therefore, crowded classroom seen another problem for elective ITS course. The other problem is difficulty of arranging course schedule of elective ITS course. Teachers expressed that to allocate laboratory for the time that appropriate the students who select this course is a demanding job. Therefore, arrangement of weekly course schedule is stated as one of the problems.

The other problems related to facilities and equipment could be listed as internet connection problems ($n=2$), computer faults ($n=2$), MNE filter ($n=1$), lack of equipment ($n=1$), and lack of materials ($n=1$). Teachers expressed that there could be internet connection problems and computer faults during the lessons and a problem that is emerged in one of the computers affects all students. Teachers also

added that since they spend too may time to fix the problem, they fall behind the schedule.

Teacher 2 : You have seen that we have tried to download Scratch 2.0 and it was not downloaded. We tried to connect online platform, but the computer was not connected to internet although normally all computers can do. Normally, we needed to finish that work today.

Teacher 1 also indicated that MNE filter is one of the problems that hinders the lessons. She expressed her complain as following;

Teacher 1: It would have been perfect without the MNE Filter. I cannot do anything from google drive, I cannot enter any website. We have an internet connection that we cannot use G-mail. We beat ourselves up to have fiber internet connection, but I cannot get any efficiency now. A solution is needed for this. MNE filtration is already out of control now. It is blocking me and my lessons. We were sharing through google drive, we cannot share now. We tried share through EBA, but it did not work

Teachers also expressed that the other problem is lack of material and lack of equipment. They expressed that they need some equipment and sample course materials. They indicated that if they have Arduino sets and sample course materials; the courses could be more effective.

From the teachers' expressions it is also understood that there were also positive things about the course. Teachers stated that they have family support ($n=6$) and administration support ($n=4$). They indicated that parents give importance to this course when they see students' products. Teachers explain family support as following;

Teacher 1: I have a couple of parents, we are messaging through whatsapp. They offered to share sources they found and ask our opinion to buy some sources for the course. Do you see these? (shows presentations from the inbox). These were sent by a parent; I get family support. I sent message to the parents to donate books. Although, it hasn't been the time for my lesson yet, 7 books have been sent today. They will send 3-5 five book in every lesson. This is family support and it starts like this.

Teacher 2: One of the parents indicated that he thought that he knew how to use computers before that course and he added that he saw that there were different works related to computer. He also indicated that he pleased with the studies conducted in that course and I saw lots of parents who said that they were pleased with us.

Teachers also indicated that school administration also support them. They expressed that when they want to organize an event, school administration does not prevent them and this also motivates them. Teachers also added that student interest on the course ($n=2$) and their progress on subjects ($n=1$) also other issues that make teachers happy. Teachers stated that when they see interested students on the course and they see that students do more than that they teach they be happy.

Teachers also made some advices to make ITS elective course more effective. These advices could be listed as informing students about the course prior to selection ($n=3$), teacher effort to make the course more meaningful ($n=2$), diversifying the content according to student needs ($n=1$), producing projects in the course ($n=1$), organizing an exhibition that student products are shown ($n=1$). Teachers expressed that students should be informed about the course content and activities that are performed through the course, teachers also indicated that students should know that they need to create product in this course. They also indicated that the responsibility is on the teacher; if teachers work away fearlessly the course becomes more effective. The diversification of the course content with different subjects and activities is also one of the advices proposed by teachers. Teacher 2 explains that when there is programming through the course, students are bored. The last advice is to produce projects in this course and organize city-wide and district-wide exhibitions to show this projects to other students, teachers, parents and policy makers from the ministry.

In this part, ITS elective course opening and implementation process in school 2 was investigated in terms of three computer science teachers' perspective. According to teachers' expressions opening of course is dependent on student selection. If students indicate ITS elective course in their petition, the course is opened. Teachers' expressions show that, the factors that motivate students to select this course are students' interest in course, teacher who taught the course, desire to learn new things, desire to have enjoyable time, contribution of elective course on TEOG exam, opportunities that course provides, and course content. Teachers listed as the aims of the elective ITS course as to make students conscious users of technology and internet, to encourage them to have an ICT related profession, to

make them informed about the new technologies, to make them solve their problems using ICT, to increase their cognitive skills and to taught basics of programming. To accomplish these purposes programming, 3D design, mobile application development, graphic design, spread sheet, presentation software, shooting and editing video, cyber security, and effective usage of social media are taught in the course. Teachers indicated that these subjects are determined by the common decision of three computer science teachers in this school. Teachers indicated that there was no course book for elective ITS course but they were bought computer science books for themselves and they also benefited from web sites and ITS course curriculum while planning the lessons. They prepare handouts and presentations for students as a source in elective ITS lesson. Although, when teachers' activities are analyzed, courses were seen as teacher centered, it is also understood that students are active during the lessons. The activities that are done by teachers during the lessons could be listed as lecturing, solving technical problems, demonstration, motivating students, questioning, and informing students about the objectives. In addition, the activities that students perform during the lesson practicing, working in groups, and listening. The evaluation methods used in this course were performance based evaluation, portfolio, and paper-pencil exam. Moreover, teachers indicated that portfolio and performance based evaluation are more appropriate for this course. According to teachers' expressions they were facing with some problems in the ITS elective course implementation process. These problems could be listed as level differences between students, crowded classrooms, lack of continuity between grade levels, difficulties in arranging course schedule for elective ITS course, internet connection problems, computer faults, MNE filter, lack of equipment, and lack of materials. Teachers also made some recommendations to make ITS elective course for effective. These were listed as informing students about the course prior to selection, teacher effort to make the course more meaningful, diversifying the content according to student needs, producing projects in the course, and organizing an exhibition that student products are shown.

4.3 Student Questionnaire Results

In this section, students' experiences and opinions that are gathered through student questionnaire are presented. The results obtained from school 1 and school 2 are presented consecutively.

4.3.1 School 1-Student Questionnaire Results

A student questionnaire is applied to 30 students from 7th and 8th grade to gather information about opening and implementation of elective ICT course. Students' elective course preferences, course selection process and implementation processes were investigated. The results obtained through this questionnaire are presented in the following section.

Elective Course Selection Process

In this study, students' elective course preferences are asked in the questionnaire. This questionnaire was applied to students who took ITS as elective course. students' elective course preferences are given in Table 4.4.

Table 4. 4 *First Choice of Students who Take ITS as Elective Course*

		<i>f</i>	%
First Choice	Information Technologies and Software	12	40
	Sport and Physical Activities	10	33.3
	Math Applications	2	6.7
	Music	2	6.7
	Life of Prophet	1	3.3
	Basic Religious Knowledge	1	3.3
	Total	28	93.3

As could be seen in the Table 4.4 ITS course was selected as a first choice by 12 students. Besides, the second most frequently selected course as first choice was Sport and Physical activities. In addition, the Table 4.5, shows students' second and third choices.

Table 4. 5 *Second Choice and Third Choices of Students who Take ITS as Elective Course*

		<i>f</i>	<i>%</i>
Second Choice	Information Technologies and Software	12	40
	Sport and Physical Activities	3	10
	Foreign Language	3	10
	Science Applications	2	6.7
	Quran	2	6.7
	Math Applications	2	6.7
	Visual Arts	1	3.3
	Music	1	3.3
	Life of Prophet	1	3.3
	Authorship and Writing Skills	1	3.3
	Total	28	93.3
Third Choice	Sport and Physical Activities	7	23.3
	Intelligent Games	5	16.7
	Information Technologies and Software	4	13.3
	Science Applications	3	10
	Authorship and Writing Skills	2	6.7
	Math Applications	2	6.7
	Quran	1	3.3
	Life of Prophet	1	3.3
	Basic Religious Knowledge	1	3.3
	Visual Arts	1	3.3
	Music	1	3.3
	Total	28	93.3

Table 4.5 shows that 12 of the students selected ITS as a second choice among the students who took elective ITS course. Besides 4 of them selected as third choice. Moreover, students who take ICT as elective course also selected Sport and Physical Activities, and Intelligent games.

Students' elective course preferences are given above. The other issue that was investigated in this study is how students decide to take these courses as elective course and how elective course selection process is carried out by students. To explore this process students were asked some questions. The findings related to these process are given below;

When it is asked that whether students gather information about the ITS course before the selection, the results that are presented in Table 4.6 were found;

Table 4. 6 *Taking Information Before Course Selection*

		<i>f</i>	%
Aims of the course	Yes	23	79
	No	6	21
	Total	29	100
Course Content	Yes	23	79
	No	6	21
	Total	29	100,0
Teaching and Learning Activities	Yes	23	79
	No	6	21
	Total	29	100
Evaluation Methods	Yes	19	65
	No	10	35
	Total	29	100

Results showed that students gather information about the course before the selection process. Most of the participants took information about the aims of the course ($n=23$), course content ($n=23$) and teaching and learning activities ($n=13$). Furthermore, 19 of students indicated that they also took information about the evaluation methods which are used in this course before the selection. Moreover, the information sources that students gather information about the course prior to selection was also investigated. Table 4.7 shows the sources that students gather information prior to selection.

Table 4. 7 *Information Sources*

		<i>f</i>	%
School web Page	Yes	10	33
	No	20	67
	Total	30	100,0
EBA Web Page	Yes	7	23
	No	23	77
	Total	30	100,0
Friends who take the course before	Yes	7	23
	No	23	77
	Total	30	100,0
Teacher who teach the course	Yes	17	57
	No	13	43
	Total	30	100,0
School Counsellor	Yes	5	17
	No	25	83
	Total	30	100
School Boards	Yes	6	20
	No	24	80
	Total	30	100,0
School Administration	Yes	6	20
	No	24	80
	Total	30	100

Table 4.7 shows that, students who are participants of the study, took information mostly from the teacher who teach the lesson ($n=17$). Besides, other mostly preferred source by students are school web page ($n=10$), friends ($n=7$), EBA web page ($n=6$), school boards ($n=6$), and school administration ($n=6$). Moreover, school counsellor is the least referred person to take information about the elective courses. Besides, students who choose other, indicated that either they did not take information or they took information from the classroom teacher.

The reasons that affect students' elective course preferences were another important issue in elective course selection process. When the students' answers were analyzed, it was found that there are six main reasons that make students select ITS as an elective course. These are positive attitudes towards to course ($n=12$), desire to increase knowledge and ability in subject ($n=9$), desire to engage in non-academic activities ($n=6$), liking teacher ($n=5$), desire to increase GPA ($n=3$), and feeling competent in subject ($n=2$). Besides, one of the students indicated that there is no reason to select ITS course.

Students' answers show that the most stated reason is positive attitudes toward course ($n=12$). Students indicated that they choose ITS due to liking computers ($n=5$), interest in subject ($n=4$), liking course ($n=2$) and finding it enjoyable ($n=1$). Some of the students expressed that there are computers on this course and they like computers, therefore, they selected this course as an elective course. It seen that computers are a sufficient reason to make students select ITS as elective course. The other part of students who have positive attitudes toward course indicated that since they have interest in computer related subjects, they selected this course. Moreover, there were some students in the lesson who took the course before and like it, therefore, they selected this course again. Finally, there were some students select ITS as elective course, since they found this course enjoyable.

The second mostly stated reason that shapes students' course selection preferences is desire to increase knowledge and ability in subject ($n=9$). Students select this course to gain knowledge about computers ($n=5$), to learn use of computers ($n=2$), and to prepare better presentations ($n=1$). According to students' responses, they

selected this course since they think this course can increase knowledge about the digital world such as computers and technology. In addition, they also stated that as a reason to select this course, this course could increase their ability to use computers and various software. Finally, learning to prepare better presentations is among the motives that makes students select ITS as elective course.

The third mostly indicated reason that orientate students in course selection process is desire to engage in non-academic factors ($n=6$). Students indicated that they chose ITS elective course to play computer games ($n=5$) and to study other lessons ($n=1$). Students expressed in questionnaire, they selected this course by the thought of playing game in ITS course. This thought directed them to ITS course. One of the students expressed that she can study for other lessons in this course therefore, she selected this course.

The other reasons that make students to select ITS course are liking teacher ($n=5$), desire to increase GPA ($n=3$), and feeling competent in subject ($n=2$). Some students indicated that since the teacher of the course is a nice person and students love teacher, they selected this course. The other group expressed that they selected this course to prevent having low grades in the grade report. They also expressed sincerely that the other courses are difficult and if they took lower grades, this would decrease their GPA and also its contribution to common exam (TEOG) point will be lower. One of the statements given by student 7 about this issue is shown below.

Student 7: My teacher said that other lessons were difficult and if I take lower grades, my TEOG point would fall.

As it is explained clearly by student 7, the thought that ITS course is easy and to desire to increase GPA make students select ITS course as an elective course. The other reason that makes students select ITS course is feeling competent in this course. Some of the students indicated that they feel more competent themselves in technology and computers, therefore, they selected this course.

In summary, students' attitudes toward the course, desire to increase the knowledge and abilities about the computer related subjects, liking course teacher, and feeling

more competent in subject are the motives that direct students to take ITS course. On the other hand, some part of the students took ITS course for engaging in non-academic activities such as playing game and study for other lessons. Moreover, the other part of the students selects ITS course for raising their grade point average.

The other issue that was investigated in this study is the persons who direct students in their course selection process. When students were asked about the persons that orient them to select ITS course most of them stated that this course was their own decision ($n=20$). Besides, there were some students affected from other persons. "Friends" ($n=6$) are found as mostly stated persons. In addition, "Family" ($n=3$) and "Teacher" ($n=1$) are the other persons that orientate students to take ITS as an elective course.

Students' Expectations from the Course

The subjects that students want to learn in ITS course were also investigated in the scope of study. Most of the students indicated that they want to have a general knowledge about computer literacy ($n=20$). They indicated that they want to gaining knowledge about computers ($n=9$), various software ($n=8$), and hardware ($n=3$). When student expectations were analyzed, it was seen that some of the students come to the course with general expectations rather than specific subject. These students stated their expectations as wanting to learn everything about the computers or gaining knowledge about computers. On the other hand, some part of the students came to this course with specific expectations. To explain, while some of the students want to learn about hardware, the others explained that they wanted to learn use of various software such as Publisher, Word, and Photoshop. The other subject that students want to learn in this course is game development ($n=3$). Students state that they came this course to gain knowledge about the games and game development. They expressed that they want to learn the clues to develop a good game. The other part of the students come to this course to learn programming ($n=3$). They indicated that they want to learn how to code or how to develop software. In addition, one of the students stated that he was expecting the learn

creating web site ($n=1$). He expressed that he wanted to learn creating his own web site in this course. Besides, one of the students' expectation is to learn cyber-attack ($n=1$). He stated that he wanted to be taught to make cyber-attack. To summarize, students have various expectations from the course while selecting this course. As could be understood from the expressions, some students have general expectations such as to learn about computers, others have specific expectations such as game development. On the other hand, while some of the expectations are reasonable and could be gained through this course such as use of publisher, some are either outside scope of this course or in higher level such as cyber-attack and software development.

In addition, there were also some students who have the non-academic expectations from the course such as playing game ($n=3$), having fun time ($n=1$). Some of the responses in student questionnaire was quite sincere and honest. Students indicated that they selected this course just to play game. On the other hand, one of the students indicated that he thought this course is enjoyable and selected this course to have fun time. Moreover, there were also some students who do not have specific expectation from the course. They expressed that they select this course to learn everything that teacher teaches.

As a result, students' expectations vary from general computer literacy to specific subjects such as game development, programming, web site development, and learning cyberattack. In addition, there were some non-academic expectations such as playing game. Moreover, there were also some students who do not have a specific expectation. In addition, some part of the students came this course to play game only. As is seen, students have variety of expectations from the course. In questionnaire, students also asked whether this course meet their expectations. The findings show that most of the students indicated that their expectations were met in course ($n=22$). They expressed that they study on online platforms advised by teacher and also one of the students indicated that he was not able use computer before and after this course he learned to use it.

In addition, while some of the students stating their expectations are not met ($n=4$), very few students indicated their expectations partially met ($n=2$). One of them indicated that he wanted to learn about word but since they either solved test or played games, he did not learn what he wants. In addition, one of the students indicated that he did not learn what he wants, nevertheless he learned some things.

It could be seen that most of students think that their expectations are met in the course, although, there are some students who think that either some of the expectations are met or none of them met.

Course Perception

Another issue that was investigated in this study was students' perceptions about the course content and teaching learning processes. In this regard, students' ideas about weekly course hour and course usefulness were investigated.

Students' ideas about weekly course hour is summarized in the Table 4.8.

Table 4. 8 *Students' Ideas About the Weekly Course Hours*

		<i>f</i>	<i>%</i>
Weekly Course Hours	Enough	11	36.7
	Partially Enough	13	43.3
	Not Enough	6	20
	Total	30	100,0

Table 4.8 shows that most of the students think the weekly allocated time for ITS course is partially enough ($n=13$). In addition, while 11 of them thinks that the course hour is enough, 6 of students think weekly course hour is not enough for them. Students think that course hour is enough propose that allocated time is sufficient to learn the subject and complete the assigned tasks ($n=3$). In addition, student 12 stated that they have even much free time. He explained that they are doing assigned activities in the first lesson and they have free time in the second lesson.

Students who think that allocated time is not enough showed as a reason that they could not complete the assigned tasks in time ($n=3$). In addition, one of them stated that course is enjoyable, therefore, it should last longer.

While most of the students think that the allocated time for this course is enough or partially enough they do not give a reason for that. Students who give reason indicated that time is sufficient to learn the subject and complete the tasks. In addition, few of them indicated that allocated time is not enough for them and they state as a reason that time is not enough to complete the tasks.

Table 4.9 shows that students' ideas about the usefulness of the ITS elective course for them.

Table 4.9 *Students' Ideas About the Usefulness of Course*

		<i>f</i>	<i>%</i>
Perceived Usefulness	Useful	25	83.3
	Partially Useful	4	13.3
	Not Useful	1	3.3
	Total	30	100

Table shows that 25 students think elective ITS course is useful for them. When the reasons behind their thoughts were investigated, it is seen that increase in the ability to use software ($n=8$), increase in general computer literacy ($n=4$), gaining programming ability ($n=2$), and potential contribution to future carrier skills ($n=1$) are addressed as major reasons that makes this course useful for them. Some of the students stated that since they are learning use of various software, this course is useful for them. They also explained the benefits of this course as thanks to this course they know where and how they can prepare homework. To explain, this course is helpful for students to know various digital platforms and to learn use of them. The others expressed that they learn programming in this course therefore, they see this course useful for them. Moreover, one of the students expressed that he wants to be a computer engineer in the future, therefore, he found the course useful for him. As could be understood from the students' expression this course seen as beneficial to learn basic skills related to potential profession.

Besides, 4 of students' stated that this course is partially useful for them and one of them stated that course is not useful for them. They showed as a reason limited variety of software is learned and playing game. Student 3 states that they did not learned a lot of programs. Since the number and variety found limited by this student, he thinks that this course is partially useful for him. On the other hand, one of the students indicated that the course is not useful for him since they played game on the course.

As could be understood from the students' answers, most of the students found ICT course useful for them due to reasons such as gaining computer literacy and ability to use software. On the other hand, small number of them found the course partially useful and not useful.

The Materials that are Used in ITS Elective Course

The other issue that is investigated in the scope of this study was the sources that are used through the course.

The table 4.10 shows the materials that stated by the students.

Table 4. 10 *Course Materials*

		<i>f</i>	%
Course Book	Yes	1	3.30
	No	29	96.70
	Total	30	100
Handouts Given by Teacher	Yes	4	13.30
	No	26	86.70
	Total	30	100
Web Pages Advised by Teacher	Yes	24	80
	No	6	20
	Total	30	100
Teacher Prepared Presentations	Yes	16	53.30
	No	14	46.70
	Total	30	100
There is No Source	Yes	4	13.30
	No	26	86.70
	Total	30	100

According to table 4.10, web pages that are advised by teacher ($n=24$) and teacher prepared presentations ($n=16$) are mostly stated sources in ITS elective course. Moreover, handouts ($n=4$) and course book ($n=1$) are other sources that are used in this course. Since, it is known that there is no course book for this lesson, students may mean any book about computer science.

Teaching and Learning Processes

One of the issues that is investigated in the scope of this study is how teaching and learning processes are carried out in elective ITS course. Students viewpoint about the teaching and learning processes were investigated through the questionnaire. The findings about the teaching learning processes that comes from student questionnaire are given in the following section. It is asked students as what teacher does through the lesson. Findings indicate that lecturing ($n=14$), facilitating ($n=2$), monitoring ($n=2$), directing students to online self-learning platforms ($n=2$) and providing feedback ($n=1$) are the tasks that teacher does through the lesson. According to expressions that are stated by the students in the questionnaire, there were student-centered activities during the lesson. Students summarizes teacher role in the lesson as following. Firstly, teacher tells the students the activity that will be done in that day (Student 2) and then he explains about how to perform the activity (Student 8). After that students are given time to do assigned activity. In this process, teacher monitors the students (Student 19), helps students while doing tasks (Student 1), when students have trouble he assists them to overcome the problem and help them to correct when they wrong (Student 19). Besides student 12 summarized the teacher role as either directs to a web site or gives a presentation. As could be understood from the students' expressions teacher assigns students some activities or directs them to online self-learning platforms and monitors their studies. Therefore, it could be said that teacher has a facilitator role in elective ITS lesson.

When students' role in teaching and learning processes are investigated, off task behaviors ($n=14$) are seen as mostly stated issues. Playing games ($n=9$), and

studying other lessons ($n=5$) are off task behaviors that students do during the lesson. Students explicitly stated that they were playing game during the lessons. Student 12 explains the student role as sometimes studying, and playing game. He also adds that they play game mostly. Besides, student 26 adds that they were solving problems on the internet for TEOG. Students expressed off- task behaviors as playing games and solving problems as stated above.

The other tasks that student do during the course are doing activities on online self-learning platforms ($n=7$), practicing what teacher demonstrates ($n=5$), listening teacher lecture ($n=3$), preparing presentations, ($n=2$), and searching about course content ($n=1$). Students indicated that they were performing activities on code.org web site. Student 11 explained the student role in the lesson as doing activities on the web site that is assigned by the teacher. Student 1 explained the student role as listening teacher and practicing what teacher said. Student 30 also summarized the activities done is the course as preparing presentation, preparing poster, doing activities on code.org, and preparing weekly course schedule on excel. In addition, student 28 explained their activities as doing research to learn subjects. When students' statements are analyzed, it could be said that students have active role during the lessons. They perform various activities to develop their digital competences.

As could be understood from the student answers mostly stated teacher task is lecturing, on the other hand, mostly stated student task is off task behaviors. The second mostly stated students' activity is doing activities on online self-learning platforms.

The Evaluation Procedures

The other subject that is investigated in this study is the evaluation procedures that are used in elective ITS course. Questionnaire results show that performance based evaluation ($n=29$) is mostly used evaluation type in this course. Students indicated that they get point by doing activities on online self-learning platform ($n=11$), preparing poster ($n=3$), and presentations ($n=3$). Student 12 explained evaluation procedures as doing activities on the assigned web site and getting points according

to progression. Student 5 stated that they took grades by preparing presentations and student 28 expressed evaluation procedures as preparing poster. As could be understood from the students' expressions that students are evaluated according to their performances on different activities on different platforms.

According to student answers the other evaluation methods paper pencil exam ($n=3$) and in-class activities ($n=1$). Student 29 explains evaluation procedures as having exams on both photocopy paper and computer. He also states that their teacher gives them examples to prepare projects. It is understood from this statement that they also prepare projects in the scope of the lesson. Moreover, Student 2 summarized the evaluation procedures as in-class performances, homework, and presentations. She expressed that they are graded according to in-class performances, homework, and presentations. This statements also show that the dominated evaluation procedures are performance based evaluation.

In the scope of this study students' preferences about evaluation methods also investigated. Findings indicated that performance based evaluation ($n=6$) is mostly stated evaluation method. Students indicated that they want to take grades from presentations, recommended web sites, posters. In addition, students expressed that they would prefer taking point from their behaviors during lesson ($n=3$) and their effort on task ($n=1$). In addition, oral exams ($n=1$) are also one of the evaluation methods stated as preferred evaluation method. Student 13 indicated that She wants to be graded according to behaviors during the lesson and grades that taken in other courses. Besides, Student 14 indicated that he wants to take grades according to their effort on during the lessons. On the other hand, student 12 stated that he prefers oral-exam for evaluation. Finally, some part of the students indicated that they are pleased with current system ($n=8$). One of the students expressed that teacher is giving notes from web sites, that is fine, he do not want to change and the other one states that he is happy with preparing poster.

Findings indicated that mostly used evaluation method in ITS course is performance based evaluation and it is also seen that students also prefer performance based evaluation in this course.

The Physical Setting

Students' opinions about the computer lab that they learn ITS course is also one of the issues investigated in questionnaire. Findings show that most of the students have positive opinions ($n=15$) about the computer laboratory. They stated that computers are sufficient for them to do tasks. Student 13 expresses her pleasure as she thinks computers are good, serve for them. Moreover, some part of the students touched on the problems they faced during the lessons. These problems are collected under two groups; problems related to computers ($n=4$) and problems related to internet connection ($n=2$). Student 3 mentioned computer related problems. He complained about the low performance computers. In addition, student 16 addressed internet connection problems, she complained about the low speed internet connection.

As could be understood from the students' answers, students are pleased with computer laboratory, they think that computers serve for them to do their tasks. On the other hand, there are also some problems due to low performance computers and low speed internet connection.

This section summarized the overall process of selection and implementation of ITS course as an elective course from the students' perspective. According to students' answers come from questionnaire, students took information about the course aims, content, teaching and learning processes and evaluation procedures. The main information source is the teacher who teaches the lesson. Secondly students prefer to take information from the school web page. The most stated reason that direct students to choose the lesson is students' attitude toward course. Students like the subject, have an interest toward the subject and found course enjoyable, therefore, they prefer ITS course as elective. Besides, students intend to increase their general computer literacy while choosing this course and also findings show that most of them found what they expect from the course. Students find this course useful in terms of increasing their ability to use various software and increasing their general computer literacy. Findings about teaching and learning processes show that the dominated teacher role is lecturing and facilitating during

the lesson. In addition, students do activities on online self-learning platforms and practice the tasks that teacher demonstrates. Moreover, playing computer game is also one of the activities that mostly stated by students. The mostly used evaluation procedures are performance based evaluation and findings show that students also prefer performance based evaluation in ICT course. Students' views about the physical facilities of computer laboratory shows that although, there are problems related to low performance computers and internet connection, students could perform assigned activities. Therefore, most of the students are content with the laboratory.

4.3.2 School 2-Student Questionnaire Results

A student questionnaire is applied to 142 students from 7th and 8th grade to gather information about opening and implementation of elective ICT course. Students' elective course preferences, course selection process and implementation processes were investigated. The results obtained through this questionnaire are presented in the following section.

Elective Course Selection Process

The questionnaire was applied to 7th and 8th grade students who took ITS as elective course and their elective course preferences was asked in the questionnaire. Results obtained through this questionnaire about students' preferences are summarized in the Table 4.15

Table 4. 11 *First Choice of Students who Take ITS as Elective Course*

First Choice	<i>f</i>	%
Sport and Physical Activities	63	45
Information Technologies and Software	36	26
Math Applications	8	6
Science Applications	6	4
Music	6	4
Environmental Education	5	4
Authorship and Writing Skills	2	1
Foreign Language	2	1
Law and Justice	2	1
Thinking Training	2	1
Quran	1	1
Life of Prophet	1	1
Communication and Presentation Skills	1	1
Intelligent Games	1	1
Urban Culture	1	1
Total	141	100

Students who took elective ITS course prefer Sports and Physical Activities ($n=63$) course as a first choice. Among the students who took ITS course, only 36 of them selected ITS course as a first choice. The others who took elective ITS course preferred Math applications ($n=8$) and Science Applications ($n=6$) courses as their

first preference. Table 4.16 shows the second and third choices of students who took Elective ITS course.

Table 4. 12 *Second Choice and Third Choices of Students who Take ITS as Elective Course*

Second Choice	<i>f</i>	%
Information Technologies and Software	53	38
Sport and Physical Activities	33	23
Science Applications	11	8
Music	10	7
Math Applications	8	6
Foreign Language	7	5
Environmental Education	3	2
Media Literacy	3	2
Basic Religious Knowledge	2	1
Authorship and Writing Skills	2	1
Visual Arts	2	1
Life of Prophet	1	1
Communication and Presentation Skills	1	1
Thinking Training	1	1
Total	141	100
Information Technologies and Software	37	26
Sport and Physical Activities	31	22
Science Applications	14	10
Intelligent Games	14	10
Thinking Training	10	7
Music	7	5
Quran	6	4
Foreign Language	6	4
Life of Prophet	4	3
Math Applications	4	3
Authorship and Writing Skills	3	2
Visual Arts	1	1
Total	141	100

Table 4.16 shows that ITS course was the second ($n=53$) or third ($n=37$) choices of students who took elective ITS course. Students also preferred Sport and Physical activities ($n=33$) and Science applications ($n=11$) course as second choice as preference. Moreover, in third choice ranking is the same; 31 students selected Sport and physical activities course as third while 14 students selected Science Applications courses as a third choice. To conclude findings indicates that students

mostly prefer ITS, Sports and Physical activities, Math applications or Science applications elective courses.

Student course preferences are indicated above. The other wondered issue was the motives that shapes students' course selection processes. To find out these motives, students' decision making and course selection processes were also investigated in this study. To explore these processes whether student took information or not and information sources were investigated. Finding are presented in Table 4.17.

Table 4. 13 *Taking Information Before Course Selection*

		<i>f</i>	<i>%</i>
Aims of the course	Yes	101	72
	No	39	28
	Total	141	100
Course Content	Yes	109	78
	No	31	22
	Total	141	100
Teaching and Learning Activities	Yes	103	73
	No	37	27
	Total	141	100
Evaluation Methods	Yes	85	60
	No	55	40
	Total	21	100

Students were asked whether they took information about the about the ITS elective course before they select this course. Results showed that most of the students took information about the course aims ($n=101$), content ($n=109$), teaching and learning processes ($n=103$) and evaluation methods ($n=85$). When table 4.17 is analyzed, it could be seen that less number of students wonder about the evaluation method that is used in the ITS course.

The other issue was the sources that students took information about the elective ITS course. The table 4.18 shows the sources referred by students that provided them with information about the elective ITS course.

Table 4. 14 *Information Sources*

		<i>f</i>	%
School web Page	Yes	41	30
	No	99	70
	Total	141	100
EBA Web Page	Yes	14	10
	No	126	90
	Total	30	100
Friends who take the course before	Yes	93	66
	No	47	34
	Total	141	100
Teacher who teach the course	Yes	48	34
	No	92	66
	Total	140	100
School Counsellor	Yes	7	5
	No	133	95
	Total	140	100
School Boards	Yes	30	21
	No	110	79
	Total	140	100
School Administration	Yes	9	6
	No	131	94
	Total	140	100

Table 4.18 shows that students' mostly referred information source was friends who took the course before ($n=93$). The other mostly referred sources were the teacher of the course ($n=48$), school web page ($n=41$) and school boards ($n=30$) to take information about the elective ITS course. The least referred sources by students to take information about elective ITS course are EBA web page ($n=14$), school administration ($n=9$) and school counsellor ($n=7$). There were also some students who select other choice for this questions. Students who select other indicated that they took this course either as compulsory course in 5th or 6th grades or as elective course in 7th grade, therefore, they have information about the course ($n=15$). The 12 of students who select other stated that they did not take information about the course. In addition, 3 of them showed their parents as information source and one

of them indicated he took information from the internet but he did not remember on which web site.

The reasons that effect students' elective course preferences were one of the issues investigated in this study. Students' answers show that reasons are collected under eight main themes. According to students' answers, students' positive attitudes toward the course ($n=101$), desire to increase knowledge and ability in subject ($n=33$), non-academic factors ($n=23$), course perception ($n=15$), feeling competent in subject ($n=11$), contribution for future ($n=9$), liking teacher ($n=8$), and desire to increase GPA ($n=4$) are the main reasons that affect students' course selection decisions. Besides, three of the students indicated that they have no reason to select ITS course.

Students' answers show that the most stated reason that affect students' course selection decision is students' positive attitudes toward the course ($n=101$). Students expressed that they select ITS course due to interest in subject ($n=34$), liking computers ($n=37$), finding ITS course enjoyable ($n=23$), and liking the course ($n=7$). Students indicated that since they have interest in computers, technology, some specific software or course content, they selected this course. 37 of students indicated that they select this course due liking computer itself or liking engage in computers. Student 10 indicates that he likes to engage in computers. Likewise, student 77 explained his reason as he likes computers and to learn new software. Besides, 23 of the students expressed they have enjoyable time in this course. Student 100 indicated that he had boring time in elective courses previous year, therefore, she selected ITS course in this year. Besides, student 96 expressed her reason as possibility of having enjoyable time while learning, made her to select this course. Liking the course ($n=7$) was also one of the motives that direct students to select ITS course. Student 18 expressed her reason as she liked ITS course in previous year therefore she selected this course again in that year.

The second most stated reason is students' desire to increase knowledge and abilities in subject. Students indicated that they selected this course to gain knowledge about computers ($n=16$), to learn programming ($n=8$), to learn use of

software ($n=7$). Student 47 explains his reason as to learn things that he could not do at home through computer. Likewise, student 52 states his reason as to learn use of computers. Student 105 states that he wanted learn programming for software development. Besides, student 54 states his reason as he wants to learn hacking in this course. Lastly some of the students select this course to learn use of some software. Student 46 explains that he selected this course to learn about software that could be helpful for him. Likewise, student 8 explains her reasons to select ITS course as to learn about presentation software.

The third mostly stated reason is non-academic factors ($n=23$). Students stated that they selected ITS course since they have friends on this course ($n=13$). Student 69 explained the situation as, they decided together with their friends to select ITS course. Likewise, student 64 indicated that he selected this course since his friends also selected this course. In addition, nine of the students indicated that they selected ITS course since their friend recommended to select ITS for them. Student 58 explained his reason as his friends speak well about this course, therefore, he selected this course. On the other hand, one of the students indicated that he likes playing computer games therefore, he selected his course.

The fourth mostly stated reason is students' perception about the course ($n=15$). According to answers, students' previous experience about the course ($n=7$) and their misconceptions about the course ($n=8$) were also among the reasons shaped students' decisions about elective courses. Students indicated that they took this course compulsory or elective in previous years and they liked the course, therefore, selected the course again. The other part of the students indicated that they thought there were no lesson is taught.

The fifth reason is feeling competent in the lesson ($n=11$). According to students' answers they select this course since they think the course is easy ($n=6$), they have information about subject ($n=4$) and feeling good at subject ($n=1$). Student 26 explains his reason as he has information about computers and programming therefore, he selected this course.

The fourth main reason is course's potential contribution for future ($n=9$). Students think that this course could be beneficial for future and they also added that they have intention to be a computer engineer or software engineer therefore, they came to this course.

The fifth main reason is liking the teacher ($n=8$). Students indicated that they selected this course since they like their teachers. Student 192 explained that she likes her teacher and she also added that her teacher teaches not only computer lessons but also life lessons.

The sixth main reason is students' desire to increase their GPA ($n=4$). Students explained their reason as they selected this course to have higher grades and to increase their GPA.

To sum up students selected ITS course due to positive attitudes toward the course ($n=101$), desire to increase knowledge and ability in subject ($n=33$), non-academic factors ($n=23$), course perception ($n=15$), feeling competent in subject ($n=11$), contribution for future ($n=9$), liking teacher ($n=8$), and desire to increase GPA ($n=4$).

The reasons of the students are presented above. Students also asked about the persons who orientate them to select this course. Most of the students indicated that this course was their own decision ($n=71$), they decided to take this course by themselves. According to students' answers who are orientated by others mostly stated persons were friends ($n=58$). Students indicated that either they selected the same course with their friends or they selected according to recommendation of friends. Family ($n=16$) also one of the parts stated mostly that orientate students to select ITS course. In addition, teachers ($n=5$), and school administrators ($n=1$) are also among the persons who orientate students to select ITS course as an elective course. To conclude, the predominant persons in students' decision making processes are friends.

Students' expectations from the course

Students' expectations from the course is also investigated in the scope the study. Students are asked to write the subjects that they want to learn in this course. Answers showed that most of the students come to this course to learn specific subjects in the course ($n=131$), there are also students want to learn general computer literacy ($n=15$), and some of the students have miscellaneous expectations ($n=21$). The subjects that students want to learn are various software ($n=65$), programming ($n=44$), hardware ($n=6$), cyber-attack ($n=6$), creating animations ($n=5$), graphic design ($n=2$), mobile application development ($n=2$), web design ($n=1$). Student 25 expresses his expectation as he wants learn programming languages even if beginner level. Student 98 indicates his expectation as developing an original software. Student 88 stated that she was wanting to learn cyber-attack when she selected the course. Some of the students want to learn general computer literacy in this course. They indicated that since we are living in technology driven society they wanted to learn effective usage of computers and technology. Moreover, 21 of the students have miscellaneous expectations from the course. Thirteen of the students indicated that they have no expectations from the course, they can learn what teacher teaches. On the other hand, three of the students expressed that since they thought no lesson is taught, they came to this course. Likewise, three of the students indicated that they came this course to play computer games. On the other hand, two of the students expressed that they came this course to have enjoyable time. In addition, there were some students who stated that they came to course for recalling previous information or to learn some information to do their own works.

As could be seen while some of the students selected ITS course to learn some specific subjects, fewer selected this course having no reason. In questionnaire students also asked whether their expectations are met or not. Findings showed that most of the students' expectations are met ($n=74$) in the course. Students expressed their pleasure as saying this course helped them to have information about the subjects that they wondered. Students 122 stated that she wanted to learn programming and this course helped her to learn basic things about the

programming and also taught her how to start programming. Student 67 also indicated that she did not know about three dimensional design, photo editing, and instructional games, thanks to this course she learned these subjects and heard about a few instructional game to play. She also added that even she can develop her own game. Additionally, some of the students think that elective ITS course partially met ($n=40$) their expectations. They showed as a reason that some the subjects were not the ones that they wondered, they did not spend too much time on subjects, some of the lessons are spent for non-course activities such as TEOG preparation test. On the other hand, less students thinks that elective ITS course did not met ($n=12$) their expectations. When the reasons behind their ideas are investigated they proponed that they have learned different subject than they expected or they learned the subjects that they want but in a basic level. Student 98 is one of the students who proponed that he did not learn what he wants in the course. He complains that the subjects that are taught for them should be taught for smaller grades.

Student 98: I could not learn the information and subjects that I want. The subjects that we are learning should be taught to younger students and we can be taught more advance level subjects. The name of the course is “software”, but they could not teach software development. However, I continue studying software development at home. I am learning by trying and by making mistakes.

On the other hand, there were some students who state as reason that the computers were not powerful to learn expected subjects, or they were not think what they want to learn while taking the course therefore, they did not learn.

To sum up, students have various expectations from course such as learning basic computer literacy to mobile application development. Findings also show that while most of the students thinks that they have learned what they expect, some of them proponed that they did not learn what they want in elective ITS course.

Course Perception

Students are investigated about their ideas on allocated time for the course and usefulness of the course for them. Students are asked whether the weekly course

hour is enough or not for them. The Table 4.19 summarized the students' ideas on allocated time for the Elective ITS course.

Table 4. 15 Students' Ideas About the Weekly Course Hours

		<i>f</i>	<i>%</i>
Weekly Course Hours	Enough	61	43.3
	Partially Enough	37	26.2
	Not Enough	43	30.5
	Total	141	100

When students' opinions about the weekly course hours are analyzed, it could be seen most of them think that allocated time is enough ($n=61$) for the course. In addition, while 37 of them think weekly course hour is partially enough, 43 of think allocated time is not enough. Students 10 and 60 are among the students who think that allocated time is enough for the course, they explained their reason as allocated time is enough to engage in software and to complete the project. Student 60 also added that it could be enjoyable, if allocated time is increased. Student 88 also thinks that allocated time is enough to complete the assigned tasks. Likewise, student 11 and 103 stated that they can complete tasks and even free time remains. Student 82 indicates allocated time is enough to learn given subjects. In addition, some of students think allocated time is enough, more time could be tiring ($n=2$) or may lead to boredom ($n=9$). Student 58 explain that two hours per week is enough because both they can learn the subjects and they have enjoyable time, He also added that if there is more time, it could be boring. In addition, students 85 and 15 indicated that ITS course is a tiring one, therefore, allocated time is enough for this course. In addition, 3 of the students explained that core courses are more important, therefore, the allocated time is enough for an elective course.

Students who think that allocated time is partially enough show as a reason that the course have smaller scope. Student 6 explains the situation as there are too many things to learn about information technologies, therefore, the allocated time for this course could be increased.

Students think that allocated time is not enough show as a reason the time is insufficient to complete the tasks ($n=11$), and to learn the subject ($n=6$). Student 29

complains about insufficient time by indicating when they were writing a code it remains half-finished and it becomes annoying. Students 121 and 36 explain that when subjects are half-finished they forget the subject and the teacher needs to teach the subject all over again in the next week. In addition, four of the students think that they were learning less things and do less practice in allocated time. Students 66 and 40 explained that information technology is a broad area and there are too many things to be explored and they also add that they learned a limited number of things due to time limit. Likewise, student 43 adds that allocated time is insufficient to internalize the given knowledge. He complains about the time limit prevents students from in-depth learning. Besides, student 107 adds that they go fast while practicing and they do less practice due to time limit. On the other hand, some part of the students think allocated time is not enough for the course, showing as a reason for finding lessons enjoyable ($n=7$), and liking the course ($n=2$). Students 3 and 58 proposed that the courses are enjoyable and informative, therefore, time goes fast and the allocated time seems not insufficient for them. In addition, students 125 and 133 explained that they like computers and ITS course; therefore, they do not want the course to finish.

Students' ideas about the usefulness of the course for them is also investigated and findings are summarized in table 4.20.

Table 4. 16 Students' Ideas About the Usefulness of Course

		<i>f</i>	<i>%</i>
Perceived Usefulness	Useful	94	66.7
	Partially Useful	45	31.9
	Not Useful	2	1.4
	Total	141	100

Students think that elective ITS course was useful for them ($n=94$). They indicated that they have learned different subjects in this course ($n=54$), the other part of the students indicated that this course could contribute to their future work ($n=12$). The other benefits are listed as, they have learned skills that could be applicable in real life ($n=5$), this course made them relaxed ($n=5$), and met their individual needs ($n=2$).

Gaining knowledge was the one of the usefulness of the course for the students. Students indicated that they have learned new things about the use of computers ($n=10$), and software ($n=6$). Student 124 expresses his pleasure as since he learned use of computers he can do his works easily and quickly. Students 6 and 73 explained the contributions of this course for them, as learning too many things about the computers and various software. Likewise, student 43 explains that he has learned the logic behind the applications that they were using in daily life.

Student 43: I think that this course is beneficial. We learn how the applications that we use in daily life such as Instagram and Facebook are programmed and what is the logic operating behind them thanks to this course.

The subjects and skills that have learned by the students through the course are listed by students as programming skills ($n=11$), 3D design ($n=6$), computer literacy ($n=5$), photo editing ($n=3$), preparing presentations ($n=3$), and competence in word processor and excel spread sheet ($n=2$). Students expresses that they have learned programming, and mobile application development. Student 23 states the benefit of this course for him as learning to program a calculator on small basic programming language. Student 47 indicates the benefit of this course for him as stating that he can do a lot of things through computer now while he could not do before. Student 11 expresses benefit of elective ITS course for her as editing the photos that she did like, on photo editing program. Student 1 also indicates that this course helped him to prepare slides for other courses.

There were some students who think that this course was partially useful for them ($n=45$). They indicated various reasons for this. One of the reasons is limited knowledge about software. Student 98 explains that they have learned about photo editing program but since, this program is a comprehensive program, the information that they have learned was not useful for them. The other reason make students think this course is not useful for them is the knowledge they have learned are not applicable in daily life. Students 80, 82, and 83 complained that the knowledge and applications that are learned in this course are not useful in their daily life. Student 82 added that although he did not used what he learned in his daily life, he emphasized that it is important to learn these things.

Students who think that this course is not useful for them show as reason that they have learned basic skills in this course, and they study on the subjects they already know. Therefore, they think that this course not useful for them. In addition, some of the students think that the content of the lesson is nonsense for them. Student 84 complain about they did not learn important programs for them.

The Materials that are used in ITS Elective Course

The materials that are used in the course are investigated in the questionnaire. The findings are given in the table 21

Table 4. 17 *Course Materials*

		<i>f</i>	%
Course Book	Yes	0	0
	No	141	100
	Total	142	100
Handouts Given by Teacher	Yes	82	58
	No	59	42
	Total	141	100
Web Pages Advised by Teacher	Yes	114	81
	No	27	19
	Total	141	100
Teacher Prepared Presentations	Yes	90	64
	No	51	36
	Total	141	100

Table 21 shows that mostly stated materials web pages advised by teacher ($n=114$), teacher prepared presentations ($n=90$), and handouts given by teacher ($n=82$). Students answers show that they were not using course book in the course.

Teaching and Learning Processes

The teaching and learning processes are also investigated in terms of students' perspective in the scope of this study. Students are asked what teacher and students does during the lessons. According to findings lecturing ($n=73$), demonstration ($n=57$), and facilitating ($n=18$) are mostly stated roles of the teacher. Student 81 explains teacher role in the course; teacher explains the subject, show how to

perform the activities and then s/he helps students when they try to apply the steps. The course flow is explained by students as following: Elective ITS course is taught on computers; teachers send their computers' screenshot to students (Student 86). They show the steps that students need to apply in the course on the computer. They also explain these steps on the board when needed (student 67). After that, they assign some activities to students to apply (Student 45). When students have problem teachers help students either orally or through computer by sending their screenshot to students (Students, 45, 67, 68, 134).

In addition, teacher is the primary resource ($n=9$) in the elective ITS course. Students stated that teacher teaches the subjects, orientates students to web sites, gives handout and slides, send videos related to subject. In addition, giving examples ($n=5$) and monitoring students work ($n=5$) also among the teachers' activities that are observed and stated by the students. Students expressed that teacher gives examples about the subject that is taught in the lesson. In addition, students also indicated that teacher monitors students through a special software and checks their work. Moreover, asking questions ($n=2$) and answering students' questions are also found among the activities that teacher perform during the lessons. Student 126 explained that teacher asks questions to help students understand the subject better. Student 11 also adds that students perform the assigned activities, they request help from the teacher when needed and ask questions, and teacher answers student questions.

The other activity that is observed and stated by the students about the teacher is off-task behaviors ($n=7$). Students indicated that teachers were reading either books or news when students were performing assigned tasks.

After teacher role during the lessons are asked to students, it is also asked that what students does during the lesson in student questionnaire. Findings indicated that practicing ($n=79$), and listening ($n=39$) were the major tasks that were done by the students. Students indicated they were listening teacher and then they were trying to apply what teacher demonstrated themselves. Note taking ($n=4$), helping each other ($n=2$), asking questions ($n=2$), answering questions ($n=2$) and sharing ideas

with each other are the other tasks that students were doing during the lesson according to students' statements on the questionnaire. Student 66 explains the student role in the lesson as applying the tasks that teacher demonstrates on their own computer. Students 45 and 105 also added that they try to develop that teacher demonstrates and also they try to help each other during the lessons.

Students also expressed openly that they were performing off-task behaviors during the lessons. These behaviors were listed as misbehaviors ($n=5$), internet surf ($n=3$), playing game ($n=2$) and solving problems ($n=1$). Irrelevant speaking, making noise, not paying attention to the course are the misbehaviors were done by students during the lessons.

As a result, when teaching and learning processes are investigated in terms of students' perspective, it is found that the predominant teacher activity is lecturing and demonstration, while predominant student activity is practicing and listening.

The Evaluation Procedures

Students were also asked about the evaluation procedures that are used in elective ITS lesson through the academic semester. Findings show that mostly stated evaluation methods were performance based evaluation ($n=78$) and paper-pencil exam ($n=75$). In addition, portfolio ($n=4$), and projects ($n=4$) also stated among the evaluation procedures that are used in the elective ITS course.

Student 22 explains the evaluation procedures that are used in the elective ITS course as saying that before teacher was evaluating the studies that students were creating in the course, in that semester teacher applied a paper-pencil test. On the other hand, student 8 indicated that they do not have paper pencil exam in this course. They were evaluated according to performance based evaluation. Student 16 described the evaluation procedure as giving an example from the 3D design exam. He expresses that teacher wants students to design various objects in 3D design software. Student 16 also describes the grading system as; the names of the objects and the point that students could get from this object are written on the board

and students are wanted to design these objects in two lesson hour. Students 68 summarizes evaluation procedures as saying that they sometimes evaluated according to paper pencil exam, performance based evaluation or according to projects that they were made. Student 124 also describes the evaluation procedures as saying that teacher assigned projects according to subjects that are taught through the lesson and graded according to projects that students prepared. Student 67 explains the as the following;

Student 67: Sometimes, our teacher prepares questions related the applications that are practiced in the lesson and distribute these questions to us. We answer these questions and give them back to the teacher to get feedback. Sometimes, we have performance-based exams related to the subject that the teacher assigns. According to our success and effort in our performances, the teacher grades us.

After the current evaluation procedures were asked to students, it is also asked that what type of evaluation that students prefer in elective ITS course. Findings show that most of the students who answer this question were pleased with current system ($n=57$). The other evaluation types preferred by students are performance based evaluation ($n=14$), paper pencil exam ($n=12$), project based evaluation ($n=6$), portfolio ($n=6$). Students who prefer performance based evaluation show as reason that they were learning better through performance based evaluation (Student 6). In addition, they also stated that performance based evaluation is seen as a way of prove that they have the ability and competence to perform the tasks that they were learned. Therefore, they prefer performance based evaluation. The other part of the students prefer paper pencil exam rather than performance based exam. They proponed that they can be anxious in performance based exam, therefore, they forget the subjects. So, they find paper-pencil exam safer. In addition, some part of the students prefer project based evaluation. The reason for selecting project based evaluation is shown as students spend too much effort when developing project and they have pleasure when they receive recompense for their work. In addition, there were students who proponed that students should be graded based on tasks that they do during the lessons. This means that they prefer process or portfolio based evaluation.

In addition, there were also students who do not want exam based grading ($n=5$). Rather than exams students recommended grading based on participation ($n=5$), effort on the course ($n=2$), and in-class behaviors ($n=2$). Students complained about the TEOG exam and they indicated that they do not want exam in this course. Some of the students recommended that if they actively participated in the course and practice the assigned tasks, they could get full points. The other part of the students suggested to get full grades when they study on assigned tasks. Student 27 indicated that if the codes that he wrote do not run correctly, teacher could give full point since he studied on it, if the codes are rational.

On the other hand, two of the students indicate that students should not be graded in elective courses that are selected appropriate students' desires and interests.

The Physical Setting

Students were also asked to share their opinions about the computer laboratory that elective ITS course is taught. While 57 students mentioned the problems they faced during the course, 25 students have positive opinions about the computer lab.

Students who mention the problems ($n=57$), showed low performance computers ($n=35$), low speed internet connection ($n=13$), outdated computers ($n=4$), less number of computers ($n=3$) and MNE filter as the problems that they were exposed to deal with during the lessons. Some of the students complained about computers do not sufficient for some of the software and students have trouble while studying with this software. Students also explained that computers were operating slowly and sometimes they freeze while students performing the tasks. Students especially complained about computers that operating slowly during the performance based exams. They indicated that slow computers make difficult to complete tasks during exam. The other issue that students complained about is low speed internet connection. Students expressed that they spend too much time to access a web site. One of the issues that makes difficult students work during the elective ITS course is MNE filter in internet access. Students indicated that MNE filter block some web sites which do not have harmful content. This prevent student to reach some sources

or cloud storing areas. Although these problems, students indicated that they were happy to have a computer lab and they can be taught practically.

On the other hand, 25 of the students indicated that they are pleased with computer lab. They stated as a reason that although computers were outdated, they serve for them and give students opportunity to practice the subjects they have learned. Therefore, students think that computer laboratory is enough for them.

4.4 Observation Results

This section presents the results that are gathered from school 2 through teacher interview, student questionnaire, and observations.

4.4.1 School 1-Observations

School 1 has one computer lab and one ITS teacher whose major is computer science. Computer lab includes 20 computers for students and 1 computer for teacher. In addition, there is smart board, and a bookcase on the computer lab. The layout of computer lab is given in the figure below.

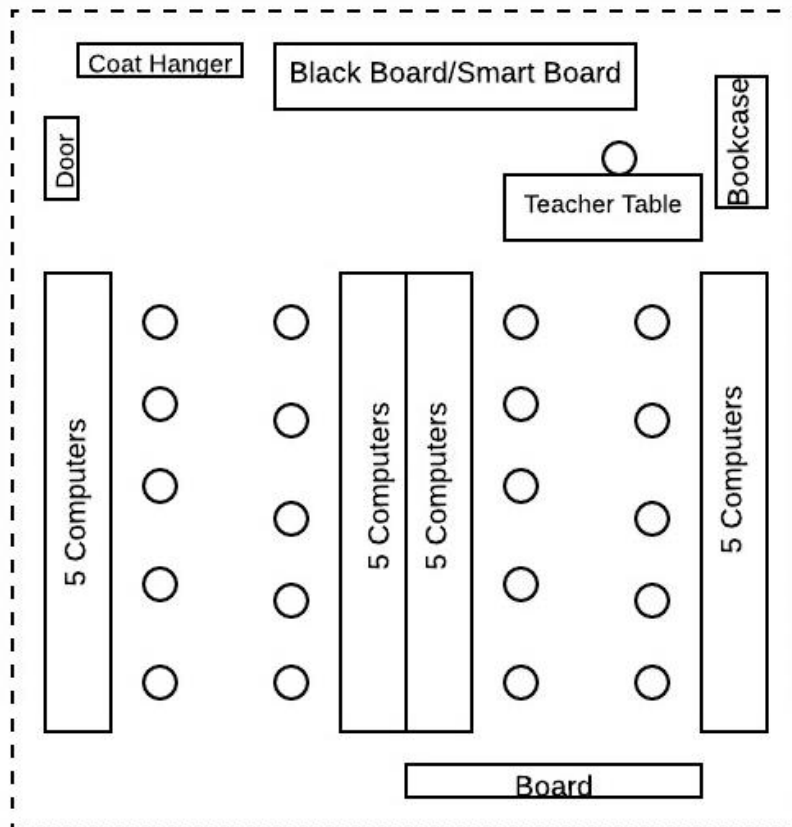
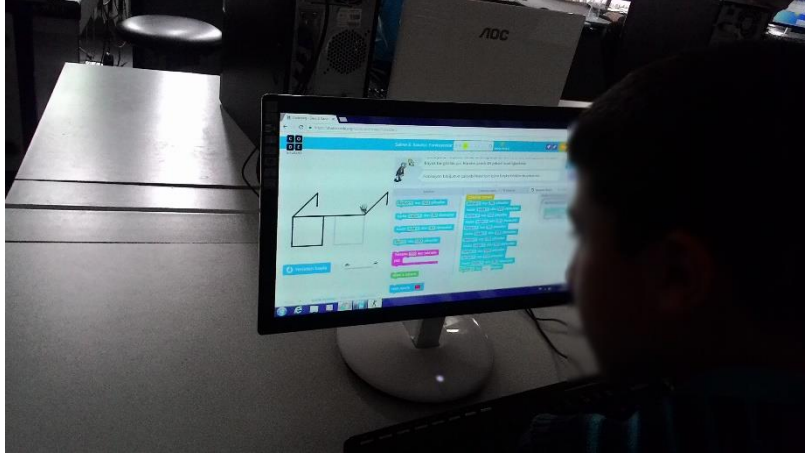


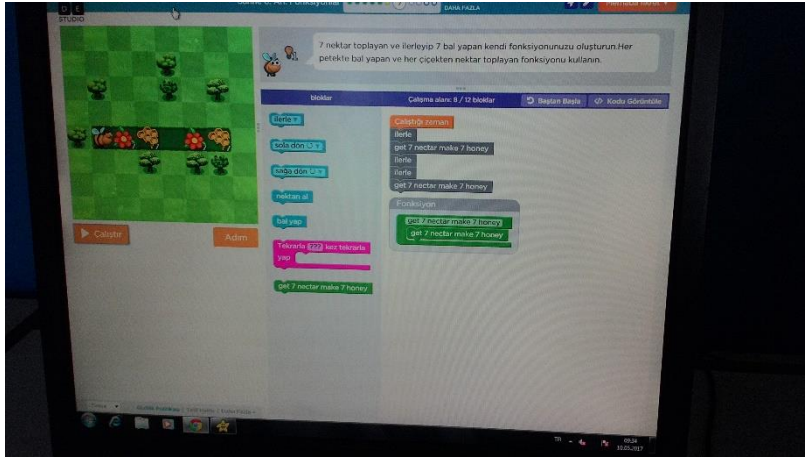
Figure 4. 1. School 1 computer lab layout

In school 1 researcher made 4 weeks observations. There were 3 classes which take elective ITS course; one of them consists of 7th grade students and two of them consists of 8th grade students. Since 8th graders were preparing for TEOG exam, they did not come to course, therefore, observation was not made in 8th graders. Only one class was observed in this school.

In this school courses are made through code.org web site during four-week observation period. Figure 4.2 shows an example of activities that students perform on code.org.



(a)



(b)

Figure 4. 2. (a), (b) Sample activities that student do on code.org

Code.org is an online platform which is prepared to teach programming for students. There are online activities and some scenarios. These activities are prepared in different levels from beginner to advance. Students are learning the logic of algorithm and also basics of programming through some scenarios.

As stated before, in school 1, students were doing activities on this online platform. Every student was in different level and they do activities in their own level. In addition, there are exams at the end of different levels. When students complete the exam, they can pass the next level. Figure 4.3 shows an example of level end exam.

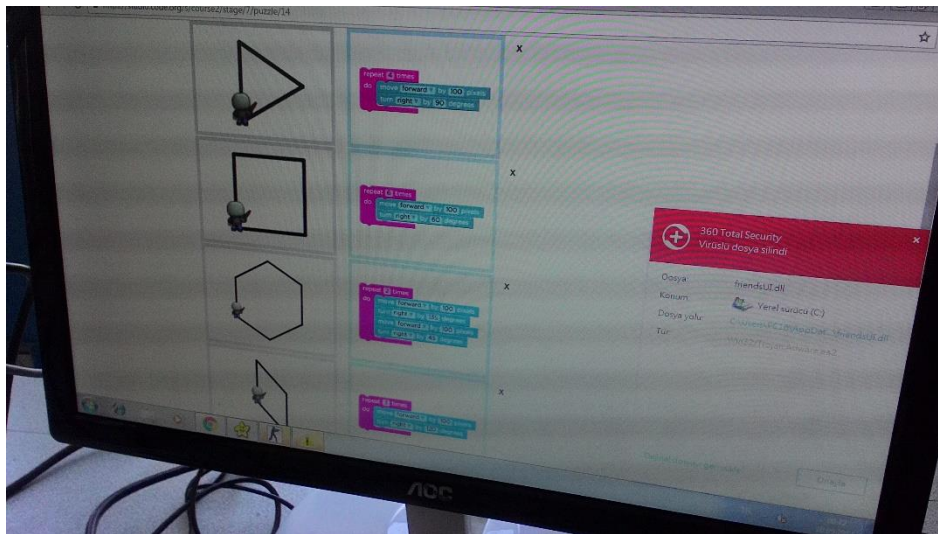


Figure 4. 3. An example of level end exam

The teaching learning processes were not as known processes. To illustrate, the mostly used processes such as lecturing and demonstration was not observed in this school during four-week period. Students were studying on their own pace on their own computers. When students have problem, they were wanting help from each other or their teacher. Students were discussing on the algorithms they created. They were discussing on what could be wrong, what they could change to create wanted scenario. Figure 4.4 shows two students when they were discussing about the activity.

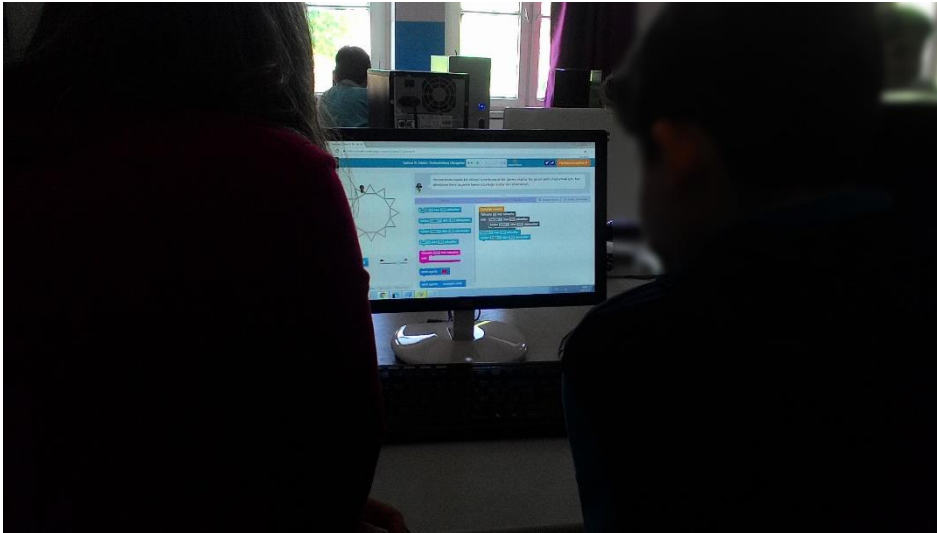


Figure 4. 4. Students are discussing on the activity

Teacher was in facilitator role in this class. He monitors the students when they were studying on their activities and helps when they need. His main role was encouraging students to develop different thinking processes when students stuck.

The main problems in this school were uninterested students and low speed internet connection. Students did not want to study on code.org. In the first lesson, students were studying on code.org but in the second lesson they were playing computer games. In addition, in the first lesson also some of the students do code.org activities aversely. Only half of the students do activities heartedly. In addition, some of students were bored from doing single type of activities. They were indicated their burnout by saying why these activities boring. The second main problem in this course was low speed internet connection. Students had problems connecting this online platform. Besides, some of the graphics were loaded slower. During the loss of internet connection, students also loss their attention.

As stated before four-week observation is done in this school. The results of observation were collected under four main themes. These are sources, teacher role, student role and problems. These themes are presented in the following section. The numbers indicate the week and “x” indicates activity done in this week.

Table 4. 18 *Sources That are Used Through The Lesson*

Sources	1	2	3	4	<i>f</i>
Web sites	x	x	x	x	4
Teacher	x	x		x	3
Videos	x				1

Table 4.18 shows the sources used in the lessons. The mostly used source was web sites. In addition, teacher was also one of the sources. Besides, although not frequently students get help from the YouTube videos.

Table 4. 19 *Teacher Role*

Teacher Role	1	2	3	4	<i>f</i>
Facilitating Student Work	x	x		x	3
Monitoring Student Work	x	x		x	3
Answering Student Questions		x		x	2
Giving Feedback		x			1
Proposing New Challenges	x				1

Teachers’ main role is monitoring and facilitating student work. Besides, answering students’ questions, giving feedback, and proposing new challenges for the students are between the activities that teacher done during the lessons.

Table 4. 20 *Student Role*

Student Role	1	2	3	4	<i>f</i>
Practicing	x	x	x	x	4
Helping each other	x	x		x	3
Sharing Ideas with Their Peers	x			x	2
Creating and Testing Hypothesis		x		x	2
Asking for Help	x	x			2
Independent Study		x			1

Table 4.20 shows the activities that students do during lessons. As could be seen in the table the main activity that students done is practice. In addition, helping each other, sharing ideas with their peers, creating and testing hypothesis, asking for help were the other activities that students done during the lessons.

Table 4. 21 *Problems Faced During The Lessons*

Problems	1	2	3	4	f
Uninterested students	x	x	x	x	4
Off-task Behaviors		x	x	x	3
Technical Problems	x		x		2
Problems in Entering Web Site	x				1

The main problem in this school was uninterested students. They did not want to study in assigned activates on online platform. They were playing game and chat with each other. Hence, off task behaviors constitute the second problem in this school. Technical problems such as low internet connection, computer faults were the other main problem of this school. In addition, sometimes students had difficulty in entering e-mail and code.org and this was also caused loss of students' attention during the lesson.

To sum up, when the lesson flow is analyzed, it could be seen that student centered activities were done through the lessons. Students were learning programming logic and creating algorithms by doing. But the main problem here was students do same type of activities during the one-month period that I observed, therefore, students were bored from doing same thing. The second main problem was students do not want to study on code.org too much and they were playing computer games in the second lesson every week.

4.4.2 School 2-Observations

School 2 has two computer lab and three ITS teachers whose major is computer science. The layout of lab 1 is given in the figure 4.5.

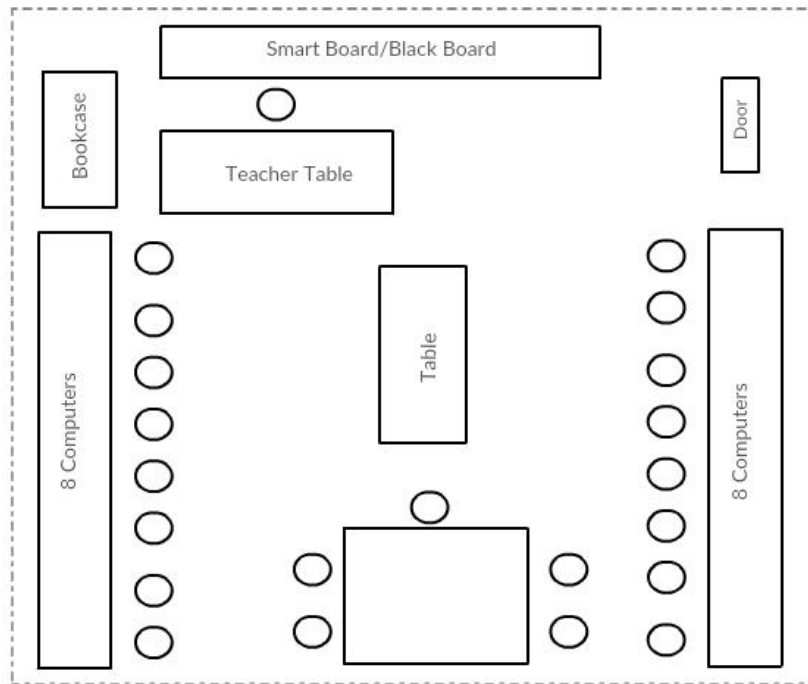


Figure 4. 5. School 2 computer lab 1

Lab 1 has 21 student computer, 1 teacher computer, a smart board and bookcase. Bookcase has books that are related computer science and robotic programing; students could get these books during the lessons. In addition, there is a table in the middle. This table also were used for group work and some other studies.

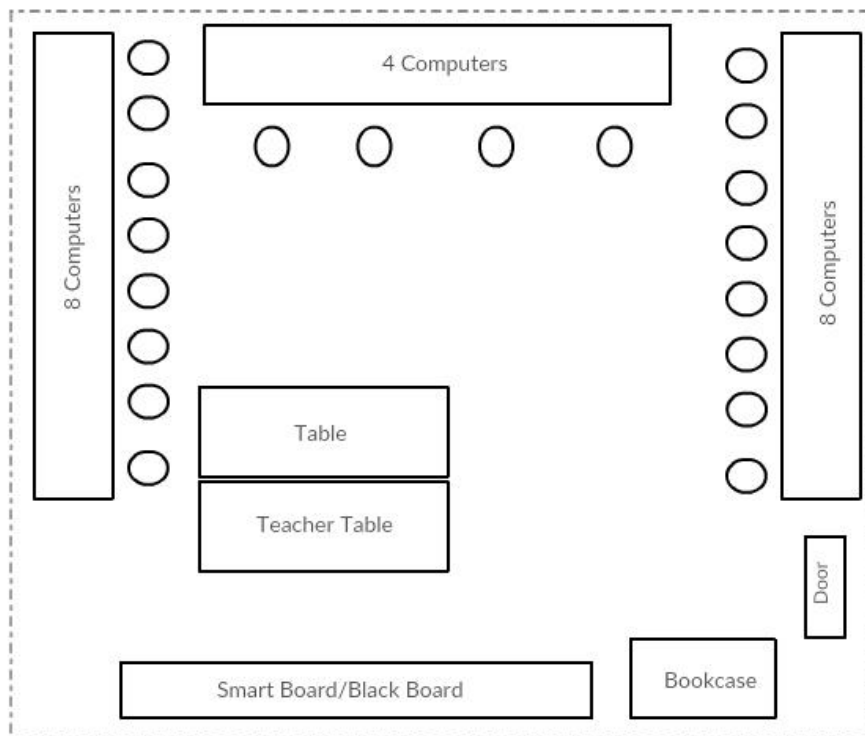


Figure 4. 6. School 2 computer lab 2

The layout of lab 2 is given in figure 4.6. Lab 2 has 20 computers for students and 1 computer for teacher. In addition, there is a smart board. A bookcase is also seen on the layout but it has no book inside. In addition, there is a table in front of the teacher table. There was computer hardware such as mainboard, ram, and CPU. Students could analyze these parts when they want.

In school 2, researcher made five-weeks observation. There were 7 classes which take elective ITS course; 3 consisted of 7th graders and 4 class consisted of 8th graders. Researcher made observation in all 7 classes. In total 21 lessons from three different teachers were observed.

In this school, various applications were done through different software during the five-week period that observations were made. These activities could be listed as excel spread sheet applications, mobile application development, visual programming, robotic programming, and 3D design. As could be understood from the list students have chance to recognize new areas and to test their abilities in

these areas. In addition, they have chance to train themselves in different areas though elective ITS course.

Teaching and learning processes were in classical structure. The dominant processes in the lessons are lecturing, demonstration and practicing. These were common procedures in the three teachers' lessons. Lessons generally starts with the summary of previous week activity and then teacher give some information about the current lesson. Then course is continued with the demonstration of activities that will be done in the current lesson and finally students are given time to practice demonstrated activity. While students are demonstrating the activities, teachers monitor them and help students when needed. These were the common processes done through lesson in all three teachers' lesson.

The other striking point related to this school was robotic programming activities. In this school there were approximately ten Arduino set and the books related to this subjects. Students were doing robotic programming activities in some of the lessons. The other striking issue in this school were workshops that are organized in lunch break. There are various workshops in this school such as robotics, and 3D design.

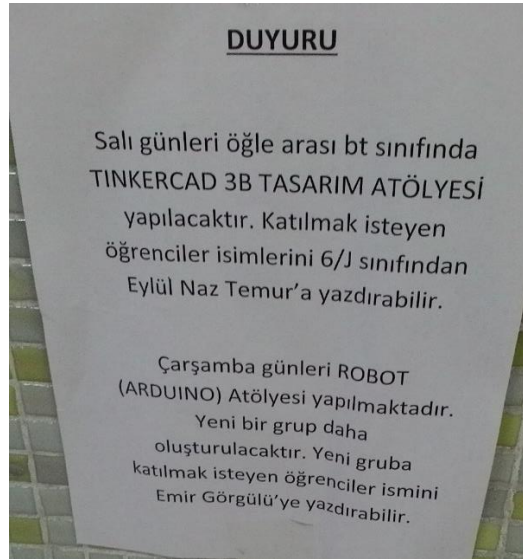


Figure 4. 7. Announcement for workshop

These workshops are managed by students. Students who are good at defined area help other students during the workshop. Students were coming computer lab in

defined day on lunch break and do some extracurricular activities in defined area. This workshops were also a chance for students to go beyond their interests and to develop their abilities. In addition, these workshops also a way of introducing the elective ITS lesson for lower grades.

All of the lessons are taught in computer laboratory. Some of the computers were used by two students. The performance of computers generally served to do assigned activities. Only some of the computers have problems to open needed software or to connect online platforms. Since nearly half of the activities were doing on online platforms and when there were problems related to loading of online platforms, this caused loss of students' attention and classroom management problems. In addition, too much time was spending to fix the problem.

As indicated before, five week observations were made in this school. The findings were collected under four main themes. These are sources, teacher role, student role and problems. These themes are presented in the following section. The numbers indicate the week and "x" indicates activity done in this week.

Table 4. 22 Sources that are Used Through The Lesson

Sources	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	f
Teacher	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	16
Online Platforms	x				x	x					x	x	x	x	x	x	x	10
Web sites	x			x			x	x	x									5
Book										x			x	x				3
Arduino Seti										x			x	x				3
Power point Slide									x									1
Smart Board									x									1

Table 4.22 shows the sources used through thr lessons. Teacher was the primary source in this school. Since there was no course book, the source of the knowledge was teacher. The second mostly observed source was online platforms; visual programming activities, mobile application development and 3D design activities were done through online platforms.



Figure 4. 8. A skateboard that is made by students in 3D design lesson

Students also could get help from the online sources that are given in these platforms. Figure 4.8 shows a 3D design study done by one of the students. This study was also done through an online platform. In addition, students were also get help from various web sites during their activities. Moreover, as it is said before, there were robotic programming books in one of the laboratories.

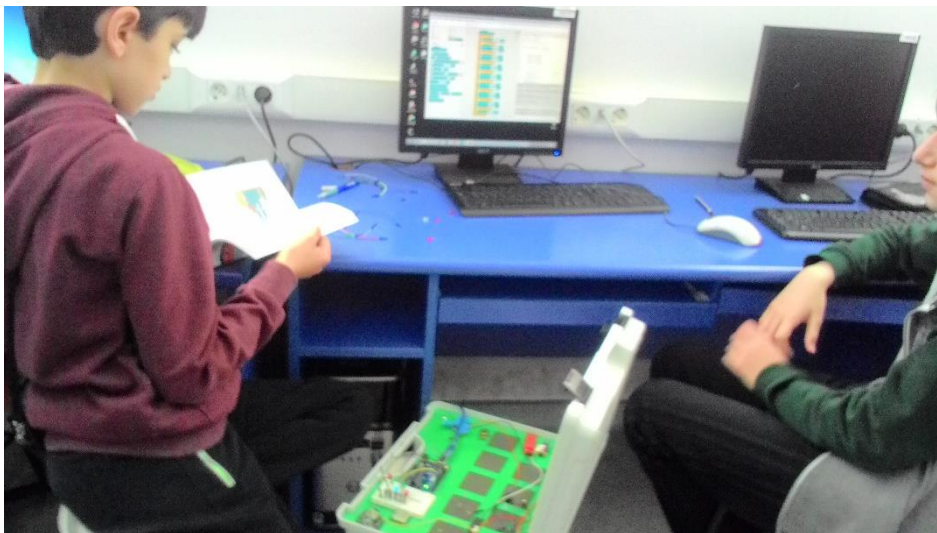


Figure 4. 9. A section from robotic programming lesson

In lessons related to robotic programming students also were used these books and made some activities from this book by using Arduino sets that are found in the computer laboratory. Figure 4.9 shows a section from a lesson that robotic programming is taught. As it is indicated before the sets and book were put back to classroom library at the end of the lesson. Moreover, although not frequently power point slides and smart board were also used during the lessons.

Table 4. 23 *Teacher Role*

Teacher Role	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	f
Lecturing		x	x	x	x	x	x	x	x	x	x	x	x		x	x		14
Demonstration	x	x	x	x	x	x	x	x	x	x	x		x		x	x		14
Monitoring Student Work		x	x		x	x	x	x	x	x	x	x	x	x	x	x		14
Facilitating Student Work					x	x	x	x	x	x	x	x	x			x		11
Giving Feedback		x	x	x	x	x	x	x					x		x	x	x	11
Questioning	x	x	x	x				x	x		x				x			8
Answering Student Questions	x	x		x			x					x	x	x		x		8
Recalling Previous Lesson	x			x					x		x	x		x				6
Guidance	x			x				x	x								x	5
Motivating		x	x							x								3
Solving Technical Problems										x	x					x		3
Introducing Next Years Subject					x					x								2
Proposing New Challenges										x	x							2
Informing about Learning Objectives										x								1
Checking Student Work				x														1
Discussion										x								1
Summarizing															x			1

When table that shows the teacher role during lessons is analyzed, it could be seen that main role of teacher is Lecturing ($n=14$). Since, most of the subjects are taught by teacher, the lecturer role of the teacher becomes prominent. Since there were 3D design, application development and visual programming activities in the lesson, teacher first introduces or demonstrates the activities, therefore, demonstration ($n=14$) is also one of the prominent activity done by teacher. When students were doing activities, teacher monitors ($n=14$) them, and gives feedback ($n=11$). During the practice section of the lessons, teachers' facilitator role ($n=11$) come in view. Teacher assist students and gives advices when needed while students doing assigned activities. In addition, questioning ($n=8$) and answering student questions ($n=8$) were the other activities frequently done by the teachers during the lessons. Table 4.23 shows the other activities done by the teacher during the lessons week by week. The striking point related to this table is solving technical problems ($n=3$). As could be seen in the table, teacher was also trying to solve technical problems that faced during the lesson. The problems that took longer than ten minutes were noted on observation sheet. As might be expected, during these ten minute students were distracted and it took time getting students attention. The other striking point in this table is teachers introduce the next years subject ($n=2$) in some of the lessons. By this way, they were introducing the ITS elective course for students.

Table 4. 24 *Student Role*

Student Role	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	20	<i>f</i>
Practicing	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			16
Listening	x	x	x	x	x	x	x	x	x	x		x	x		x	x			14
Asking Questions		x	x		x	x					x		x		x	x			8
Answering Questions	x	x		x			x	x		x	x								7
Asking for Help							x	x	x	x	x	x		x					7
Working in Groups				x						x			x	x					4
Taking Notes							x	x		x									3
Sharing Ideas with Their Peers										x			x						2
Creating and Testing Hypothesis													x		x				2

Table 4. 24 (Continued)

Helping each other		x					x											2
Independent Study															x	x		2
Getting Feedback							x											1
Working Collaboratively																x		1
Getting help from others	x																	1
Recalling Prior Knowledge									x									1
Obeying Class Rules																	x	1

Table 4.24 shows the activities that students do during lessons. As could be seen in the table practicing ($n=16$) and listening ($n=14$) are the main activities that students do during the lessons. They also ask questions ($n=8$) both each other and teacher during the lessons and answers the questions ($n=7$) that come from teacher and other students. Moreover, they ask help ($n=7$) both from their teachers and friends. The pleasing point related to students' activities is they also have chance to create hypothesis and test them ($n=2$) in elective ITS lessons. During the activities, they learn to try new ways to solve some problems.

Table 4. 25 Problems Faced During The Lessons

Problems	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	<i>f</i>
Uninterested students			x		x		x	x			x						5
Technical Problems Level Differences between Students					x			x			x					x	4
Problems in Connecting Online Platforms					x						x						2
MNE Filter					x												1
Off-task Behaviors								x									1

As could be seen in the Table 4.25 uninterested students ($n=5$) constitute the main problem in the teaching and learning processes. They were not listening the courses or doing assigned activities. They also perform some off task behaviors during the lesson ($n=1$) such as searching on the internet. In addition, technical problems

($n=4$) are second mostly faced problem in this school. As it is mentioned before technical problems both caused to lose students' attention and took too much time during the lessons. Hardware faults, internet disconnections and retardations during some activities were frequently faced technical problems. These problems were also caused to distract students' attention and caused them to deal with off-task activities. Moreover, the difficulties in connecting the online platforms ($n=2$) and MNE filter ($n=1$) are also other problems that hinder the flow of the lessons. The other problem that hinders the flow of lesson is level differences between the students ($n=2$). While some the students were doing activities easily and finish early others spend too much time on a step. Therefore, teacher could not pass to other step. This also prevent early finishers to progress.

To sum up, when lesson flow is analyzed, it could be seen that lecturing, demonstration, monitoring and facilitating student work were the activities that are frequently done by teacher. In addition, listening, practicing, and asking questions were the students' main role during the lessons. Teacher was the main source during the lessons. Besides, students were using online platforms to perform some activities. Uninterested students and technical problems were mostly faced problems during the lessons.

4.5 School 3-School Administrator Interview Results

School 3 is one of the schools that is placed on the Çankaya Province. Elective ITS course was not opened in this school. An interview was conducted with the deputy headmaster to investigate the elective course opening process and the reasons not to open ITS elective course. The findings that were gathered through this interview are presented in this part. The frequencies show the number of times the item repeated by the school administrator.

Elective Course Opening Process

School administrator was asked about the elective course opening process in this school. School administrator explained that the courses that could be opened were determined according to number of teachers who can taught courses, after that, the course lists were announced to students. Students give petition to inform school administration about their preferences. These petitions also signed by parents. According to school administrator's expressions, student desire and existence of teacher to taught the course were the conditions that affect the course opening process. The other issue that was asked to school administrator is the determination of teachers who would give the elective courses. School administrator stated that they consider the branch of teacher while determining the teachers for elective courses. He stated that teachers who have same major with course is assigned for elective course. He exemplified that science teacher was assigned to Science Applications elective course. He also explained that if there is not any teacher who have the same major with the elective course, the teacher who has certificate that proofs he has the competence to teach that course is assigned to elective course.

As stated before, ITS elective course was not opened in this school as an elective course. The reasons not to open elective ITS course is also asked to school administrator. He listed the reasons not to open ITS elective course are lack of student who select this course and lack of the teacher to give ITS elective course. He explained that there were no students who preferred this course as an elective course. He also added that they have only one computer science teacher and the course hours were full of compulsory courses. As a results, since there was no student who select this course and no teacher who could give this course, elective ITS course is not opened in this school.

The school administrator is also asked about the motives that orientate students in elective course selection process. According to his expressions there are three main motive that shape students' elective course selection decisions, these are desire to have enjoyable time ($n=4$), elective courses' possible contribution to TEOG ($n=3$), and desire to pass easily the course ($n=2$). School administrator indicated that

students select the courses that they can have enjoyable time on it and make them relaxed. He expressed that elective courses such as Mathematics Applications and Science Applications are the courses that students need to allocate to time to study on it. He also adds that since students have to work hard for these courses, their work load increases and they feel themselves under pressure, therefore, they want to select courses that make them relaxed and have enjoyable time on it. The other motive that shapes students' elective course decision is courses' contribution to TEOG exam. He explains that students see Math applications and Science application courses as a refresher course that helps them in their preparation for TEOG exam. The last motive that affect students' course selection decision is easiness to pass. School Administrator indicated that students look for the courses that they can pass easily. He explains that since they give too much effort on compulsory courses, they want to study less in elective courses. As a result, school administrator thinks that students select elective courses that enable them to enjoy, is easy to pass and can contribute to TEOG exam.

School administrator is also asked about the courses that are mostly preferred by the students. He stated that Sport and Physical Activities ($n=3$), Authorship and Writing Skills ($n=2$), and Science Applications were the courses that are preferred mostly. He also added that students were selecting Sport and Physical Activities course to have enjoyable time and to relax and Science applications and writing skills due to their potential contribution to TEOG.

The contributions of elective courses for students was another issue that is investigated through interview. When it is asked to school administrator, he stated that elective courses are helpful for students' cognitive development and allow students to relax. He stated that elective courses such as Math applications and Science applications improve students' cognitive skills while courses such as Sport and Physical activities allow students to relax. He explained that students pass 31 course hour out 35 in classroom by sitting, therefore, they feel themselves under stressed. He adds that Sport and Physical activities course is seen as opportunity to be relaxed.

School administrator was also asked about the problems that are faced in elective course implementation process. He expressed that there is not any teacher who have the major to give most of the courses that are placed in elective course list. He stated that they have difficulty in finding teachers for some courses. He exemplified that the number of teachers who can give elective Quran course among the teachers who have a major in Religious and Ethics is limited. The same situation is valid for some braches of Visual Arts course. As a result, the lack of teacher who have the major to give elective courses is stated as the most important problem.

In addition, school administrator has two advices to make elective course policy more effective. The first advice is to remove core course related courses from the list. He stated that the courses such as Math Applications, Science Applications and Writing Skills increases students workload. He explains that in these courses students need to study hard and they need take exams like in core courses. He states that elective courses should be courses that make students relief and enable them to explore themselves, therefore, he highly recommends to remove core related courses from the elective course list. The second advice of school administrator is enhancing the school facilities. He explains that in his school and other schools there were insufficiencies related to schools' facilities. He stated that BT laboratories, Science laboratories should be improved and needed materials should be provided for these laboratories.

To sum up, in school 3, student selection and the existence of teachers who can give the elective course were the enough conditions to open a course. Teachers who teach the elective course were determined according to teachers' major. The teacher who have the same major with the elective course or who have certificate related to this course was assigned to the course. Students were selecting the elective courses that make them enjoy, contribute to TEOG and can pass easily. The courses that are mostly preferred by students were Sport and Physical Activities, Science Applications, and Authorship and Writing Skills. Deputy head master shows the most important problem in elective course decision-making process is difficulty in finding teacher for elective courses. He recommends that core course related courses should not be offered as elective course since they against the logic of

elective courses. He stated that elective courses should be courses that enable students to express themselves, and make them relaxed. Lastly, deputy head master lists the contributions of elective courses for the students as development of cognitive skills and enabling students to relax. He did not mention the elective courses contribution on choice of profession, or personal development,

CHAPTER 5

DISCUSSIONS AND CONCLUSIONS

The purpose of study was to investigate elective course decision-making and implementation process on the context of ITS elective course. The findings of the study were interpreted and discussed in accordance with the literature. The discussion of results and conclusion obtained through the study is presented in this chapter.

Decision Making Processes

Elective courses are optional courses that enable students go in line with their interests, abilities and dispositions. The purpose of elective courses is to provide students an environment that they can go beyond their interest, and discover and develop their abilities. To accomplish these purposes elective courses should be chosen by students freely. MNE also decided on determination of elective courses by students in 2012 with article number 69 decision of the Board of Education and Discipline. They indicated that the elective courses that will be taught on the semester are determined according to students' preferences. The same decision also states that students' preferences should be sent to school administration via petition (MNE, 2012a). The results obtained through teacher interviews and school administrator interview show that students who were studying in three schools declared their elective course preferences with a petition or on online platform. Students also indicated in student questionnaire, they preferred the courses that they took as elective. The findings that are come from students, teachers and school administrators are compatible with each other, therefore, it could be said that elective course decision-making processes is applied in the schools as it is planned in the policy.

The other important issue is the type of courses that students were selected as elective courses. Elective courses might be the courses that serve as special interest education function or serve to supplement the core courses for further the general education (Klohr, 1953). This means that the purpose might be to meet students' interests and to develop students' abilities or to support core courses. Data from the school administrator questionnaire, student questionnaire and interviews showed that students mostly select Mathematics Applications, Science Applications and Sport and Physical Activities courses. These findings are also compatible with previous studies (Karagözoğlu, 2015; Uysal, 2015). In this selection, a pattern attracts attention. There are core course related courses (such as math, science, language) and non-core related elective courses. The logic behind this issue is revealed through the informal discussions with students and school administrators. It is found that students select core related courses such as Math Applications and Science Applications with the influence of their parents and select other courses such as Sport and Physical Activities and ITS based on their own decision. This means that students are forced to take core related courses even they do not want to. School administrators also stated that these courses do not help to increase students' academic achievement, in contrast, they make students get burnout. In this regard, to enable students go beyond their interests and to give opportunity to relax in elective courses core related courses should be removed from the elective course list or the content of core related elective courses should be changed with experiments and explorative activities rather than solving extra problems.

On the contrary to findings in the literature that students mostly are influenced from their parents (Akay et al., 2016; Eşbahoglu, 2015; Kotan, 2015; Uysal, 2015), this study showed that students were mostly influenced from their friends while selecting ITS as an elective course. This could be interpreted as students are not totally free in their decision making process. They are affected from their parents in core course related elective courses and they are affected from their friends in non-core related courses.

Students' decision making process also shows that students consider some issues in course selection. Students' answers show that students' positive attitudes toward

the course, desire to increase knowledge and ability in subject, course perception, feeling competent in subject, contribution for future, liking teacher, and desire to increase GPA are the factors that students consider in course selection process. The findings are similar to literature. (Anderson, 2006; Babad, 2001; Eşbahoglu, 2015; Kotan, 2015; Kurnaz & Alev, 2009; Schuhmann & McGoldrick, 1998; Tezcan & Gümüş, 2008). While the results come from teacher interview and school administrator interview show that students consider affective dimensions such as interest in course, liking teacher or having enjoyable time, student questionnaire results show that students in both of the schools also consider cognitive dimension and consider learning new things while determining their courses.

Informing students prior to selection process is important in terms of having realistic expectations from the course. Students' expectations from the course affects their satisfaction and student satisfaction is influential in terms of enhancing learning and achievement (Appleton-Knapp & Krentler, 2006). To give information about the elective courses before students' selection will help students to have realistic expectations from the course. Therefore, whether students are informed or not is a critical issue in elective course selection process. On the contrary to findings in the literature (Karagözoğlu, 2015; Eşbahoğlu, 2015), the findings of this study showed that students gather information about the course aims, course content, teaching and learning processes, and the evaluation methods. This means that the possibility to be satisfied increases, by this way, students could learn and develop more. Student answers also show that in school 1, students mostly took information from the teacher of the course and school web page. This shows that introductory information should be added to school web pages about the elective courses. On the other hand, in two of the schools, school administration and school counsellor are found as least referred persons as information sources about the elective courses. This might mean that there was not any introductory activity is organized by these two authorities. In addition, it was observed in school 2 that teachers refer to subjects that will be taught next year during the lessons. In addition, they prepare workshops in lunchtime. These activities also contribute to introduction of ITS course in school 2.

Conditions that Affect Course Opening in Schools

The conditions that affect the opening of elective courses are another critical issue in an elective course opening process. Similar to findings in the literature, it is found in this study that due to lack of teachers (EARGED, 2008; Özüt, 2015; Uysal, 2015), ITS course was not offered to students who selected this course in some schools. It is also emphasized by the school administrator of school 3 that administrators had difficulty in finding teachers for elective courses. This shows that schools need qualified teachers for elective courses. Since students select elective courses from previous year, at that time, schools might determine needed majors and request a teacher from the MNE. By this way, teachers might be assigned in needed schools every year.

The other condition that affects course opening is school facilities (EARGED, 2008; Özüt, 2015; Uysal, 2015). It is found in the study that in some schools, elective ITS course was not opened although there were students who select this course due to lack of computer lab. In addition, findings also showed that in some of the schools all of the students who select this course were not accepted the course due to insufficient number of computers in computer classes. According to school administrators' expressions, the same situation is valid for other elective courses. As a solution suggestion; needed materials and equipment might be determined by the schools and these are supplied by the MNE before the beginning of academic year. In addition, portable materials such as experiment equipment for Science Applications course, musical instruments for art course or robotic programming sets for ITS course might be exchanged or used communally among schools in needed semester.

Teaching and Learning Processes

The subjects that are taught in elective courses are important to reach elective courses their goal. They should be appropriate to student interest and should introduce new areas for students to reveal and develop students' abilities in this areas (Cooke & Kummer, 2011; Demir & Ok, 1996). It is found in this study that

the subjects that were taught in elective ITS course in school 1 were various presentation tools, programming, word processor, preparing poster, graphic design and creating animation. In addition, the subjects that were taught in school 2 were listed as programming, 3D design, mobile application development, graphic design, spread sheet, presentation software, shooting and editing video, cyber security, and effective usage of social media. When the subjects that are taught in both of the schools are analyzed it could be said that there are different areas such as mobile application development, graphic design and 3D design that enable students to test and develop themselves. In addition, it also can be said that ITS elective course has the diversity to fulfill its function of self-discovery and development.

Furthermore, when the taught subjects in two of the schools are compared, it could be seen that in school 2 the subjects are more diversified. Different subjects were taught in the School 2 through the semester. Moreover, observation findings also support this idea. It is observed that students studied on the same type of activities during the observation period in school 1 while different subjects were taught in school 2. This could be a disadvantage for students in school 1 in terms of self-discovery.

As it is stated before, the subjects were more diversified in school 2 when compared to school 1. Teacher interview results show that in both of the schools, teachers determine subjects and prepare material by themselves. This difference in variety of the subject might be due to number of teachers in schools. Since there were three teachers in school 2, they have the opportunity to discuss on the subjects and every teacher can propose a different subject for the course. Therefore, it can be said that the number of teachers in the school and collaboration between teachers make elective courses more effective.

In addition, the presence of equipment also has an effect on the differences between two schools in terms of diversity of subjects. In school 2, there were sets which are provided by teachers, to teach robotic programming. Therefore, robotic programming subjects were included in the yearly plan.

The way the subjects are taught in the elective courses is another critical issue in elective courses. The purpose of elective courses is to enable for self-discovery and development (Cooke & Kummer, 2011; Demir & Ok, 1996). So the purpose of elective ITS course should be to explore the areas that students have ability or interest in IT sector. Therefore, students should be given opportunity to practice the issues that are taught in the ITS course. The findings obtained through observations, student interviews and school administrator questionnaire indicated that overcrowding of the classroom diminishes the opportunity for all students to practice their computing skills. In case an elective course is offered, it should be guaranteed that all students have access to a single computer in laboratory.

The expressions of some of the school administrators, data come from student questionnaire and observation results of school 1 shows that some of the students see ITS course as an opportunity to play game or to do internet surf in school 1. On the other hand, the number of students who want to engage in non-course activities in school 2 are limited. It was observed that, teachers in school 2 forbid to play game in computer labs both in free time and during the course. In addition, they frequently remind that students need to produce projects in ITS course. It could be said that determining rules from the beginning and the attitude of teachers helped students course related expectations from the course and orientated them to do course related activities during the lessons.

Evaluation Procedures

The evaluation procedures that are common in both of the schools are performance based evaluation, and paper pencil exam. Different from school 1, in school 2 process based evaluation is also used. In school 2 students' products were collected week by week and created a portfolio for each student. Portfolio based evaluation could be appropriate for ITS elective course to observe the student development in process and to discover the areas that students have a talent. On the other hand, in the literature there were contrary opinions about the evaluation. While students and some part of the teacher defend that elective courses should not be graded, the other

part of the teachers defend that elective courses should be graded (Eşbahoglu, 2015; Taş, 2004; Uysal, 2015). Similar to findings in the literature, in this study, there were also some students in two of the schools who wanted to be graded according to participation, effort on the course, and in-class behaviors only. This could be interpreted as some of students do not want to have exam in elective ITS course.

In addition, it is found on the study that evaluation procedures also affected from school facilities. In teacher interview, it is sated by a teacher that portfolio based evaluation or performance based evaluation is more appropriate for students but due to number of computers in computer lab and computer faults during the exam it could be difficult to make performance based exam. In school 2, since there were two computer labs, teachers had a chance to use both of the classes to do performance based exam. In school 1 there were only one computer lab and some the computers were disfunctional, therefore, it is hard to operate performance based exam in this school.

In conclusion, lack of teacher, absence of computer lab and insufficient number of computers in computer lab prevents ITS course from opening, although there were students who select this course. Therefore, needed number of teachers, course materials and required improvements should be determined by the school administration before the beginning of academic year and MEB should provide needed supply for schools. It is seen that non-academic expectations are decreased when course function and requirements are explained to students. Therefore, students should be informed about the requirements of the course. The subjects that are taught in the schools differs between schools due to lack of a common course book and differences between teachers' knowledge. Therefore, the communication between teachers of same major should be increased and course book and materials should be supplied for schools.

5.1 Implications

In this part, the implications that are gathered from the results of the study are presented. The implications are divided in to two group as implications for practice and implications for further research.

5.1.1 Implications for Practice

This study has some recommendations for elective course implementation;

1. The purpose and functions of elective courses should be explained to students to orientate them meaningful selections for their personal development. The seminars and informative activities should be organized in the schools to inform students about the elective courses.
2. The families should be informed to increase their awareness about the elective courses and ITS course as an elective course is about learning beyond computing skills. They should be raised awareness about the importance of elective ITS course in terms of students' future and career choices such as graphic design.
3. The introductory information that explains course content, teaching and learning processes and evaluation processes of elective courses should be announced on school website to inform students and parents about the content of the elective courses to be offered.
4. School administrators' awareness on professional orientation function of elective courses should be increased via in-service training and they should be void of their personal preferences.
5. The materials and course book for the elective ITS course should be enriched through different means and teachers should be able to act as curriculum planners for the courses they will offer.
6. Teachers with the essential credentials should be hired in schools for elective courses before the beginning of the academic semester. Members of the parent-school partnership can raise this information on the topics through a small needs assessment study with students and parents.

7. The necessary places such as science laboratory, sports hall and computer laboratory should be arranged for schools and required materials or resources should be recruited for these areas.
8. The core course related elective courses such as Math applications or science applications either should be left to the core curriculum and should be removed from elective course list or the content of the course should be changed with explorative and experienced based activities.

5.1.2 Implications for Further Research

The study has some recommendations for further research;

1. This study is conducted in the context of elective Information Technologies and Software Course. It should be replicated in context of other elective courses such as Math Applications and Science Applications as a part of the core curriculum courses.
2. School administrators' awareness on the functions of elective courses in school system should be investigated in line with the interest of students and parents.
3. In light that elective courses aim at personal interest and skills development, further research could investigate if the elective courses should include core curriculum courses such as ICT, language, math and science, or more have a tendency towards elective courses such as sports, art, music, and other languages.

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APPENDICES

APPENDIX A: Ethical Committee Report

UYGULAMALI ETİK ARASTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER



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Sayı: 28620816 / 165

08 MART 2017

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Doç. Dr. Hanife AKAR;

Danışmanlığını yaptığımız yüksek lisans öğrencisi SATI BURHANLI'nın "*Seçmeli Dersler Uygulamasının Seçmeli Bilişim Teknolojileri ve Yazılım Dersi Kapsamında İncelenmesi*" başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay 2017-EGT-030 protokol numarası ile 13.03.2017 – 31.09.2017 tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Canan SÜMER

İnsan Araştırmaları Etik Kurulu Başkanı

Prof. Dr. Mehmet UTKU

İAEK Üyesi

Prof. Dr. Ayhan Gürbüz DEMİR

İAEK Üyesi

Yrd. Doç. Dr. Pınar KAYGAN

İAEK Üyesi

Prof. Dr. Ayhan SOL

İAEK Üyesi

Doç. Dr. Yaşar KONDAKÇI (4.)

İAEK Üyesi

Yrd. Doç. Dr. Emre SELÇUK

İAEK Üyesi

APPENDIX B: Meb Permissoin



T.C.
ANKARA VALİLİĞİ
Milli Eğitim Müdürlüğü

ÖİDB

Sayı : 14588481-605.99-E.4591522
Konu : Araştırma İzni

05.04.2017

ORTA DOĞU TEKNİK ÜNİVERSİTESİNE
(Öğrenci İşleri Daire Başkanlığı)

İlgi: a) MEB Yenilik ve Eğitim Teknolojileri Genel Müdürlüğü'nün 2012/13 nolu Genelgesi.
b) 24/03/2017 tarihli ve 1554 sayılı yazımız.

Sosyal Bilimler Enstitüsü, Eğitim Bilimleri Anabilim Dalı Eğitim Programları Yüksek Lisans öğrencisi Satı BURHANLI'nın "Seçmeli Dersler Uygulamasının Seçmeli Bilişim Teknolojileri ve Yazılım Dersi Kapsamında İncelenmesi" konulu araştırma kapsamında uygulama talebi Müdürlüğümüze uygun görülmüş ve uygulamanın yapılacağı İlçe Milli Eğitim Müdürlüğüne bilgi verilmiştir.

Görüşme formunun (24 sayfa) araştırmacı tarafından uygulama yapılacak sayıda çoğaltılması ve çalışmanın bitiminde bir örneğinin (cd ortamında) Müdürlüğümüz Strateji Geliştirme (1) Şubesine gönderilmesini rica ederim.

Vefa BARDAKCI
Vali a.
Milli Eğitim Müdürü

Güvenli Elektronik İmza
05 Nisan 2017
Aynıdır.
...../201.....

13.04.2017 - 6841

Yaşar SUBAŞI
Şef

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

Ayrıntılı bilgi için
Tel: (0 312) 221 02 17/135-134

Bu evrak güvenli elektronik imza ile imzalanmıştır. <http://evraksorgu.meb.gov.tr> adresinden 65bd-5a51-39f1-8e52-af20 kodu ile teyit edilebilir.

APPENDIX C: Informed Consent Form

Ocak 2014

ARAŞTIRMAYA GÖNÜLLÜ KATILIM FORMU

Bu araştırma, ODTÜ Eğitim Programları ve Öğretim Bölümü öğrencilerinden Satı BURHANLI tarafından yürütülen bir çalışmadır. Bu form sizi araştırma koşulları hakkında bilgilendirmek için hazırlanmıştır.

Çalışmanın Amacı Nedir?

Araştırmanın amacı, seçmeli ders uygulamasının ortaokullardaki işleyiş sürecinin seçmeli Bilişim Teknolojileri ve Yazılım dersi üzerinden incelenmesidir.

Bize Nasıl Yardımcı Olmanızı İsteyeceğiz?

Araştırmaya katılmayı kabul ederseniz, sizden beklenen, çalışmada yer alan soruları cevaplandırmanızdır. Bu çalışmaya katılım ortalama olarak 10 dakika sürmektedir.

Sizden Topladığımız Bilgileri Nasıl Kullanacağız?

Araştırmaya katılımınız tamamen gönüllülük temelinde olmalıdır. Ankette, sizden kimlik veya kurum belirleyici hiçbir bilgi istenmemektedir. Cevaplarınız tamamıyla gizli tutulacak, sadece araştırmacılar tarafından değerlendirilecektir. Katılımcılardan elde edilecek bilgiler toplu halde değerlendirilecek ve bilimsel yayımlarda kullanılacaktır. Sağladığınız veriler gönüllü katılım formlarında toplanan kimlik bilgileri ile eşleştirilmeyecektir.

Katılımınızla ilgili bilmeniz gerekenler:

Anket, genel olarak kişisel rahatsızlık verecek sorular içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz cevaplama işini yarıda bırakıp çıkmakta serbestsiniz. Böyle bir durumda çalışmayı anketi kişiye, çalışmadan çıkmak istediğinizi söylemek yeterli olacaktır.

Araştırmayla ilgili daha fazla bilgi almak isterseniz:

Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için Eğitim Programları ve Öğretim Bölümü öğrencilerinden Satı BURHANLI (E-posta: bsati@metu.edu.tr) ile iletişim kurabilirsiniz.

Yukarıdaki bilgileri okudum ve bu çalışmaya tamamen gönüllü olarak katılıyorum.

(Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

İsim Soyad

Tarih

İmza

---/---/----

Consent Form for Parents



1956

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY
06531 ANKARA-TURKEY

Eğitim Programları ve Öğretim Bölümü
Department of Curriculum and Instruction

Tel: 90 (312) 210 40 29
Faks:90 (312) 210 79 67

Veli Onay Mektubu

Sayın Veliler, Sevgili Anne-Babalar,

BU araştırma, Orta Doğu Teknik Üniversitesi Eğitim Programları ve Öğretim Bölümü öğrencilerinden Satı BURHANLI tarafından yürütülen bir çalışmadır.

Bu çalışmanın amacı nedir? Araştırmanın amacı, seçmeli ders uygulamasının ortaokullardaki işleyiş sürecinin seçmeli Bilişim Teknolojileri ve Yazılım dersi üzerinden incelenmesidir.

Çocuğunuzun katılımcı olarak ne yapmasını istiyoruz? Çalışmanın amacını gerçekleştirebilmek için çocuklarınızın bir anket doldurmasına ihtiyaç duymaktayız. Katılmasına izin verdiğiniz takdirde çocuğunuz anketi okulda ders saatinde dolduracaktır. Sizden çocuğunuzun katılımcı olmasıyla ilgili izin istediğimiz gibi, çalışmaya başlamadan çocuğunuzdan da sözlü olarak katılımıyla ilgili rızası mutlaka alınacak.

Çocuğunuzdan alınan bilgiler ne amaçla ve nasıl kullanılacak?: Çocuğunuzun dolduracağı anketlerde cevaplarınız kesinlikle gizli tutulacak ve bu cevaplar sadece bilimsel araştırma amacıyla kullanılacaktır. Çocuğunuzun kimlik bilgileri, hiçbir şekilde kimseyle paylaşılmayacaktır.

Çocuğunuz ya da siz çalışmayı yarıda kesmek isterseniz ne yapmalısınız?: Çocuğunuzun cevaplayacağı soruların onun psikolojik gelişimine olumsuz etkisi olmayacağından emin olabilirsiniz. Yine de, bu formu imzaladıktan sonra hem siz hem de çocuğunuz katılımcılıktan ayrılma hakkına sahiptir. Katılım sırasında sorulan sorulardan ya da başka bir nedenden ötürü çocuğunuz kendisini rahatsız hissettiğini belirtirse, ya da kendi belirtmese de araştırmacı çocuğunuzun rahatsız olduğunu öngörürse, çalışmaya sorular tamamlanmadan ve derhal son verilecektir. Şayet siz çocuğunuzun rahatsız olduğunu hissederseniz, böyle bir durumda çalışmadan sorumlu kişiye çocuğunuzun çalışmadan ayrılmasını istediğinizi söylemeniz yeterli olacaktır.

Bu çalışmayla ilgili daha fazla bilgi almak isterseniz: Araştırmayla ilgili sorularınızı aşağıdaki e-posta adresini kullanarak bize yöneltebilirsiniz.

Saygılarımla,
Satı BURHANLI

Eğitim Programları ve Öğretim Bölümü
Orta Doğu Teknik Üniversitesi, Ankara
e-posta: bsati@metu.edu.tr

Lütfen bu araştırmaya katılmak konusundaki tercihinizi aşağıdaki seçeneklerden size en uygun gelenin altına imzanızı atarak belirtiniz ve bu formu çocuğunuzla okula geri gönderiniz.

A) Bu araştırmaya tamamen gönüllü olarak katılıyorum ve çocuğum'nın da katılımcı olmasına izin veriyorum. Çalışmayı istediğim zaman yarıda kesip bırakabileceğimi biliyorum ve verdiğim bilgilerin bilimsel amaçlı olarak kullanılmasını kabul ediyorum.

Baba Adı-Soyadı.....

Anne Adı-Soyadı.....

İmza

İmza

B) Bu çalışmaya katılmayı kabul etmiyorum ve çocuğumun'nın da katılımcı olmasına izin vermiyorum.

Baba Adı-Soyadı.....

Anne Adı-Soyadı.....

İmza

İmza

APPENDIX D: Data Collection Tools

D.1 School Administrator Questionnaire

OKUL YÖNETİCİSİ

Değerli Katılımcı

Bu çalışmanın amacı seçmeli Bilişim Teknolojileri ve Yazılım dersinin ortaokul 7. ve 8. sınıflarda seçim ve işleyiş sürecini değerlendirmektir. Formda yer alan tüm ifadelere eksiksiz yanıt vermeniz araştırmanın geçerliliği ve güvenilirliği açısından önemlidir. Okul adı ya da kişisel bilgiler hiçbir yerde kullanılmayacak ya da açıklanmayacaktır. Vereceğiniz samimi yanıtlarınız ve araştırmaya olan katkılarınız için şimdiden teşekkür ederiz.

Satı BURHANLI

ODTÜ, Eğitim Fakültesi

Eğitim Programları ve Öğretim Bölümü

ANKET SORULARI

Kişisel Bilgiler

- 1) Cinsiyetiniz : () Kadın () Erkek
- 2) Göreviniz : () Müdür () Müdür Yardımcısı
- 3) Bulduğunuz Okulda Yöneticilik Süreniz : yıl
- 4) Yöneticilik Deneyiminiz : yıl
- 5) Branşınız :
- 6) Mezun Olduğunuz Bölüm (Lisans) :
- 7) Aldığınız en yüksek eğitim derecesi
() Lisans () Yüksek Lisans () Doktora
- 8) Okulunuz :

Seçmeli Bilişim Teknolojileri ve Yazılım Dersine İlişkin Sorular

- 9) Okulunuzda 7. ve 8. Sınıfta okuyan öğrenci sayısı kaçtır?
7. sınıflardaki öğrenci sayısı :
8. sınıflardaki öğrenci sayısı :
- 10) Okulunuzda Bilişim teknolojileri ve yazılım dersi için bilgisayar laboratuvarı var mı?
() Evet () Hayır
- 11) Bulduğumuz dönemde Bilişim Teknolojileri ve Yazılım dersini
7. sınıflarda tercih eden öğrenci sayısı :
8. sınıflarda tercih eden öğrenci sayısı :
- 12) Seçmeli Bilişim teknolojileri ve yazılım dersini şu an **almakta olan** öğrenci sayısı
7. sınıflarda alan öğrenci sayısı :
8. sınıflarda alan öğrenci sayısı :
Bilişim teknolojileri ve yazılım dersini **tercih edip alamayan** öğrenciler varsa, bunun
nedenini lütfen açıklayınız.

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13) Okulunuzda seçmeli Bilişim Teknolojileri ve Yazılım dersini veren öğretmenlerle ilgili aşağıdaki soruları yanıtlayınız.

a) Okulunuzda Seçmeli Bilişim Teknolojileri ve Yazılım dersini veren öğretmen sayısı :

- b) Bu dersi veren öğretmenlerin branşı ve statüsü
- Bilişim teknolojileri ve kadrolu
 - Bilişim teknolojileri ve ücretli
 - Diğer (Branşını ve statüsünü belirtiniz.)
-

Seçmeli Derslere İlişkin Görüşleriniz

14) Okulunuzda tercihe sunulacak seçmeli dersleri kim belirliyor? Uygun olan seçenekleri işaretleyiniz.

- Öğretmenler Kurulu
- Okul Yönetimi
- Öğrenciler
- Veliler
- Milli Eğitim Bakanlığı

Başka paydaşlar varsa yazınız

15) Bilişim Teknolojileri ve yazılım dersinin 7 ve 8. Sınıflara seçmeli olarak verilmesini nasıl değerlendiriyorsunuz? Lütfen ayrıntılı cevap yazınız.

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Lütfen arka sayfaya geçiniz

16) Seçmeli Bilişim Teknolojileri ve Yazılım dersinin hedeflerine ne derece ulaşıldığını düşünüyorsunuz? Lütfen nedenleri ile birlikte açıklayınız.

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17) Seçmeli Bilişim Teknolojileri ve Yazılım dersi hakkında önemli gördüğünüz ve paylaşmak istediğiniz düşüncelerinizi lütfen yazınız.

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Anketime Katıldığınız için teşekkür ederim.

D.2 Student Questionnaire

ÖĞRENCİ ANKET

Değerli Katılımcı

Bu çalışmanın amacı seçmeli Bilişim Teknolojileri ve Yazılım dersinin ortaokul 7. ve 8. sınıflarda seçim ve işleyiş sürecini değerlendirmektir. Formda yer alan tüm ifadelere eksiksiz yanıt vermeniz araştırmanın geçerliliği ve güvenilirliği açısından önemlidir. Okul adı ya da kişisel bilgiler hiçbir yerde açıklanmayacaktır. Vereceğiniz samimi yanıtlarınız ve araştırmaya olan katkılarınız için şimdiden teşekkür ederim.

Satı BURHANLI

ODTÜ, Eğitim Fakültesi

Eğitim Programları ve Öğretim Bölümü

ANKET SORULARI

Kişisel Bilgiler

1. Cinsiyetin : () Kız () Erkek
2. Yaşın :
3. Sınıfın :
4. Okulun :

Seçmeli Bilişim Teknolojileri ve Yazılım Dersine İlişkin Sorular

5. Seçmeli ders dilekçesinde seçtiğin dersleri sırasıyla yazar mısın.
 - a. Birinci tercihin
 - b. İkinci tercihin
 - c. Üçüncü tercihin

() Dilekçe vermedim
() Haberim yok
6. **Seçmeli Bilişim Teknolojileri ve Yazılım** dersini seçmeden önce bu dersin amaçları, içeriği, işleyişi hakkında bilgi aldın mı?

Seçmeli Bilişim Teknolojileri ve Yazılım dersini seçmeden önce bu....	Evet	Hayır
... dersin amaçları hakkında bilgi aldım.		
... dersin içeriği hakkında bilgi aldım.		
... dersin işleniş şekli hakkında bilgi aldım.		
... derste nasıl değerlendirme yapıldığı hakkında bilgi aldım.		

7. Dersi seçmeden önce bilgi aldıysan nerelerden bilgi aldın? Birden fazla seçeneği işaretleyebilirsiniz.

() Okul web sayfası
() EBA web sayfası
() Dersi daha önce alan arkadaşlar
() Dersi veren öğretmen
() Rehber öğretmen
() Okul panolarında asılan ilanlardan
() Okul Yönetiminden
() Diğer (Bilgi aldığınız kaynakları belirtiniz).....
.....
.....

8. Bu dönem seçmeli ders olarak aldığın dersler nelerdir?
.....
.....
.....
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9. Bilişim teknolojileri ve Yazılım dersini seçmende etkili olan tüm nedenleri yazar mısın lütfen?

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10. Bu dersi alman için seni yönlendiren kişiler varsa yazar mısın lütfen?

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.....

11. Bilişim Teknolojileri ve Yazılım seçmeli dersinin haftalık ders saati yeterli mi?

Yeterli Kısmen Yeterli Yetersiz

12. Lütfen 11 soruya verdiğin yanıtın nedenini açıklar mısın?

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.....

13. Bilişim Teknolojileri ve Yazılım seçmeli dersinden ne derece yararlandığını düşünüyorsun?

Yararlı Biraz yararlı Yararlı değil

14. Lütfen 13. soruya verdiğin yanıtın sebebini açıklar mısın?

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15. Bilişim Teknolojileri ve Yazılım dersini alırken neler öğrenmeyi istiyordun?

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.....

16. Seçmeli Bilişim Teknolojileri ve Yazılım dersinde istediğin konuları öğrendin mi? Nedenleri ile açıklar mısın?

.....
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.....

17. Bilişim Teknolojileri ve Yazılım seçmeli dersinde kullandığınız kaynaklar nelerdir?

- Ders kitabı
 - Öğretmenin dağıttığı fotokopiler
 - Öğretmenin tavsiye ettiği web siteleri
 - Öğretmenin hazırladığı sunumlar
 - Derste kullandığımız bir kaynak yok
 - Diğer (Başka kaynaklar varsa belirtiniz)
-

18. Seçmeli Bilişim Teknolojileri ve Yazılım dersi nasıl işleniyor?

a. Ders işlenirken öğretmen neler yapıyor?

.....
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b. Siz (Öğrenciler) neler yapıyorsunuz?

.....
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19. Seçmeli Bilişim Teknolojileri ve Yazılım dersinde nasıl sınav oluyorsunuz? (Notlandırma nasıl yapılıyor?)

.....

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.....

20. Seçmeli Bilişim Teknolojileri ve Yazılım dersinde nasıl bir değerlendirme yapılmasını isterdin. (Öğretmeninizin nelerden not vermesini isterdin.)

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.....

.....

21. Bilişim Teknolojileri ve Yazılım seçmeli dersini işlediğiniz bilgisayar laboratuvarı ile ilgili düşüncelerinizi yazar mısınız? (Labın durumunun derse olan etkilerini yazar mısınız.)

.....

.....

.....

.....

Çalışmama katıldığım için teşekkür ederim.

D.3 Teacher Interview Form

Öğretmen Görüşme Formu

Okul:

Öğretmen:

Görüşmeye Başlama saati:

Bitiş:

Değerli Öğretmenim, adım Satı BURHANLI. Orta Doğu Teknik Üniversitesi Eğitim Programları ve Öğretim Anabilim Dalı'nda yüksek lisans öğrencisiyim. Yüksek lisans tez çalışmam kapsamında seçmeli Bilişim Teknolojileri ve Yazılım dersinin ortaokul 7. ve 8. sınıflarda seçim ve işleyiş sürecinin değerlendirilmesi üzerine bir çalışma yapıyorum. Görüşmemize geçmeden önce, okulunuz ve şahsınızla ilgili tüm bilgilerin gizli tutulacağını temin ederim. Görüşme sırasında elde edilen bulgular araştırmam için kullanılacaktır.

Görüşmemize başlamadan önce sormak istediğiniz soru ya da paylaşmak istediğiniz bir şey var mı?

Görüşmenin kaydedilmesine izin veriyor musunuz?

Görüşmemizin yaklaşık yarım saat süreceğini tahmin ediyorum. İzin verirseniz sorulara başlamak istiyorum.

GÖRÜŞME SORULARI

Kişisel Bilgiler

1. Cinsiyetiniz : () Kadın () Erkek
2. Yaşınız :
3. Mezun Olduğunuz Fakülte/Bölüm :
.....
4. Mezun olduğunuz en yüksek derece :
() Lisans () Yüksek Lisans () Doktora
5. Öğretmenlik süreniz : yıl
6. Bulduğunuz Okulda Öğretmenlik Süreniz : yıl
7. Branşınız :
.....
8. Bu dönem verdiğiniz dersler nelerdir?
.....
.....
.....
9. Seçmeli bilişim teknolojileri ve yazılım dersini kaç sınıfa veriyorsunuz?
.....
10. Bir sınıfta kaç öğrenci var?

S - Soru

AS - Alternatif Soru (Soru anlaşılmadığı zaman ya da yanlış anlaşıldığı zaman sorulacak)

SS - Sonda Soru (Sorulan sorudan almayı planladığımız cevaplar)

Görüşme Soruları

1) Seçmeli olan bu dersin açılmasına nasıl karar veriliyor?

AS: Seçmeli BTY dersini açmak için süreç nasıl işliyor?

- Müdür kendisi mi seçiyor?
- Seçerken neyi göz önüne alıyor?
- Sizin görüşünüzü soruyor mu?
- Öğrenci görüşü alınıyor mu?
- Başka nelere dikkat ediliyor? Açıklayınız

2) Seçmeli bilişim teknolojileri ve yazılım dersine karşı ilgi nasıl?

AS: Okul paydaşlarının derse karşı ilgisi nasıl?

- Öğrencilerin bu derse karşı ilgisi nasıl? Onları bu derse tercih etmeye yönlendiren etmenler nelerdir?
- Ailelerin bu derse ilgisi nasıl?
- Okul yöneticilerinin bu derse ilgisi nasıl?

2) Seçmeli Bilişim Teknolojileri ve Yazılım dersinin amacı nedir?

AS: Bu ders kapsamında kazandırılmak istenen hedef davranışlar nelerdir?

3) Seçmeli Bilişim Teknolojileri ve Yazılım dersinin kapsamı nedir?

AS3. Seçmeli Bilişim Teknolojileri ve Yazılım dersinde neler öğretiliyor?

4) Bir dersinizi gözlemlesem neler yapıyor olurdunuz? Açıklar mısınız?

AS: Sıradan bir dersiniz nasıl geçer? Ders sırasında siz neler yaparsınız?

Öğrencileriniz neler yapar?

- Dersi nerede işliyorsunuz? Lab/Sınıf?
- Hangi yöntem/teknik kullanıyorsunuz? Sunum mu? Gösterip yaptırma mı?
- Laboratuvardaki oturma düzeni nasıl? Her bilgisayarda kaç kişi var?
- Planlama ile ilgili ne yapıyorsunuz? Ders planı hazır mı?
- Ders anlatımı sırasında yaptığımız etkinlikler nelerdir?
- Öğrenciler ders sırasında neler yapar?

5) Seçmeli Bilişim Teknolojileri ve Yazılım dersinde kullandığımız kaynaklar nelerdir?

AS: Dersi planlarken ya da işlerken başvurduğunuz kaynaklar nelerdir?

- Meb tarafından verilen bir program var mı?
- Varsa bu programı ne kadar uyguluyorsunuz?
- Öğretmen kılavuz kitabı var mı?
- Web siteleri kullanılıyor mu?
- Çalışma kağıtları var mı?

6) Seçmeli Bilişim Teknolojileri ve Yazılım dersinde değerlendirmeyi nasıl yapıyorsunuz?

AS: Bu derste kullandığımız ölçme değerlendirme yöntemleri nelerdir?

7) Seçmeli Bilişim Teknolojileri ve Yazılım dersine ilişkin genel görüşünüz nedir?

- Seçmeli BTY dersiyle ilgili sizi mutlu eden durumlar nelerdir?
- Seçmeli BTY dersinde karşılaştığımız zorluklar nelerdir?
- Seçmeli BTY dersindeki ihtiyaçlarımız neledir?

8) Seçmeli Bilişim Teknolojileri ve Yazılım dersinin daha verimli hale getirilmesi için tavsiyeleriniz nelerdir?

AS: Bu dersin seçmeli olarak açılmasından işlenmesine kadar olan süreci göz önüne aldığımızda, bu sürecin daha verimli olması için neler yapılmalı?

- Dersin açılması ile ilgili tavsiyeleriniz
- Öğrencilerin dersi tercih süreci ile ilgili tavsiyeleriniz
- Dersin işlenişi ile ilgili tavsiyeleriniz
- Dersin içeriği ile ilgili tavsiyeleriniz
- Değerlendirme yöntemleri ile ilgili tavsiyeleriniz nelerdir?

9) Okulun fiziksel ortamının BTY dersinde öğrenme sürecine olan etkilerini nasıl değerlendirirsiniz?

AS: Seçmeli BTY dersinde kullandığınız dersliğin fiziksel yapısı öğrenme öğretme sürecini nasıl etkiliyor?

10) Okulunuzdaki paydaşların BTY dersine olan etkisini nasıl değerlendiriyorsunuz?

AS: Okul müdürünüz, meslektaşlarınız ve öğrenci velilerinin derse bakış açısı dersi nasıl etkiliyor?

- Okul yöneticilerinin BTY dersine olan ilgisi bu dersteeki öğrenme sürecine etkileri nasıldır?
- Diğer branş öğretmenlerinin BTY dersine olan ilgisinin bu dersteeki öğrenme sürecine etkileri nasıldır?
- Ailelerin BTY dersine olan ilgisi bu dersi nasıl etkiler?

11) Seçmeli Bilişim Teknolojileri ve yazılım dersi için önemli bulduğunuz eklemek istediğiniz bir durum varsa anlatırsanız memnun olurum?

Çalışmama katıldığınız için teşekkür ederim.

D.4 School Administrator Interview Form

Müdür/Müdür Yardımcısı Görüşme Formu

Okul:

Müdür/Müdür Yardımcısı:

Görüşmeye Başlama saati:

Bitiş:

Merhaba, adım Satı BURHANLI. Orta Doğu Teknik Üniversitesi Eğitim Programları ve Öğretim Anabilim Dalı'nda yüksek lisans öğrencisiyim. Yüksek lisans tez çalışmam kapsamında seçmeli Bilişim Teknolojileri ve Yazılım dersinin ortaokul 7. ve 8. sınıflarda seçim ve işleyiş sürecinin değerlendirilmesi üzerine bir çalışma yapıyorum. Görüşmemize geçmeden önce, okulunuz ve şahsınızla ilgili tüm bilgilerin gizli tutulacağını temin ederim. Görüşme sırasında elde edilen bulgular araştırmam için kullanılacaktır.

Görüşmemize başlamadan önce sormak istediğiniz soru ya da paylaşmak istediğiniz bir şey var mı?

Görüşmenin kaydedilmesine izin veriyor musunuz?

Görüşmemizin yaklaşık yarım saat süreceğini tahmin ediyorum. İzin verirseniz sorulara başlamak istiyorum.

Kişisel Bilgiler

- 1) Cinsiyetiniz : () Kadın () Erkek
- 2) Göreviniz : () Müdür () Müdür Yardımcısı
- 3) Bulduğunuz Okulda Yöneticilik Süreniz : yıl
- 4) Yöneticilik Deneyiminiz : yıl
- 5) Branşınız :
- 6) Mezun Olduğunuz Bölüm (Lisans) :
- 7) Aldığınız en yüksek eğitim derecesi
() Lisans () Yüksek Lisans () Doktora

Görüşme Soruları

1. Seçmeli derslerin açılması ve öğrencilere verilmesi süreci okulunuzda nasıl işliyor kısaca anlatır mısınız?
AS: Seçmeli derslerin açılmasına nasıl karar veriliyor?
 - Dersleri açarken göz önünde bulundurduğunuz faktörler nelerdir?
 - Seçmeli derslere girecek öğretmenler nasıl belirlenmektedir?
 - Seçmeli derslerin açılması ve seçilmesi sürecinde karşılaşılan zorluklar nelerdir?
2. Öğrenciler genelde hangi dersleri tercih ediyor?
AS: En çok tercih edilen dersler nelerdir?
3. Seçmeli derslerin öğrencilere katkıları nelerdir?
4. Seçmeli derslerin daha iyi uygulanması için neler yapılabilir?
AS: Seçmeli ders uygulamasının iyileştirilmesi için tavsiyeleriniz nelerdir?
5. Seçmeli dersler hakkındaki genel düşünceleriniz nelerdir?

Okulunuzda bu yıl Bilişim Teknolojileri ve Yazılım seçmeli dersi açılmamış. Biraz da bu konuda konuşmak istiyorum.

6. Bilişim Teknolojileri ve Yazılım dersini açarken göz önünde bulundurduğunuz faktörler nelerdir?

- Bilgisayar Laboratuvarının durumu
- Bilgisayar öğretmeni sayısı
- Ders kullanılabilir kaynaklar
- Öğrenci istekleri
- Veli istekleri

7. Okulunuzda bu yıl Bilişim Teknolojileri ve Yazılım dersinin açılmamasının sebepleri nelerdir?

- Dersin tercih edilmemesi
- Öğretmen yetersizliği
- Bilgisayar laboratuvarının durumu

8. Seçmeli dersler hakkında önemli bulduğunuz eklemek istediğiniz bir durum var mı ?

Çalışmama katıldığınız için teşekkür ederim.

D.5 Observation Form

Gözlem Formu

Gözlemin Amacı

Bu gözlemin amacı seçmeli Bilişim Teknolojileri ve Yazılım dersinin işleniş biçimini incelemektir. Bu gözlem kapsamında BTY seçmeli dersinin işlenişi, bu sırada kullanılan kaynaklar ve fiziksel ortam gözlemlenecektir.

Araştırma Sorusu

1. Seçmeli Bilişim Teknolojileri ve Yazılım dersinin açılması, öğrenciler tarafından seçilmesi ve yürütülmesi sürecinin okullardaki işleyişi nasıl gerçekleşmektedir?

Okul Adı:	
Tarih:	Saat:
Öğretmen:	
Sınıf:	Sınıf Mevcudu:
Konu:	
Sınıfın Fiziksel Yapısı:	
Sınıftaki Donanım:	

Ders Sırasında Kullanılan Kaynaklar:	
Ders Sırasında Yapılan Etkinlikler (Öğretim Yöntemleri):	
Öğretmenin Rolü:	Öğrencinin Rolü:
Notlar:	

APPENDIX E: Sample Filled Questionnaires

E.1 Sample School Administrator Questionnaire

ANKET SORULARI

Kişisel Bilgiler

1) Cinsiyetiniz : () Kadın Erkek

2) Göreviniz : Müdür () Müdür Yardımcısı

3) Bulduğunuz Okulda Yöneticilik Süreniz : 20 yıl

4) Yöneticilik Deneyiminiz : 5 yıl

5) Branşınız : Fen ve Teknoloji

6) Mezun Olduğunuz Bölüm (Lisans) : Fen Bilimleri Öğretmenliği

7) Aldığınız en yüksek eğitim derecesi
() Lisans Yüksek Lisans () Doktora

Seçmeli Bilişim Teknolojileri ve Yazılım Dersine İlişkin Sorular

8) Okulunuzda 7. ve 8. Sınıfta okuyan öğrenci sayısı kaçtır?
7. sınıflardaki öğrenci sayısı : 55
8. sınıflardaki öğrenci sayısı : 37

9) Okulunuzda Bilişim teknolojileri ve yazılım dersi için bilgisayar laboratuvarı var mı?
 Evet () Hayır

10) Bulduğumuz dönemde Bilişim Teknolojileri ve Yazılım dersini
7. sınıflarda tercih eden öğrenci sayısı : 15
8. sınıflarda tercih eden öğrenci sayısı : 1

11) Seçmeli Bilişim teknolojileri ve yazılım dersini şu an **almakta olan** öğrenci sayısı
7. sınıflarda alan öğrenci sayısı : 10
8. sınıflarda alan öğrenci sayısı : 1

Bilişim teknolojileri ve yazılım dersini **tercih edip alamayan** öğrenciler varsa, bunun nedenini lütfen açıklayınız.

yok

.....

.....

.....

.....

.....

2

12) Okulunuzda seçmeli Bilişim Teknolojileri ve Yazılım dersini veren öğretmenlerle ilgili aşağıdaki soruları yanıtlayınız.

a) Okulunuzda Seçmeli Bilişim Teknolojileri ve Yazılım dersini veren öğretmen sayısı :
1

b) Bu dersi veren öğretmenlerin branşı ve statüsü

Bilişim teknolojileri ve kadrolu

Bilişim teknolojileri ve ücretli

Diğer (Branşını ve statüsünü belirtiniz.)

Seçmeli Derslere İlişkin Görüşleriniz

13) Okulunuzda tercihe sunulacak seçmeli dersleri kim belirliyor? Uygun olan seçenekleri işaretleyiniz.

Öğretmenler Kurulu

Okul Yönetimi

Öğrenciler

Veliler

Milli Eğitim Bakanlığı

Başka paydaşlar varsa yazınız

14) Bilişim Teknolojileri ve yazılım dersinin 7 ve 8. Sınıflara seçmeli olarak verilmesini nasıl değerlendiriyorsunuz? Lütfen ayrıntılı cevap yazınız.

Seçmeli derslerin okutulması yanında bir uygulamadır öğrencilerin 'dji ve iteleni' dağılıtımında ders almak, yeteneklerin gelişmesi için güzel bir uygulamadır

Lütfen arka sayfaya geçiniz

15) Seçmeli Bilişim Teknolojileri ve Yazılım dersinin hedeflerine ne derece ulaşıldığını düşünüyorsunuz? Lütfen nedenleri ile birlikte açıklayınız.

Bu uygulamalarla amacına kolaylıkla ulaşabilir
okulumuzda bu derste sıkışık ders verildiğinden
öğrenciler ve veliler aldıkları memnuniyet

16) Seçmeli Bilişim Teknolojileri ve Yazılım dersi hakkında önemli gördüğünüz ve paylaşmak istediğiniz düşüncelerinizi lütfen yazınız.

Bilgisayar oyunları artık öğrencilerimiz için de yete-
kinler Bina da gerçekleştirildi bu o halde bu tüketim
grubu olmaktan sıkıp üretilebilir işin öğrencilerimizi
kod yazmaya kendi oyunlarını yazmaya kendi program-
larını oluşturmaya bir yerden başlamak lazım bu
ders iserpi bu şekilde öncelikle kod yazma
programları okutulmalı ve mümkün olan en büyük
yeterli olan öğrencilere verilmeli

Anketime Katıldığınız için teşekkür ederim.

E.2 Sample Student Questionnaire

ANKET SORULARI

Kişisel Bilgiler

1. Cinsiyetin : Kız () Erkek
2. Yaşın : 14.....
3. Sınıfın : 8.1.....
4. Okulun :
5. Evde bilgisayarın var mı? Evet () Hayır
6. Evde internet bağlantın var mı? Evet () Hayır
7. Günde kaç saat bilgisayar kullanıyorsun? 2-4...ama...değişiyor

Seçmeli Bilişim Teknolojileri ve Yazılım Dersine İlişkin Sorular

8. Seçmeli ders dilekçesinde seçtiğin dersleri sırasıyla yazar mısın.
 - a. Birinci tercihin ...Bilim...egitimi.....
 - b. İkinci tercihin ...Bilişim...Teknolojileri...ve yazılım.....
 - c. Üçüncü tercihin ...Bilim...Uygulamaları.....
9. Seçmeli Bilişim Teknolojileri ve Yazılım dersini seçmeden önce bu dersin amaçları, içeriği, işleyişi hakkında bilgi aldın mı?

Seçmeli Bilişim Teknolojileri ve Yazılım dersini seçmeden önce bu....	Evet	Hayır
... dersin amaçları hakkında bilgi aldım.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
... dersin içeriği hakkında bilgi aldım.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
... dersin işleniş şekli hakkında bilgi aldım.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
... derste nasıl değerlendirme yapıldığı hakkında bilgi aldım.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

10. Dersi seçmeden önce bilgi aldıysan nerelerden bilgi aldın? Birden fazla seçeneği işaretleyebilirsiniz.
 - Okul web sayfası
 - () EBA web sayfası
 - Dersi daha önce alan arkadaşlar
 - Dersi veren öğretmen
 - () Rehber öğretmen
 - Okul panolarında asılan ilanlardan
 - Okul Yönetiminden
 - () Diğer (Bilgi aldığınız kaynakları belirtiniz).....

11. Bu dönem seçmeli ders olarak aldığın dersler nelerdir?

Beden Eğitimi
Bilgisim Teknolojileri ve Yazılım
Bilim Uygulamaları

12. Bilgisim teknolojileri ve Yazılım dersini seçimde etkili olan tüm nedenleri yazar mısın lütfen?

Arkadaşlarımla birlikte eğlenceli ve öğretici olduğunu düşündük. Eskiden zaten Bilgisim Teknolojileri ve Yazılım dersi alıyorduk kaliteli geçiyordu. Bide bu sene de seçmeli olarak seçelim diye düşündük.

13. Bu dersi alman için seni yönlendiren kişiler varsa yazar mısın lütfen?

Arkadaşlarımla ama benimde zaten seçime istediğim vardı onlarda seçince ben de seçtim dedim kesin olarak.

14. Bilgisim Teknolojileri ve Yazılım seçmeli dersinin haftalık ders saati yeterli mi?

Yeterli Kısmen Yeterli Yetersiz

15. Lütfen 14. soruya verdiğin yanıtın nedenini açıklar mısın? Neden yeterli/yetersiz olduğunu düşünüyorsun?

Bence iki saat daha olabilirdi çünkü hem eğlenceli geçiyor hem de öğretici. Bu sebeple iki ders daha olması çok güzel ve kaliteli olurdu.

16. Bilişim Teknolojileri ve Yazılım seçmeli dersinden ne derece yararlandığını düşünüyorsun?

Yararlı

Biraz yararlı

Yararlı değil

17. Lütfen 16. soruya verdiğin yanıtın sebebini açıklar mısın? Hangi açılardan yararlı ya da yararsız olduğunu düşünüyorsun?

Uygulamalar öğreniyorduk hem kavramları hem de
faydalı uygulamaları. Bu uygulamalar genelde
İsimlerde bulunur. Üstelik yazılı yapılmış.
Sevilen de öğrenmeyi öğreniyorduk. Bu da
kaya bi isimler bulunur.

18. Bilişim Teknolojileri ve Yazılım dersini alırken neler öğrenmeyi istiyordun?

Bilgisayar hakkında bilgiler öğrenmeyi istiyordum.
Neji yazılı yapılmış uygulamaları öğrenmek
istiyordum. Uygulamaları öğrenmek istiyordum.

19. Seçmeli Bilişim Teknolojileri ve Yazılım dersinde istediğin konuları öğrendin mi?

Nedenleri ile açıklar mısın?

Evet öğrendim. Daha önceden 3 boyutlu
tasarımı bilmiyordum, fotoğraf uygulamasını veya
yaratıcı oyun gibi eğlenceli oyunlar bilmiyordum
ama şimdi öğrendim kendi oyunumu bile
yapabiliyim.

20. Bilişim Teknolojileri ve Yazılım seçmeli dersinde kullandığınız kaynaklar nelerdir?
Birden fazla seçeneği işaretleyebilirsiniz.

- Ders kitabı
 Öğretmenin dağıttığı fotokopiler
 Öğretmenin tavsiye ettiği web siteleri
 Öğretmenin hazırladığı sunumlar
 Derste kullandığımız bir kaynak yok
 Diğer (Başka kaynaklar varsa belirtiniz)

21. Seçmeli Bilişim Teknolojileri ve Yazılım dersi nasıl işleniyor?

a. Ders işlenirken öğretmen neler yapıyor?

Konuyu önce bir bilgisayar da gösteriyor.
Üstelik tahtada da anlatıyor. Gerçek durumda
bilgisayarı da video gibi bilgilerle anlatıyor.
Anlamadığına dince de yanını getirip tekrar
ediyor.

b. Siz (Öğrenciler) neler yapıyorsunuz?

Öğretmenin yapmamızı istediği uygulamayı
tamamlıyoruz. Uygulamayı bitince hoca
istediğimiz için serbest çalışma
yapmamız da için veriyor.

22. Seçmeli Bilişim Teknolojileri ve Yazılım dersinde nasıl sınav oluyorsunuz?
(Notlandırma nasıl yapılıyor?)

Bazen yaptığımız uygulamalar hakkında sorular hazırlayıp öğretmenimize bize dağıtıyor. O soruları cevaplayıp öğretmenimizin kontrol etmesi için ona teslim ediyoruz. Bazen ise uygulama sınavı yapıyoruz. Öğretmenimizin verdiği konuya ilgili. Bu uygulamanın başarısına göre ve çalışmamıza göre öğretmenimiz değerlendirme yapıyor.

23. Seçmeli Bilişim Teknolojileri ve Yazılım dersinde nasıl bir değerlendirme yapılmasını istersin. (Öğretmeninizin nelerden not vermesini istersin.)

Bence öğretmenimizin değerlendirme yapış şekli gayet güzel ama keşke istediğimiz uygulamaya ve kârdonda sınav olabilsen ama öğretmenim değerlendirme şekli daha sağlıklı ve gayet güzel olgü için beğeniyorum bu değerlendirme şeklini.

24. Bilişim Teknolojileri ve Yazılım seçmeli dersini işlediğiniz bilgisayar laboratuvarı ile ilgili düşüncelerinizi yazar mısınız? (Labın durumunun derse olan etkilerini yazar mısınız?)

Bilgisayarlar gayet güzel ağırlık değil. Hızlı çalışıyorlar tabii ağır çalışmaları var ama fazla kârd etkisi yok. Bunun laboratuvar gayet güzel ama MEB ağırlık sorarsanız sitede yasakladığı için biraz sıkıntı duyuyor. Ama yine de memnunum.

Çalışmama katıldığım için teşekkür ederim.

APPENDIX F: Sample Coded Observation Forms

F.1 Observation Form Coded by Non-Participant Coder

<p>Ders Sirasında Kullanılan Kaynaklar:</p> <p>Aurdino Seti</p> <p>Öğretmen</p> <p>Kod blokları ile Aurdino Uno kitabi</p> <p>Kitap ve sat ders sırasında öğrencilere dağıtıldı. Ders sonunda geri alınacak sınıf dolubina hanecek.</p>	
<p>Ders Sirasında Yapılan Etkinlikler (Öğretim Yöntemleri):</p> <p>Ders robotlar hakkında bir konuşma tartışma ile başladı. Robotlar neyi taklit eder. Ne yapmaya çalışır. Temel Amca alpması ışık, ses, obje ji Buradan sensör'lere giris jopti. Aurdino seti üzerinde sensörleri tanıtıyor. Bir Digital ve Analog veri hakkında bilgi veriyor. Robotların (Aurdino setinin) neyi nasıl algıladığına bir bilgi verdi. Sınıfta 5'er kişilik gruplar oluşturuldu. Her gruba bir Aurdino seti verildi. → Workshop collaborative</p> <p>Derste ne öğrenmesi gerektiğinden (konu anlatım) bahsetti. (Robotların çalışma prensibini anlamak için) parçaları gibi mekanizmaların nasıl işlediğine dair kafasında bir fikir oluşması. Aurdino setlerini programlamak için kullanılan dillerden bahsetti. Kullanıcıların dilin ne olduğunu söyledi.</p>	
<p>Öğretmenin Rolü:</p> <p>Öğrencilerin dikkatini çekme</p> <p>Ders konusunu gerçek hayatta ilişkilendirme</p> <p>Aurdino setini tanıtır</p> <p>Öğretmen Elmet kitabının ne işe yaradığını anlatıyor</p> <p>Soru sorma</p> <p>Tartışma düzenleme</p> <p>Ders anlatımı</p> <p>Grupları bölüştürüp onları yönlendirme.</p> <p>Ten. challenge'lar verme.</p> <p>Notlar: Sallerin kendi robotlarıyla temin edildiğini belirtti. bir şekilde kullanılmayı</p> <p>Serectipini hatırlattı.</p> <p>Bu derstele etkinliklerin 8. sınıfta yapılacak çalışmalarına piris niteliğinde olduğundan bahsetti. Motivasyon</p> <p>Grup çalışmalarında bir arada çalışmak istemeyen öğrenciler üzerinde farklılıkları bir arada yaşamının önemine dair kısa bir konuşma (Değerler Eğitimi)?</p> <p>Öğrencilere kitap ve seller dağıtıldı ve tenefüs zili geldi. Bir grup tenefüs sırasında kitap yardımı ile bir etkinliği tanımladı. (Led jktm) Practicing / Using edebat.</p> <p>B. ders</p> <p>Ders sırasında yapılacak etkinlik hakkında bilgi veriyor. Etkinliğin programını nasıl yapılacağını gösterdi ve ilgilenmeyi yapmak için zaman vardı</p> <p>Öğrenciler ilgilenmeyi yaparken problemleri bölüştürüp onları yönlendirdi. (Bartol)</p> <p>- Hoşum jektik - inial</p>	<p>Öğrencinin Rolü:</p> <p>Dersi dinleme tutumu</p> <p>Fikirlerini söyleme (şeyler)</p> <p>Eski bilgileri ifade etme</p> <p>Setleri inceleme</p> <p>Sorulara cevap verme (Amuly quistion)</p> <p>Tartışmaya katılma (Discussing)</p> <p>Kitabın yardım olana gerekli kodu yazmak</p> <p>Set üzerinde derinleşme (Practicing)</p> <p>Problem çözümlerinde yardım isteme</p> <p>Scratch for Aurdino</p> <p>Aurdino</p> <p>Mblock</p> <p>Relay pro konyak</p> <p>Amuly quistion</p> <p>Practicing</p> <p>Discussing</p> <p>Relay</p>

F. 2 Observation Form Coded by Researcher

Ders Sırasında Kullanılan Kaynaklar:	
	<p>Aurdino Seti</p> <p>Öğretmen</p> <p>Kod Blokları ile Aurdino Uno kitabi</p> <p>Kitap ve set ders sırasında öğrencilere dağıtıldı. Ders sonunda geri alınarak sınıf dolubuna konacak.</p>
Ders Sırasında Yapılan Etkinlikler (Öğretim Yöntemleri):	
Discussion	<p>Ders robotik hakkında bir konuşma tartışma ile başladı. Robotlar neyi tabii eder. Ne yapmaya çalışır. Temel Amme elemanı → ışık, ses, titreşim</p>
Lecturing	<p>Buradan Bana sorulara girer. Aurdino seti üzerinde sensörleri tanıtıyor. <u>Sanal ve Analog</u> veri hakkında bilgi veriyor. Robotların Aurdino setinin neyi nasıl algıladığını da bilgi verdi. <u>5'inci Sınıf</u> için <u>grup</u> oluşturuldu. Her gruba bir Aurdino seti verildi.</p>
Association with real life	<p>Derste ne öğrenmesi gerektiğinden (başarımlardan) bahsetti. (robotların çalışma prensibini anlatma)</p> <p>Örnekte kedi park tasarımları gibi mekanizmaların nasıl işlediğine dair kafasına bir fikir düşmesi. Aurdino setini programlamak için kullanılan dillerden bahsetti. <u>Kullanıcıların</u> <u>alın</u> <u>ne</u> <u>olduğunu</u> <u>gösterdi</u></p>
	<p>Öğretmenin Rolü:</p> <p>Öğrencilerin dikkatini çekme</p> <p>Ders konusunu gerçek hayatta kullanımlarıyla ilişkilendirme</p> <p>Aurdino setini tanıtır</p> <p>Elmadat hakkında ne işe yaradığını anlatıyor</p> <p>Soru sorar</p> <p>Tartışma düzenler</p> <p>Ders anlatır</p> <p>Özellikleri anlatıp onları gözlemletir</p> <p>Yeni challenge vererek</p> <p>Notlar: Setlerin kendi robotlarıyla tamiri edildiğini dikkatli bir şekilde bilinmesini</p> <p>gerekliğini hatırlattı.</p> <p>Bu dersleli etkinliklerin 8. sınıfta yapılacak çalışmalarına giriş niteliğinde olduğunu belirtti.</p> <p>Grup çalışmada bir arada çalışmaya öğrenciler üzerinde arkadaşlık bir arada yaşamının önemine dair bir ders verildi (Değerler Eğitimi)</p> <p>Öğrencilere kitap ve setler dağıtıldı ve temel 2'li oldu. Bir grup halinde çalışmada kitap yardımı ile bir etkinliği imamları (led ışık) <u>Practice</u></p>
	<p>Öğrencinin Rolü:</p> <p>Dersi dinleme</p> <p>Fikirlerini söyleme</p> <p>Eski bilgilerinde derinleşme</p> <p>Setleri inceleme</p> <p>Sorularını sorma</p> <p>Tartışmaya katılma</p> <p>Kitapları yardım alarak okumaya çalıştı</p> <p>Set üzerinde derinleşme</p> <p>Problem çözümlerine yardım isteme</p> <p>Öğrencinin Rolü:</p> <p>Liberal - serbest</p> <p>Shaping - şekillendirme</p> <p>Knowledge - bilgi</p> <p>Participation - katılım</p> <p>Guidance - rehberlik</p> <p>Helping for help - yardım isteme</p>
Getting Attention	
Lecturing	
Questioning	
Discussion	
Learning	
Very challenging	
Pr. ders	
amandı	<p>Ders sırasında yapılacak etkinlik hakkında bilgi veriyor. Etkinlik programını nasıl yapılacağını gösterdi ve bilgisayar programı için zaman verdi.</p> <p>Öğrenciler bilgisayar programı yaparken problemleri anlatıp onları gözlemletti.</p> <p>2</p> <p>Mentoring</p>

F.3 Observations Conducted by two Other Computer Science Teachers and Researcher

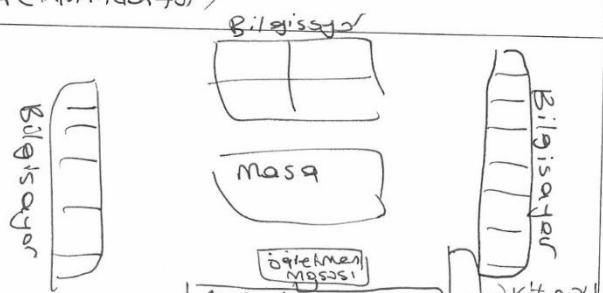
Gözlem Formu

Gözlemin Amacı

Bu gözlemin amacı seçmeli Bilişim Teknolojileri ve Yazılım dersinin işleniş biçimini incelemektir. Bu gözlem kapsamında BTY seçmeli dersinin işleniş, bu sırada kullanılan kaynaklar ve fiziksel ortam gözlemlenecektir.

Araştırma Sorusu

1. Seçmeli Bilişim Teknolojileri ve Yazılım dersinin açılması, öğrenciler tarafından seçilmesi ve yürütülmesi sürecinin okullardaki işleyişi nasıl gerçekleşmektedir?

Okul Adı:	
Tarih: 05.05.2017	Saat: 13.30
Öğretmen:	
Sınıf: 8 - Seçmeli	Sınıf Mevcudu: 21
Konu: Programlama (AppInventor)	
Sınıfın Fiziksel Yapısı:	
Sınıftaki Donanım:	<ul style="list-style-type: none">21 Bilgisayar1 adet akıllı tahta (Fatih Projesi)1 adet kitaplık10 adet Arduino Seti (Robotik Setler)1 adet Pano1 adet çalışma masası (geniş)50 adet tabure1 adet sergi panosu

<p>Ders Sırasında Kullanılan Kaynaklar:</p> <p>AppInventor Akıllı tahta Bilgisayar Sunum Etkinlik kartları -</p>	
<p>Ders Sırasında Yapılan Etkinlikler (Öğretim Yöntemleri):</p> <p>Hataya Bu Etkinlikte Teog sırası hakkında konuşuldu. Önceden öğrenmiş olduk işletim sistemleri konuşuldu, işletim sistemleri arasında bu Android işletim sistemi konuşuldu. AppInventorun androidler için bir uygulama geliştirme sitesi olduğu anlatıldı. AppInventora nasıl giriş yapıldığı anlatıldı. Ara yüz tanıtıldı. Bunlar gösterip yaptırma tekniği ile yapıldı. sonra örnek uygulama yapıldı. Aşama aşama yapıldı. Hataya bu etkinliği yapıldı.</p>	
<p>Öğretmenin Rolü:</p> <ul style="list-style-type: none"> * Rehber, yol gösteren * Öğretken * Anlaşılmayan noktaları açıklayan, * sadeleştirerek anlatan * dikkat çekmeye çalışıyor 	<p>Öğrencinin Rolü:</p> <ul style="list-style-type: none"> * Öğretilen uygulamayı kendileri yapar. * dersi dikkatli dinler * derse etkin katılım sağlar. * etkinliklere katılır.
<p>Notlar:</p> <ul style="list-style-type: none"> * Öğretmen öğrencilere sorular sorarak konunun pekişmesini sağladı. * Etkinlik çalışmalarının ilgisini çekti... 	

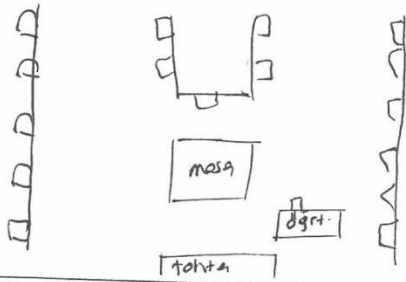
Gözlem Formu

Gözlemin Amacı

Bu gözlemin amacı seçmeli Bilişim Teknolojileri ve Yazılım dersinin işleniş biçimini incelemektir. Bu gözlem kapsamında BTY seçmeli dersinin işlenişi, bu sırada kullanılan kaynaklar ve fiziksel ortam gözlemlenecektir.

Araştırma Sorusu

1. Seçmeli Bilişim Teknolojileri ve Yazılım dersinin açılması, öğrenciler tarafından seçilmesi ve yürütülmesi sürecinin okullardaki işleyişi nasıl gerçekleşmektedir?

Okul Adı:	
Tarih: 05.05.2017	Saat: 13:30
Öğretmen:	
Sınıf: 8. Sınıf	Sınıf mevcudu: 21
Konu: MIT Appinventor	
Sınıfın Fiziksel Yapısı:	
	
Sınıftaki Donanım:	
Akıllı Tahta	
21 Öğrenci Bilgisayar,	
1. Öğretmen Bilgisayar,	
1 adet Kitaplık	
10 adet Arduino Seti	

Ders Sirasında Kullanılan Kaynaklar:
MIT Appinventor Programı
Akıllı Tahtada Sunu gösterimi
Etkinlik Kartları
Bilgisayar

Ders Sirasında Yapılan Etkinlikler (Öğretim Yöntemleri):
Ders anlatımına konularak başladı. Kısa bir muhabbetten sonra
konuyu anlatmaya geçildi. Bilgisayardan konuyu önce kendisi
yaparak, daha sonra öğrencilerle yaptılar. Uygulamayı parçalar
halinde adım adım yaptırdı. Öğrencilerin dikkatleri dağıldığı
zaman anlatıma ara vererek bir öğrenciye neler yaptıklarını
özetini yapmasını istedi. Konuyu anlatırken Netsupport programı ile
kendisi bilgisayarı öğrencileri, ekranlarına yansıtarak uygulamayı anlattı.
Konuyu anlattıktan sonra etkinliğe geçildi.
Çağrı şeklinde etkinliklerle öğrencileri motive etti.

Öğretmenin Rolü:
⇒ Anlatım, sorulara cevap verme
Öğrencilere yardımcı olma
Güdüleme

Öğrencinin Rolü:
Dinleme, uygulama yapma
Soru sorma

Notlar:

Gözlem Formu

Gözlemin Amacı

Bu gözlemin amacı seçmeli Bilişim Teknolojileri ve Yazılım dersinin işleniş biçimini incelemektir. Bu gözlem kapsamında BTY seçmeli dersinin işlenişi, bu sırada kullanılan kaynaklar ve fiziksel ortam gözlemlenecektir.

Araştırma Sorusu

1. Seçmeli Bilişim Teknolojileri ve Yazılım dersinin açılması, öğrenciler tarafından seçilmesi ve yürütülmesi sürecinin okullardaki işleyişi nasıl gerçekleşmektedir?

Okul Adı:	
Tarih: 05.05.2017	Saat: 13:30
Öğretmen:	
Sınıf: 8. sınıf	Sınıf Mevcudu: 25
Konu: MIT App Inventor	
Sınıfın Fiziksel Yapısı:	
Sınıftaki Donanım:	
Akıllı Tahta	
21 öğrenci Bilgisayarı	
2 tane öğretmen Bilgisayarı	

Ders Sırasında Kullanılan Kaynaklar:

MIT App Inventor
Gmail
Öğretmen birincil kaynak
Sunum
Akıllı Tahta
Etkinlik Kartları

Ders Sırasında Yapılan Etkinlikler (Öğretim Yöntemleri):

TEOG sonrası ilk haftaydı. Ders öğrencilerin teyg sınavı üzerine kısa gruplarında olarak başladı. Daha sonra işletim sistemleri üzerine kısa bir konuşma oldu. İşletim sistemlerinin de bir yazılım olduğu ve bu konuşma üzerine Adm'de işletim sistemleri için uygulama geliştirileceklerini söyleyerek, App Inventor'a giriş yaptık. App Inventor arayüzünde buton ve text eklemeği gösterdik. App Inventor'ın ne işe yaradığını kısaca anlattık. Daha sonra öğrencilerin uygulaması için zaman verdimiz.
Öğrenci derse katılmak için ders anlatımı sırasında sorular soruyor.
Öğrencilerden şimdiye kadar yapılan etkinlikleri özelleştirmesini istedik.
"Small basic" de değişken ismi kullanır mı diye de diğer derslere ilişkilendirdik.

Öğretmenin Rolü:

- # Ders anlatımı
- # App Inventor da Buton ekleme, text box ekleme yi gösterme
- # Öğrenci çalışmasını gözlemleme
- # Öğrenci soru sorduğunda cevaplama
- # Soru sorma
- # Öğrenci problem yaşadığında yardım etme
- # Öğrencilere rehberlik etme

Öğrencinin Rolü:

- # Dersi dinleme
- # Kendin uygulamaları yapma
- # Problem yaşadığında öğretmene sorma

Notlar: Etkinlik kartları ve sunumlarda hazırlanmış sorularla dersi tekrar ettik.

APPENDIX G: Original and Translation Quotation Matrix

Original Quotation	Translation
<p>School Administrator 3: 80 öğrenci tercih etmiş ancak Bilişim Teknolojileri Laboratuvarındaki bilgisayar sayısının sınırlı olması ve bir tane öğretmen olmasından dolayı 2. bir grup açılmamasından dolayı bu öğrenciler Bilişim Teknolojileri dersini seçtiği halde alamamışlardır. Çok fazla ulaştığını düşünmüyorum çünkü laboratuvardaki bilgisayar sayısı yetersiz, öğretmen sayısı yetersiz, internet yetersiz, bilgisayarların kapasitesi yetersiz.</p>	<p>School Administrator 3: 80 students preferred, but because the number of computers in the computer laboratory are limited and there is one teacher, 2nd group could not be opened and these students could not take Information Technologies and Software course although they selected this course. I do not think ITS course reaches its goals because the number of computers in the laboratory is insufficient, the number of teachers is insufficient, the internet is inadequate, the capacity of computers is inadequate.</p>
<p>School 1- Teacher: Ben beş seneden beri derslerine girdiğim için öğrencinin gelişim sürecini takip edebiliyorum ...Öğrencilerin kazanması gereken beceriler açısından takip ettiğim güncel programlardan öğrenciye uygun olan hangisi ise onu tercih ediyorum...Öğrencinin beklentisi ve diğer derslerdeki ihtiyacı da kelime işlemci ve sunum programı olduğu için bunların üzerinde durmak zorundayız.</p>	<p>School 1- Teacher: Since, I have been giving this course for five years, I can follow students' development procedures...I prefer the programs that are appropriate for students among the programs I follow regarding the abilities that students need to improve...Since word processor and presentation software are the needed and expected programs by the students, we need to focus on these programs.</p>
<p>School 1- Teacher: ... Fiber hattın bağlanamıyor olması farklı nedenler çünkü elimizde hazır doküman olmadığı için dersin işleniş içerisinde çoğunu internetten edinmemiz gerekiyor ve anlık yapacağımız çalışmalarda sürekli internet bağlantısı kesintileri, dosya paylaşımlarında problemler, ağ problemleri gibi sıkıntılarla karşı karşıya kaldığımız için dersin işleniş aksıyor.</p>	<p>School 1- Teacher: ... Due to the problems with fiber connection and different reasons, since we do not have ready-made documents, we need to get most them from the internet. We fall behind the schedule because we are faced with internet disconnection, problems in file sharing and network problems.</p>

Original	Translation
<p>School 1- Teacher: Beceri noktasına geldiği zaman öğretmene bu noktada bir şey sorulmuyor. Ben bu öğrenci olsun bu öğrenci olmasın, seçsin noktasında öğretmenin herhangi bir katkısı yok. Problem bu. Yönlendirme eksik yani.</p>	<p>School 1- Teacher: It is not asked about students' abilities to teachers. I do not have authority to inform school administration about the students' abilities. I cannot give advice and say the administration that this person can select this course or cannot. There is a lack of guidance.</p>
<p>School 1- Teacher: Eğer geleceğin meslek hayatı veya geleceğin teknolojisi noktasında insan hayatına bu kadar iç içe olabilecek sektörsel Bilişim Teknolojileri çocuğun bu noktada ulaşabileceği ve erişebileceği en üst noktaya erişmesini gerektiğinin farkında değil veli... Yani eğer bilgisayarı açabiliyorsa, klavye kullanabiliyorsa benim çocuğum beş saat bilgisayar başında oturuyor, şifre koyabiliyor ben bile onun bildiği kadar bilmiyorum diye değerlendiriyor konuyu... Biz bunu esasında aile ile bir araya gelerek öğrencinin gelişimi noktasında çok fazla bir değerlendirme noktasında olamıyoruz.</p>	<p>School 1- Teacher: Informatics is a sector that is important for future career and daily life, but families are not aware of that. Families are not aware that students' competences should be optimized in this area. Families think that their children can use computer, if student can run the computer out and use the keyboard. They state that their children can get a password to a computer, but they cannot even do that. Regarding students' improvement, we cannot evaluate this by coming together with the family.</p>
<p>School 1- Teacher: ... öğrencinin artık farklı bir ufka veya farklı bir hayal dünyasına yönelmesi gerekiyor. Üreten bir nesil olması için programlama temelli, belki de oyun tasarımı gibi farklı uygulamaların üzerinde durulabilmesi gerekiyor ve içeriğin biraz daha öğrenciye yönelik doldurulması gerekiyor.</p>	<p>School 1- Teacher: It is needed that students' horizon and imagination should be broadened. In order to have productive students, it is necessary to focus on different applications such as programming, and game design. And also the content needs to be filled with applications that are appropriate to students' interests.</p>
<p>School 1- Teacher: Belki uluslararası projeye katılım durumunda teog da ek puan verilebilir. Çocuğun daha çok proje üretebilen, daha çok sosyal projelere katılım sağlayan bir yapı içerisinde olursa daha üretken olacağını düşünüyorum... bu tarz projelere katılım, aldığı ödül, veya katılma sayısı ile ilgili farklı bir değerlendirme kriterinin bu sisteme bir şekilde dahil olması gerekiyor.</p>	<p>School 1- Teacher: Perhaps additional points can be given in TEOG exam in case of joining an international project. I think children will be more productive if they are in an environment that they can come up with projects and contribute to social projects. A different assessment criterion for participation in such projects, related to the awards received, or the number of participation in projects should be included in this system in some way.</p>

<p>Std 7: Öğretmenim başka dersler zor ve kötü not alırsam TEOG notum düşer dedi.</p>	<p>Student 7: My teacher said that other lessons were difficult and if I take lower grades, my TEOG point would fall.</p>
<p>Teacher 2 : Bu gün gördünüz scratch 2.0 ı indirmeye çalışıyoruz indirmiyor. Bağlanmaya çalışıyoruz normalde hepsi internet bağlanabilen bilgisayarlar ama açmadı. Normalde bugün o çalışmayı bitirmemiz gerekiyordu</p>	<p>Teacher 2 : You have seen that we have tried to download Scratch 2.0 and it was not downloaded. We tried to connect online platform, but the computer was not connected to internet although normally all computers can do. Normally, we needed to finish that work today.</p>
<p>Teacher 1 : Meb Filtresi olmasa mükemmel olurdu. Yani google drive dan bir şey yapamıyorum, hiçbir siteye giremiyorum. G-mail kullanamadığımız bir internetim var. Siz düşünün internetimiz olsun diye kebdimizi parçaladık şuan verim alamıyorum. Buna bir çare lazım. Artık kontrolden çıktı milli eğitim filtresi. Beni engelliyor. Dersimi engelliyor. drive dan paylaşıyorduk artık paylaşamıyoruz. Eba ya atıyoruz olmuyor.</p>	<p>Teacher 1: It would have been perfect without the MNE Filter. I cannot do anything from google drive, I cannot enter any website. We have an internet connection that we cannot use G-mail. We beat ourselves up to have fiber internet connection, but I cannot get any efficiency now. A solution is needed for this. MNE filtration is already out of control now. It is blocking me and my lessons. We were sharing through google drive, we cannot share now. We tried share through EBA, but it did not work.</p>
<p>Teacher 1: Ama bir iki tane öğrencimin velisi var whatsapp dan sürekli mesajlaşıyoruz. Bununla ilgili kaynak buldum yolluyum mi? Bizim çocuk şunu diyor alalım mı? gibisinden destek başladı... Mailinden birkaç slayt gösteriyor. Şunları görüyor musun ? (Arduino anlatan slaytları gösteriyor) Bunu veli araştırıp yolladı veli desteği alıyorum artık. ... Dün akşam mesaj attım kitap bağışlayın diye bugün 7 tane kitap geldi ki daha dersim girmedi. Şimdi onlar her derste 3-5 tane kitap yollucaklar bana. Bu veli desteğidir. veli desteği böyle başlar.</p>	<p>Teacher 1: I have a couple of parents, we are messaging through whatsapp. They offered to share sources they found and ask our opinion to buy some sources for the course. Do you see these? (shows presentations from the inbox). These were sent by a parent; I get family support. I sent message to the parents to donate books. Although, it hasn't been the time for my lesson yet, 7 books have been sent today. They will send 3-5 five book in every lesson. This is family support and it starts like this.</p>
<p>Teacher 2 : Bir veli bu dersten önce ben bilgisayar bildiğimi zannediyordum ve bu dersle çok farklı çalışmaların yapıldığını gördüm dedi ve gerçekten bizlerden memnun olduklarını söyleyen çok veli gördüm.</p>	<p>Teacher 2: One of the parents indicated that he thought that he knew how to use computers before that course and he added that he saw that there were different works related to computer. He also indicated that he pleased with the studies conducted in that course and I saw lots of parents who said that they were pleased with us.</p>

<p>Student 98: İstedğim bilgi ve konuları öğrenemedim. Çünkü bizim şuan öğrendiğimiz bilgiler bence bizden daha küçüklere öğretilmeli bizlere daha ağır şeyler öğretilir. Dersin adı yazılım ama bir yazılım yapmayı öğretmediler ama ben evde çalışmalarına devam ediyorum. (Deneye deneye öğreniyorum.) Hata yapa yapa öğreniyorum.</p>	<p>Student 98: I could not learn the information and subjects that I want. The subjects that we are learning should be taught to younger students and we can be taught more advance level subjects. The name of the course is “software”, but they could not teach software development. However, I continue studying software development at home. I am learning by trying and by making mistakes.</p>
<p>Student 43: Bence yararlı olduğunu düşünüyorum. Çünkü günlük hayatta kullandığımız birçok uygulamanın (instagram, facebook) vb uygulamaların nasıl programlandığını ve nasıl bir şekilde işlediğini görüyoruz.</p>	<p>Student 43: I think that this course is beneficial. We learn how the applications that we use in daily life such as Instagram and Facebook are programmed and what is the logic operating behind them thanks to this course.</p>
<p>Student 67: Bazen yaptığımız uygulamalar hakkında sorular hazırlayıp öğretmenimiz bize dağıtıyor. O soruları cevaplayıp öğretmenimizin kontrol etmesi için ona teslim ediyoruz. Bazen ise uygulama sınavı yapıyoruz. Öğretmenimizin verdiği konuyla ilgili. Bu uygulamanın başarısına göre ve çalışmamıza göre öğretmenimiz değerlendirme yapıyor.</p>	<p>Student 67: Sometimes, our teacher prepares questions related the applications that are practiced in the lesson and distribute these questions to us. We answer these questions and give them back to the teacher to get feedback. Sometimes, we have performance-based exams related to the subject that the teacher assigns. According to our success and effort in our performances, the teacher grades us.</p>

APPENDIX H: Turkish Summary / Türkçe Özet

ORTAOKUL SEÇMELİ DERSLER MEVZUATININ BİLİŞİM TEKNOLOJİLERİ VE YAZILIM DERSİ KAPSAMINDA İNCELENMESİ: BİR DURUM ÇALIŞMASI

Giriş

Milli Eğitim Temel Kanununda, Türk eğitim sisteminin amacı bedensel, zihinsel ve duygusal olarak gelişmiş, özgür ve bilimsel düşünme gücüne sahip, yaratıcı ve üretken bireyler yetiştirmek olarak tanımlanmıştır. Ayrıca öğrencilerin ilgi ve yeteneklerini geliştirmelerine olanak sağlayarak onları hayata hazırlamak ve ilgi ve yeteneklerine uygun meslekler seçmelerini sağlamak da Türk eğitim sisteminin amaçları arasındadır (1973). Türk eğitiminde öğretilen dersler incelendiğinde ortak derslerin daha çok öğrencilerin akademik bilgilerini ve zihinsel becerilerini arttırmaya yönelik olduğu görülebilir. Ortak derslerin öğrencilerin ilgi ve yeteneklerini geliştirme, yeni ilgi alanları oluşturma ve geliştirme konusunda yetersiz kaldığı söylenebilir. Bu açığı kapatmak, öğrencilerin yeni ilgi alanları keşfetmelerini sağlamak ve ilgi ve yetenekleri doğrultusunda eğitim almalarına olanak sağlamak için 1970'lerin başlarında seçmeli dersler vermeye başlanmıştır (Varış, 1978).

Günümüzde hem ortaokul seviyesinde hem de lise ve üniversite seviyesinde seçmeli dersler verilmektedir. Ortaokul seviyesinde, 5, 6, 7 ve 8. sınıflarda 6 ana kategoride (Din, Ahlak ve Değerler, Dil ve Anlatım, Yabancı Dil, Fen Bilimleri ve Matematik, Sanat ve Spor, Sosyal Bilimler) 21 seçmeli ders tercihe sunulmaktadır. Bilişim Teknolojileri ve Yazılım Seçmeli dersi de Fen ve Matematik kategorisi altında sunulan derslerden biridir. Bu dersin amacı bilgi çağında üretken bir birey olarak yaşamını sürdürmek için gerekli olan dijital becerileri kazandırmaktır. Seçmeli Bilişim Teknolojileri ve Yazılım (BTY) dersi, teknolojinin etkili kullanımının öğretilmesi ve yazılım ve bilgisayar destekli tasarım alanlarında yetenekli olan öğrencilerin ortaya çıkarılması ve öğrencilerin bilişim sektörüne yönelik mesleklere yönlendirilmesi için önemli bir derstir. Seçmeli Bilişim Teknolojileri ve Yazılım dersinin amacına ulaşabilmesi ve planlanan çıktılarının

alınabilmesi için ders seçim süreci ve işleniş sürecinin doğru uygulanması gerekmektedir.

Seçmeli derslerle ilgili daha önce yapılan çalışmalar incelendiğinde seçmeli derslerin seçim sürecinde bazı aksaklıklar yaşandığı, seçmeli derslerin öğrenciler tarafından özgürce seçilemediği, öğrencilerin ders seçim sürecinde anne-baba (Akay, Çırakoğlu, & Yanar Hancı, 2016; Eşbahoglu, 2015; Kotan, 2015; Uysal, 2015), arkadaşlar, (Akay et al., 2016; Eşbahoglu, 2015; Kotan, 2015; Uysal, 2015) ve okul yöneticileri gibi (Akay et al., 2016) gibi paydaşların etkisiyle kendi ilgi alanlarına uygun olmayan dersler seçtikleri ortaya çıkarılmıştır. Ayrıca, önceki çalışmalar gösteriyor ki seçmeli dersler için uygun mekân ayarlanamaması, materyal eksikliği, bazı seçmeli dersleri verebilecek yeterliklere sahip öğretmen bulunmaması (EARGED, 2008; Eşbahoglu, 2015; Karagözoğlu, 2015; Özüt, 2014; Uysal, 2015) gibi nedenlerle seçmeli derslerde eğitim öğretim süreçleri planlandığı gibi uygulanamamaktadır.

Bu çalışmada da seçmeli derslerin açılması ve işlenmesi süreçleri, Bilişim Teknolojileri ve Yazılım seçmeli dersi kapsamında incelenmiş ve ders seçim süreci ve uygulamadaki olumlu yönler ve aksaklıklar ortaya konulmaya çalışılmıştır.

Çalışmanın Amacı

Bu çalışmanın temel amacı seçmeli ders sisteminin ortaokullardaki işleyiş sürecinin incelenmesidir. Bu çalışma kapsamında seçmeli ders sistemi seçmeli Bilişim Teknolojileri ve Yazılım dersi üzerinden incelenmiştir. Dersin öğrenciler tarafından seçilmesi, dersin açılması ve dönem boyunca işleniş gözlem, görüşme ve anketler yardımıyla değerlendirilmiştir.

Çalışma sırasında araştırmacıya rehberlik edecek araştırma sorusu aşağıdaki gibidir;

Seçmeli Bilişim Teknolojileri ve Yazılım dersinin açılması, öğrenciler tarafından seçilmesi ve yürütülmesi sürecinin okullardaki işleyiş nasıl gerçekleşmektedir?

Çalışmanın Önemi

Seçmeli dersler çekirdek müfredat dışında kalan, öğrencilerin önceden belirlenmiş bir ders havuzu içerisinde seçmesine izin verilen derslerdir (Cooke, Kummer, 2011; MEB, 1970; Merrit, 2015).

Seçmeli dersler, öğrencilerin ilgi, eğilim ve yeteneklerini fark edip geliştirmelerine olanak sağlar (Ülgen, 1992). Öğrenciye çeşitli alternatifler sunulabildiği için, programın çeşitlenmesini sağlar ve bireysel ihtiyaçlara ve farklılıklara cevap vermeyi kolaylaştırır (Baker, 1961;Creese, Gonzalez,& Isaac, 2016). Öğrenci alacağı dersleri seçme hakkına sahip olduğu için, öğrenciyi karar verme süreçlerine dahil ederek demokratik eğitimin uygulanmasına katkı sağlar (Bennis, 2016; ERG, 2015). Seçmeli derslerin okula ve öğrenciye katkı sağlayabilmesi için iyi uygulanması gerekmektedir. Seçmeli ders saatlerinin iyi ayarlanamaması, öğrencilerin dersi seçmeden önce ders hakkında bilgilendirilmemesi ya da eksik bilgilendirilmesi, ders için gerekli araç gereçlerin ya da kaynakların sağlanamaması, öğretmenlerin ders sırasında gerekli öğrenme ortamını tasarlayamaması gibi nedenler seçmeli derslerden alınan faydayı en aza indireceği (Christenbury, 1979, 1981) için seçmeli ders uygulamasının okullarda nasıl işlediğinin değerlendirilmesine ihtiyaç vardır.

Bu çalışmada seçmeli derslerin açılması, seçilmesi ve işlenişi seçmeli BTY dersi kapsamında ele alınmaktadır. Çalışma seçmeli derslerle ilgili bu süreçlerin devlet okullarında ortaokul düzeyinde nasıl işlediğini gözlem, görüşme ve anketler yoluyla elde edilen verilere dayanarak açıklamaktadır. Böylece seçmeli ders uygulamasının olması gerektiği gibi uygulanıp uygulanmadığını ortaya çıkarmayı, uygulamanın güçlü ve zayıf yönlerini belirlemeyi amaçlamıştır. Bu çalışmanın sonuçlarının hem seçmeli ders uygulamasının yürütücüleri olarak okul yöneticileri ve öğretmenler için hem de bu sistemi geliştiren MEB için geribildirim vermesi ve seçmeli ders uygulamasının iyileştirilmesine katkı sağlaması beklenmektedir.

Sınırlılıklar

1. Çalışma seçmeli Bilişim Teknolojileri ve Yazılım dersi kapsamında planlanmış ve veriler bu ders üzerinden toplanmıştır. Bu yüzden araştırma sonuçları bu bağlamda değerlendirilmelidir.
2. Seçmeli ders seçim ve ders açılma süreci gözlemlenememiştir. Bu süreçler hakkındaki veriler öğrenci, öğretmen ve okul müdürlerinin aktardığı görüş ve deneyimlerle sınırlıdır.
3. Bir ders dışında bütün dersler sadece araştırmacı tarafından gözlemlenmiştir.
4. Çalışmaya veliler dahil edilmemiştir, dolayısıyla onların beklentileri ve görüşlerine ulaşılamamıştır.

Tanımlamalar

Seçmeli Ders: Seçmeli dersler çekirdek müfredat dışında kalan, öğrencilerin önceden belirlenmiş bir ders havuzu içerisinde seçmesine izin verilen derslerdir (Cooke, Kummer, 2011; MEB, 1970; Merrit, 2015).

Bilişim Teknolojileri ve Yazılım Dersi: Öğrencilere bilgi ve iletişim teknolojilerini, etkili, etik değerlere uygun ve üretken bir şekilde kullanmayı öğretmek, 21. Yüzyılın gerektirdiği bilgi, beceri ve yeterlilikleri kazandırmayı amaçlayan derstir (Talim Terbiye Kurulu, 2012).

Ortaokul: 5, 6, 7 ve 8. sınıfları kapsayan, ilköğretimin devamı olan öğretim kurumları ortaokul olarak adlandırılır (12 Yıllık Zorunlu Eğitime Yönelik Uygulamalar Genelgesi, 2012).

Araştırma Yöntemi

Bu çalışmada kullanılan araştırma yöntemi durum çalışmasıdır. Merriam durum çalışmasını sınırlı bir sistemin derinlemesine betimlenmesi ve incelenmesi olarak tanımlar (2013,p:40). Yin de durum çalışmasını güncel bir olgunun doğal ortamında, araştırmacı tarafından yönlendirilmeden incelenmesi olarak açıklar (2003). Durum çalışmasında amaç, çalışılan problem üzerinde derinlemesine, kapsamlı ve sistematik bilgi toplamaktır. (Creswell, 2007; Merriam, 2009; Patton, 2002). Bu çalışmada da amaç seçmeli ders uygulamasının okullardaki işleyişi hakkında bilgi toplamak olduğu için durum çalışması yöntemi kullanılmıştır.

Katılımcıların Belirlenmesi

Bu çalışmada Çankaya ilçesinde yer alan ortaokullardan veri toplanmıştır. Katılımcılar da bu okullar arasından seçilen üç okulun yöneticileri, seçmeli Bilişim Teknolojileri ve Yazılım dersini veren öğretmenler ve seçmeli Bilişim Teknolojileri ve Yazılım dersini alan öğrencilerdir. Okulların belirlenmesi için öncelikle Çankaya ilçesinde yer alan 18 okula okul yöneticisi anketi dağıtılmış ve bu ankettten elde edilen sonuçlara göre üç okul belirlenmiştir. Okulların belirlenmesinde amaçlı örneklem kullanılmıştır. Okulları belirlerken, okulda bilişim teknolojileri ve yazılım dersinin verilip verilmediği, bu dersi veren öğretmen sayısı, bu dersi alan öğrenci sayısı ve okuldaki bilgisayar laboratuvarı sayısı dikkate alınmıştır. Daha sonra da seçilen iki okuldaki seçmeli Bilişim Teknolojileri ve Yazılım dersini veren toplamda 4 öğretmen, 171 öğrenciden veri toplanmıştır. Üçüncü okul olarak da BTY dersinin seçmeli olarak açılmadığı bir okul seçilmiş ve açılmamasının nedenlerini araştırmak için okul yöneticisiyle yarı yapılandırılmış görüşme yapılmıştır.

Katılımcılar

Bu çalışmanın katılımcıları, Çankaya ilçesine bağlı 18 ortaokuldaki okul yöneticileri, Belirlenen iki okulda seçmeli Bilişim Teknolojileri ve Yazılım dersini veren 4 öğretmen ve bu okullarda Seçmeli Bilişim Teknolojileri ve Yazılım dersini alan birinci okuldan 30 ve ikinci okuldan 141 olmak üzere toplamda 171 öğrenci ve üçüncü okuldaki seçmeli derslerden sorumlu okul yöneticisi olan müdür yardımcısıdır.

Veri Toplama Araçları

Bu çalışmada veri toplamak için araştırmacı tarafından geliştirilmiş beş farklı araç kullanılmıştır.

Okul Yöneticisi Anketi: Okul müdürlerinden bağlamsal bilgi toplamak için hazırlanmış anket formudur. Bu form Çankaya ilçesine bağlı 18 ortaokula dağıtılmış ve bu okullardaki bilgisayar laboratuvarı sayısı, seçmeli Bilişim Teknolojileri ve Yazılım dersinin verilip verilmediği, bu dersi veren öğretmen sayısı, alan öğrenci sayısı ve okul müdürlerinin seçmeli Bilişim Teknolojileri ve Yazılım dersine ilişkin görüşlerini öğrenmek için kullanılmıştır.

Öğrenci Anketi: Öğrenci anketinde öğrencilerin ders seçme süreci, bu süreçte onları yönlendiren durumlar ve Bilişim Teknolojileri ve Yazılım dersinin işleniş sürecini öğrenmeye yönelik çoğunluğu açık uçlu sorular bulunmaktadır.

Öğretmen Görüşme Formu: Yarı yapılandırılmış görüşme formunda seçmeli Bilişim Teknolojileri ve Yazılım dersine giren öğretmenlerin bu dersin açılış ve işleniş süreçlerine yönelik görüşleri ve deneyimlerini öğrenmeye yönelik sorular bulunmaktadır.

Gözlem Formu: Bu form yardımıyla da iki okulda Bilişim Teknolojileri ve Yazılım dersinin işleniş hakkında fiziksel yapı, derste kullanılan kaynaklar, öğretme-öğrenme yöntemleri, ders sırasında öğretmen ve öğrenci rolü gibi konularda gözlemler yapılmıştır.

Okul Yöneticisi Görüşme Formu: Bilişim Teknolojileri ve Yazılım dersinin seçmeli ders olarak açılmadığı bir okulda, seçmeli derslerin açılış süreci ve BTY dersinin açılmamasının nedenlerini araştırmak için kullanılmıştır.

Veri Toplama Süreci

Veriler 2016-2017 eğitim öğretim yılı bahar döneminde toplanmıştır. Veri toplama süreci okul yöneticisi anketinin uygulanması ile başlamıştır. Bu anket Çankaya ilçesine bağlı 18 okulda seçmeli derslerden sorumlu okul yöneticilerine uygulanmış ve okullarda seçmeli BTY dersinin durumu hakkında bilgi toplanmıştır. Buradan alınan bilgilere dayalı olarak üç okul belirlenmiştir. Okullardan ikisi Bilişim Teknolojileri ve Yazılım dersinin seçmeli ders olarak verildiği okullardır. Bu okullarda, seçmeli derslerin seçim süreci öğretmen görüşmeleri ve öğrenci anketleri yardımıyla ve seçmeli Bilişim Teknolojileri ve Yazılım dersinin işleniş gözlem, öğretmen görüşmeleri ve öğrenci anketleri yardımıyla incelenmiştir.

Her iki okulda da öğrencilere anket uygulanmış, her biri ortalama 30 dk süren öğretmen görüşmeleri yapılmış ve birinci okulda 4, ikinci okulda 5 hafta süreyle gözlem yapılmıştır. Birinci okulda sadece 7. sınıflarda ders işleniş gözlemlenebilirken, ikinci okulda 7 ve 8. sınıflardan toplam 7 ayrı sınıfta ders işleniş gözlemlenmiştir.

Veri Analizi

Bu çalışmada hem nicel hem de nitel veri toplanmıştır. Nicel veriler katılımcıların demografik bilgilerinden ve anketlerdeki bazı sorulardan elde edilmektedir. Bu verilerin analizi SPSS 22 nicel veri analiz yazılımı kullanılarak yapılmış ve frekans ve yüzde olarak rapor edilmiştir.

Çalışmadaki nitel verilerin analizi için MAXQDA 12 kullanılmıştır. Nitel veriler anketlerdeki açık uçlu sorular ve görüşmeler yoluyla elde edilmiştir. Nitel verilerin analizinde içerik analizi yöntemi kullanılmıştır.

Bulgular

Okul yöneticisi anketi, öğretmen görüşmeleri, öğrenci anketi ve gözlemler yoluyla elde edilen veriler takip eden bölümde sunulmuştur.

Okul Yöneticisi Görüşleri

Bu çalışma kapsamında okul yöneticilerinin BTY seçmeli dersi hakkındaki görüşleri ve seçmeli ders açılması ve işlenmesi süreçlerinde karşılaşılan problemler sorgulanmıştır. Elde edilen bulgular gösteriyor ki okul yöneticilerinin bir kısmı bu dersin seçmeli olarak verilmesinin öğrenciler açısından yararlı olduğunu düşünürken ($n=12$), diğer bir kısmı da bu derse gerek olmadığını öğrencilerin bu dersin verebileceği yeterliklere zaten sahip olduğunu ($n=3$) düşünmektedir. Bunlara ek olarak diğer bir kısım da seçmeli ders uygulamasına tamamen karşı olduğunu bu uygulamanın okul yönetimi açısından problemler yarattığını ($n= 3$) savunmaktadır.

Okul yöneticilerinin dersin açılması ile ilgili görüşleri incelendiğinde, seçmeli BTY dersini seçtiği halde alamayan öğrencilerin olduğu görülmektedir. Buna sebep olarak grup oluşturacak sayıda öğrencinin dersi seçmemesi, dersi verecek öğretmenin olmaması, okulda bilgisayar sınıfının olmaması, bilgisayar sınıfında yeterli sayıda bilgisayar olamaması, ya da bu dersin öğrencinin seçtiği başka derslerle çakışması gibi nedenler gösterilmiştir.

Öğretmen Görüşmeleri

Bu bölümde seçmeli ders açılması ve seçmeli BTY dersinin işlenişi seçmeli Bilişim Teknolojileri ve Yazılım dersini veren öğretmenlerin bakış açısından ele alınmıştır. Öğretmenlerin aktardıklarına göre derslerin açılması için birincil koşul öğrenci isteğidir.

Öğretmenler öğrencileri BTY dersini seçmeye yönelten faktörleri öğrencilerin derse karşı tutumu; dersi sevmesi, ilgi duyması, öğretmeni sevmesi, yeni şeyler öğrenme isteği, eğlenceli vakit geçirme isteği, dersin sağlayacağı fırsatlar, ders

içeriği ve müzik dinlemek, oyun oynamak gibi ders dışı aktivitelerle uğraşma isteği olarak sıralanmıştır.

Öğretmenler dersin amaçlarını teknolojiyi takip eden, karşılaştıkları problemleri teknoloji yardımıyla çözebilen, internet ve yeni teknolojileri etkili bir şekilde kullanabilen bireyler yetiştirmek olarak tanımlamaktadır. Ayrıca öğrencileri bilişim alanında bir mesleğe yöneltmek ve onlara temel programlama bilgisi kazandırmak da dersin amaçları arasında sıralanmıştır.

Öğretmenler derste öğretilen konuları birinci okulda; programlama, grafik tasarım, çeşitli programların kullanımı ve animasyon yapma olarak sıralarken, ikinci okulda; programlama, üç boyutlu tasarım, mobil uygulama geliştirme, grafik tasarım, çeşitli programların kullanımı, video çekme ve düzenleme, siber güvenlik ve sosyal medyanın etkili kullanımı olarak sıralanmıştır.

Her iki okulda da öğretmenler MEB tarafından sunulan müfredata dayalı olarak içeriği kendilerinin geliştirdiklerini onlara sunulan bir kılavuz kitap ya da öğrenci kitabı olmadığını belirtmişlerdir.

Ders sırasında karşılaşılan problemler internet bağlantısı problemleri, bilgisayar arızaları, öğrenciler arasındaki seviye farkları, kalabalık sınıflar ve materyal eksikliği olarak sıralanmıştır.

Öğrenci Anketi Sonuçları

Bu bölümde seçmeli derslerin açılması, seçilmesi süreci ve seçmeli BTY dersinin işleniş öğrenci görüşlerine dayalı olarak açıklanmaktadır.

Öğrenci anketi sonuçları gösteriyor ki her iki okulda da öğrencilerin ilk üç tercihi, Bilişim Teknolojileri ve Yazılım, Beden eğitimi ve Spor ve Matematik ya da Fen uygulamaları dersleridir. Her iki okulda öğrencilerin çoğunluğu BTY dersini kendi istekleri ile seçtiklerini belirtmişlerdir. Her iki okulda da ders seçimi sırasında öğrencileri etkileyen kişiler olarak birinci sırada arkadaşlar ve ikinci sırada öğretmenler gösterilmiştir.

Her iki okulda da öğrenciler bu dersi seçmeden önce dersin amaçları, içeriği, öğrenme-öğretme süreçleri ve değerlendirme yöntemleri hakkında bilgi aldıklarını söylemişlerdir. Öğrencilerin bilgi kaynakları sorulduğunda birinci okulda en çok başvuru alan kaynak dersin öğretmeni olarak gösterilirken ($n=17$), ikinci okulda en çok başvuru alan kaynak dersi daha önce alan arkadaşlar olarak gösterilmiştir ($n=93$). Birinci okulda diğer en çok tercih edilen kaynaklar okul web sitesi ($n=10$), EBA web sitesi ($n=7$) olarak belirtilmiştir. İkinci okulda da dersi veren öğretmen ($n=48$), ve okul web sayfası diğer en çok başvuru alan bilgi kaynakları arasındadır.

Öğrencilere BTY dersini tercih etmelerinde etkili olan sebepler sorulduğunda her iki okulda da öğrencilerin derse karşı olumlu tutumu, Bilişim konusundaki bilgi ve becerilerini geliştirme isteği ve ders dışı etkenlerin en çok belirtilen nedenler olduğu görülmektedir.

Öğrencilerin dersten beklentileri araştırıldığında birinci okulda öğrencilerin bilgisayar okuryazarlığının artırılması ($n=20$), oyun geliştirme ($n=3$), programlama ($n=3$), web sitesi tasarımı ($n=1$) ve ders dışı aktivitelerle ilgilenme ($n=4$) gibi beklentilere sahip oldukları görülmektedir. İkinci okuldaki öğrencilerin beklentileri incelendiğinde çeşitli programların kullanımını öğrenme ($n=65$), programlama ($n=44$), donanım ($n=6$), siber saldırı yapma ($n=6$), animasyon yapma ($n=5$), grafik tasarım ($n=2$), mobil uygulama geliştirme ($n=2$) ve web tasarım ($n=1$) gibi beklentilerin olduğu görülebilir.

Öğrencilere derste kullanılan materyaller sorulduğunda her iki okulda da öğretmen tarafından tavsiye edilen web sitelerinin en çok kullanılan materyal olduğu görülmektedir. Bunun yanı sıra, yine her iki okulda öğretmenin hazırladığı sunumlar ve dağıttığı çalışma kâğıtları derste kullanılan materyaller olarak belirtilmiştir.

Öğretmenin ders sırasındaki rolü sorulduğunda öğrenciler birinci okulda ders anlatma ($n=14$), kolaylaştırıcı ($n=2$) ve izleme ($n=2$) rollerini belirtirken ikinci okulda ders anlatımı ($n=73$), gösterip yaptırma ($n=57$) ve kolaylaştırıcı ($n=18$) rolleri ön plana çıkmıştır.

Öğrencinin ders sırasındaki rolü incelendiğinde birinci okulda öğrencilerin oyun oynamak ($n=9$) ve başka derslere çalışmak ($n=5$) gibi ders dışı aktivitelerle zaman

geçirdiği görülebilir. Bunların dışında uygulama yapma ($n=12$), öğretmeni dinleme ($n=3$), sunum hazırlama ($n=2$) ve araştırma yapma ($n=1$) birinci okulda öğrencilerin derste yaptığı aktivitelerdendir. İkinci okulda öğrenci rolleri incelendiğinde öğrencilerin ders sırasında uygulama yapma ($n=79$), dersi dinleme ($n=39$), not tutma ($n=4$), birbirlerine yardım etme ($n=2$), soru sorma ($n=2$) ve sorulan sorulara cevap verme ($n=2$) rolleri olduğu görülebilir.

Seçmeli Bilişim Teknolojileri ve Yazılım dersinde kullanılan değerlendirme yöntemleri incelendiğinde uygulamalı sınavın her iki okulda da en çok kullanılan değerlendirme yöntemi olduğu görülmüştür. Bunun yanı sıra birinci okulda kâğıt kalemle sınav ($n=3$), ve ders içi aktiviteler ($n=1$), ikinci okulda ise kâğıt kalemle sınav ($n=75$), ürün dosyası ($n=4$), ve proje ödevi ($n=4$) gibi değerlendirme yöntemleri kullanılmaktadır.

Öğrenci anketinde öğrencilerin dersin işlendiği bilgisayar laboratuvarı hakkındaki görüşleri de sorulmuştur. Her iki okulda da öğrenciler internet bağlantısı problemleri, bilgisayar arızaları ve donmaları gibi problemlerle karşılaştılar da bilgisayarlar onların öğrendiklerini uygulayabilmelerine olanak sağladığı için memnun olduklarını belirtmişlerdir.

Gözlem Sonuçları

Gözlemlerden elde edilen sonuçlar incelendiğinde her iki okulda da öğretmenin birincil kaynak olduğu görülmüştür. Bunu yanı sıra ders sırasında kullanılan kaynak ve materyal çeşitliliğinin ikinci okulda daha fazla olduğu görülmektedir. Birinci okulda web siteleri ve çevrimiçi platformlarda erişilen videolar kaynak olarak kullanılırken ikinci okulda kitap, robotik programlama setleri, sunular ve bazı çevrimiçi platformlar da kaynak olarak kullanılmaktadır.

Öğretmenin ders içindeki rolü incelendiğinde öğretmen görüşmesi ve öğrenci anketine paralel sonuçlar elde edilmiştir. Birinci okulda öğretmenin daha çok kolaylaştırıcı, izleme ve geri bildirim verme rolü ön plana çıkarken, ikinci okulda ders anlatma, izleme rolleri ön plana çıkmaktadır. Öğrenci rolü incelendiğinde

birinci okulda uygulama yapma ve yardımlaşma ön plana çıkarken, ikinci okulda uygulama yapma, dinleme ve soru sorup sorulan sorulara cevap verme gibi roller ön plana çıkmıştır.

Gözlemler sırasında ders sırasında en sık karşılaşılan problem her iki okulda da ilgisiz öğrencilerdir. Birinci okulda bunu ders dışı aktiviteler ve teknik problemler takip ederken, ikinci okulda teknik problemler, öğrenciler arasındaki seviye farklılıkları ve çevrimiçi platformlara bağlanma sorunları ders sırasında karşılaşılan diğer problemlerdir.

İkinci okulda gözlemler sırasında dikkati çeken bir nokta BTY dersinde yapılan karikatür, afiş gibi materyaller okul koridorlarında sergilenmektedir. Ayrıca, bu okulda öğle aralarında robot programlama, üç boyutlu tasarım gibi alanlarda atölye çalışmaları düzenlenmekte ve bu çalışmalar öğrenciler tarafından yürütülmektedir.

Müdür Görüşmesi Sonuçları

Bu çalışmada üçüncü okul olarak Bilişim Teknolojileri ve Yazılım dersinin seçmeli ders olarak açılmadığı bir okul seçilmiş ve bu okulun seçmeli derslerden sorumlu okul yöneticisiyle ders seçilmesi, açılması süreçlerini ve BTY dersinin açılmamasının sebeplerini araştırmak üzere bir görüşme yapılmıştır.

Görüşmeden elde edilen verilere göre okulda bir seçmeli dersin açılması için gerekli şartlar öğrenci seçimi ve dersi verebilecek öğretmenlerin olmasıdır. Derse girecek öğretmenler belirlenirken dersin gerektirdiği branşa sahip olan ya da bu branşta alınmış bir sertifikaya sahip olan öğretmenler ders için seçilmektedir.

Müdür yardımcısının aktardığına göre bu okulda öğrenciler ders seçimi sırasında dersin eğlenceli olmasına, TEOG sınavına katkı sağlayabilecek olmasına ya da kolay olmasına dikkat etmektedirler. Bu okulda en çok tercih edilen dersler, Beden Eğitimi ve Spor, Bilim Uygulamaları ve Yazarlık ve yazma becerileridir.

Bu okulda seçmeli BTY dersinin açılmamasının sebebi dersi seçen öğrenci olmaması ve dersi verebilecek öğretmen olmaması olarak özetleniyor. Müdür

yardımcısı okullarında bir tane bilişim teknolojileri öğretmeni olduğunu ve onun ders yükünün de zorunlu derslerle dolduğunu belirtiyor.

Müdür yardımcısı seçmeli derslerin açılması sürecinde karşılaşılan en büyük problemin öğretmen bulmak olduğunu söylüyor. Bazı seçmeli derslerde seçmeli derse uygun branşa sahip öğretmen bulmakta zorlandıklarını belirtiyor.

Müdür yardımcısı seçmeli derslerin daha etkili hale getirilmesi için bazı önerilerde de bulunuyor. Bunlardan birincisi Matematik uygulamaları ve Bilim uygulamaları gibi ana derslerle ilgili olan derslerin seçmeli olarak sunulmaması. Müdür yardımcısı bu tür derslerin kurs gibi algılandığını ve bu derslerde de ana derslerde olduğu test çözüme, sınav gibi uygulamaların yapıldığını ve bunun da öğrencinin yükünü arttırdığını onları rahatlatmaktan çok bunalttığını belirtmektedir. İkinci öneri ise okul şartlarının iyileştirilmesidir. Müdür yardımcısı kendi çalıştığı okulda ve arkadaşlarının çalıştığı diğer okullarda fen bilgisi laboratuvarı, bilgisayar laboratuvarı gibi mekânların yenilenmesi gerektiğini ve materyal eksikliklerinin tamamlanması gerektiğini belirtiyor.

Tartışma

Bu çalışmanın amacı seçmeli derslerin seçim ve işlenişinin seçmeli Bilişim Teknolojileri ve Yazılım dersi kapsamında incelenmesidir. Bu çalışma kapsamında, elde edilen veriler bu bölümde yorumlanmaktadır.

Seçmeli derslerin açılması süreci incelendiğinde derslerin politikada belirtildiği (MNE, 2012a) gibi öğrenciler tarafından dilekçe ile seçildiği ve 10 kişi tarafından seçilen derslerin açıldığı görülmüştür.

En çok seçilen derslere bakıldığında Matematik uygulamaları, Bilim uygulamaları, Beden eğitimi ve spor ve BTY derslerinin en çok seçilen dersler arasında olduğu görülmektedir (Karagözoğlu, 2015; Uysal, 2015). Bilim uygulamaları Matematik uygulamaları ana derslerle alakalı derslerken, Beden eğitimi ve Spor ve BTY ana dersler dışında kalan öğrencilerin ilgilerine hitap eden derslerdir. Öğrenciler bu tercihlerinin nedeni olarak ana dersleri anne-babalarının tavsiyesi üzerine

seçtiklerini, diğerlerinin kendi istekleri olduğunu açıklıyor. Çalışmanın okul yörecilerinden gelen bulguları gösteriyor ki ana derslerle ilişkili olan seçmeli dersler beklenildiği gibi öğrencinin akademik başarısını arttırmadığı gibi öğrencinin ders yükünü arttırarak onu bunaltıyor. Bu nedenle ana derslerle ilişkili seçmeli dersler ya seçmeli ders olarak sunulmamalı ya da ders içeriği öğrencilerin yeni şeyler keşfetmelerine olanak sağlayacak deneysel aktivitelerle zenginleştirilmelidir.

Öğrencilerin ders seçimi öncesinde seçmeli dersler hakkında bilgi sahibi olmaları onların kendi ilgi alanlarına uygun dersler seçmeleri için önemlidir. Çalışma sırasında elde edilen bulgular öğrencilerin BTY seçmeli dersini seçmeden önce bu dersin amaçları, içeriği, öğrenme öğretme aktiviteleri ve değerlendirme yöntemleri hakkında bilgi aldıklarını göstermektedir. Okul 1 de öğrencilerin en çok dersi veren öğretmenden ve okul web sayfasından, okul 2 de ise en çok dersi daha önce alan arkadaşlarından bilgi aldıkları görülmüştür. Her iki okulda da okul yönetiminin ve rehberlik servisinin bilgi almak için en az başvuru alan kaynaklar olduğu göze çarpmaktadır. Ders seçimi sırasında öğrencileri yönlendirmesi gereken bu iki paydaşın etkinliklerini arttırması öğrencilerin anlamlı seçimler yapmasını sağlayabilir.

Okulda yapılan faaliyetlerin seçmeli derslerin tanıtımına olumlu etkisi olduğu söylenebilir. Okul 2 de gözlemler sırasında görülmüştür ki öğretmenler BTY seçmeli dersi sırasında seçmeli derste gelecek yıl öğretilecek konular hakkında bilgi vermektedirler. Bu durum anketlerde de öğrenciler tarafından belirtilmiş ve onların ders hakkında bilgilendirilmesine katkı sağladığı belirtilmiştir. Ayrıca, okul 2 de öğle arası robotik programlama atölyesi, 3 boyutlu tasarım atölyesi gibi atölyeler düzenlenmektedir. Bu atölyelerin de dersin tanıtımına katkı sağladığı söylenebilir. Okul 1 ile karşılaştırıldığında okul 2 de BTY dersine oyun oynamak, müzik dinlemek gibi beklentilerle gelen öğrenci yüzdesi de daha azdır. Bunun sebebi olarak öğretmenlerin sık sık bilgisayar laboratuvarlarında oyun oynamanın yasak olduğunu belirtmesi ve orada olan öğrencilerin dersle ilgili faaliyetlerle ilgilenmesi gerektiği şeklinde uyarılarda bulunması etkili olmuş olabilir. Özetle, okulda

oluşturulan kültür, kuralların belirlenmesi, ders içinde ve ders dışında yapılan etkinliklerin dersin tanıtımına katkı sağladığı savunulabilir.

Öğretmen ve okul olanaklarının okullarda seçmeli derslerin açılmasında etkili olan faktörler olduğu hem önceki çalışmalarda (EARGED, 2008; Özüt, 2015; Uysal, 2015) hem de bu çalışmada ortaya çıkmıştır. Okul yöneticilerinin seçmeli dersler için öğretmen bulmakta zorlandıkları da bu çalışmanın bulguları arasındadır. Hem politikada (MNE, 2012a) tavsiye edildiği hem de uygulama da görüldüğü gibi öğrenciler seçmeli dersleri bir önceki yıl seçmektedirler. Bu da okulların seçilen dersler için gereken öğretmen ve materyal ihtiyacını belirlemesi ve MEB e bildirmesi için vakitlerinin olduğunu göstermektedir. Öğretmen ve materyal sorununa çözüm olarak öğretmenler gereken dönemde ihtiyaç duyulan okullarda görevlendirilebilir. Aynı şekilde materyal eksikliği için de MEB bünyesinde materyal havuzu oluşturulabilir, Seçmeli spor ve Fiziki etkinlikler dersi için spor aletleri, seçmeli BTY dersi için robotik programlama setleri gibi materyaller gerektiği dönem için okullara ödünç verilebilir.

Öğrenme öğretme süreçleri dikkate alındığında derslerde öğretilen konuların okul 2 de daha çok çeşitlendiği hem öğretmen görüşmeleri ve öğrenci anketlerinden gelen verilerde hem de gözlem sonuçlarında dikkat çekmektedir. Bu durumun okul 1 deki öğrencilerin farklı alanlar tanınması ve bu alanlarda kendi yeteneklerini keşfetmesi açısından dezavantaj oluşturduğu açıktır. Bu farklılığın ders kitabı gibi her okulda kullanılacak ortak bir doküman olmamasından kaynakladığı söylenilebilir. Her iki okulda da öğretmenler ders içeriklerini kendilerinin hazırladıklarını belirtmişlerdir. İkinci okulda birden fazla öğretmen olduğu için bu öğretmenlerin öğretilen konular hakkında işbirliği yapma ve fikir alışverişinde bulunma olanakları artmakta ve ortaya daha çeşitli bir konu listesi çıkmaktadır. Konu listesinin çeşitlenmesinde, okulun olanaklarının da etkisi vardır. Okul 2 de robotik programlama konusunda kullanılacak setler ve kitaplar sınıf kütüphanesinde mevcuttur. Dolayısıyla bu okulda öğretmenler bu konuları derse dâhil etme şansına sahipler.

Sonuç olarak öğretmen yetersizliği ve okul olanakları seçmeli derslerin açılmasını etkileyen faktörlerdendir. Bu nedenle dönem başlamadan önce okullar öğrencilerin seçtiği derslere göre hangi branşta ne kadar öğretmen ihtiyacı olduğunu ve gerekli materyalleri MEB e bildirmelidir. MEB de gereken öğretmen ve materyalleri okullar için temin etmelidir. Böylece dönem başlamadan önce okullar seçmeli dersler için hazır hale getirilebilir.

Öneriler

Bu çalışma kapsamında seçmeli ders uygulaması ile ilgili bazı sonuçlar çıkarılmış ve bu sonuçlara dayalı önerilerde bulunulmuştur. Bu öneriler aşağıda sıralanmıştır.

Uygulamaya Yönelik Öneriler

1. Seçmeli derslerin amaçları ve işlevleri öğrencilere anlatılmalı ve onların kişisel gelişimleri için faydalı olabilecek dersler seçmesi sağlanmalıdır.
2. Velilerin seçmeli dersler ve seçmeli Bilişim Teknolojileri ve Yazılım dersi hakkında farkındalıkları artırılmalıdır. Veliler öğrencilerin geleceği ve gelecekteki kariyerleri için BTY seçmeli dersinin önemi hakkında bilgilendirilmelidir.
3. Seçmeli derslerin amacı, içeriği, derslerde kullanılan öğrenme-öğretme aktiviteleri ve değerlendirme yöntemleri hakkında tanıtıcı bilgiler okul web sayfasında yer almalıdır.
4. Seçmeli Bilişim Teknolojileri ve Yazılım dersi için gerekli öğretim materyalleri ve ders kitabı hazırlanmalı ve okullara dağıtılmalıdır.
5. Okullardaki öğretmen ihtiyacı dönem başlamadan önce tespit edilmeli ve seçmeli dersleri verebilecek yeterlilikte öğretmenler okullarda görevlendirilmelidir.
6. Okullarda seçmeli derslerin verilebilmesi için gerekli fen bilgisi laboratuvarı, spor salonu ve bilgisayar sınıfı gibi mekanlar ayarlanmalı ve gerekli materyaller sağlanmalıdır.
7. Bilim uygulamaları ve Matematik uygulamaları gibi dersler ya seçmeli ders olarak sunulmamalı ya da ana dersin tekrarı olmaktan çıkarılıp deney

ağırlıklı öğrencilerin öğrendikleri bilgileri gerçek hayatla ilişkilendirebilecekleri dersler haline getirilmelidir.

Gelecekteki Çalışmalar için Öneriler

1. Bu çalışma seçmeli Bilişim Teknolojileri ve Yazılım dersi kapsamında yapılmıştır. Çalışma başka bir seçmeli ders kapsamında tekrarlanabilir.
2. Okul müdürlerinin seçmeli derslerin işlevleri hakkındaki farkındalığını ölçen çalışmalar yapılabilir.
3. Seçmeli dersler öğrencilerin ilgi ve yeteneklerini geliştirmeye yönelik dersler olduğu için Matematik Uygulamaları ve Bilim Uygulamaları gibi ana derslerle ilgili derslerin seçmeli ders olarak sunulup sunulmaması gerektiği araştırılmalıdır.

APPENDIX I: Tez Fotokopi İzin Formu

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü

Sosyal Bilimler Enstitüsü

Uygulamalı Matematik Enstitüsü

Enformatik Enstitüsü

Deniz Bilimleri Enstitüsü

YAZARIN

Soyadı : Burhanlı

Adı : Satı

Bölümü : Eğitim Programları ve Öğretim

TEZİN ADI (İngilizce) : A Case Study On The Elective Information Technologies Course Policy in Lower Secondary Schools

TEZİN TÜRÜ : Yüksek Lisans Doktora

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir.
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir.
3. Tezimden bir (1) yıl süreyle fotokopi alınamaz.

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: