

RESEARCH

Technology Addiction among Students According to Teacher Views

Öğretmen Görüşlerine Göre Öğrencilerdeki Teknoloji Bağımlılığı

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Abstract

The aim of this study is to analyse students' technology addiction and the role of the school in preventing technology addiction based on teacher views. The study was designed in accordance with the phenomenological design which is one of the qualitative research designs. Maximum diversity sampling method was employed in the study. The participants were twenty-five teachers working in public or private schools. The data of the study were collected through semi-structured interview forms and analyzed using the descriptive analysis method. The findings showed that the students mostly had social network addiction, online game addiction and instant messaging addiction. In addition, it was emphasized by the teachers that those students with technology addiction had low academic achievement and had difficulty in communicating with people in their environment.

Keywords: Technology, technology addiction, students, views of teachers, qualitative research.

Öz

Bu çalışmanın amacı öğrencilerin teknoloji bağımlılığını ve teknoloji bağımlılığının önlenmesinde okulun rolünü, öğretmen görüşleri kapsamında analiz etmektir. Çalışma, nitel araştırma desenlerinden biri olan olgubilim desenine uygun olarak tasarlanmıştır. Çalışmada maksimum çeşitlilik örnekleme yöntemi tercih edilmiştir. Araştırmanın çalışma grubu kamu okullarında veya özel okullarda çalışan 25 öğretmen oluşturmuştur. Veriler yarı yapılandırılmış görüşme formu ile toplanmış ve betimsel analiz yöntemiyle çözümlenmiştir. Bulgular öğretmen görüşlerine göre öğrencilerde çoğunlukla sosyal ağ bağımlılığı, çevrimiçi oyun bağımlılığı ve anlık mesajlaşma bağımlılığı olduğunu göstermiştir. Ayrıca öğretmenler tarafından teknoloji bağımlılığı olan öğrencilerin akademik başarılarının düşük olduğu ve çevresiyle iletişim kurmakta güçlük çektiği vurgulanmıştır.

Anahtar sözcükler: Teknoloji, teknoloji bağımlılığı, öğrenciler, öğretmen görüşleri, nitel araştırma.

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ADDICTION is a general concept which is used for many objects and actions in daily life and has different meanings depending on the different situations. While the concept of addiction has been used more frequently for substance addiction in recent years, it is now defined as an irresistible desire for action, object or person. The continuation of this desire despite its negative effects on people's mental and physical life is an indicator of addiction (Beyazyürek and Şatır 2000, Uzbay, 2011). Köknel (1998) argues that addiction should be defined in two different ways: substance addiction and behavioral addiction. Substance addiction is the problem of non-refusal to use a substance that harms the body. Behavioral addiction, on the other hand, is a situation where a harmful behavior is frequently exhibited and repeated despite its negative consequences. It refers to the fact that a person is fond of this harmful behavior in order to eliminate certain needs.

Technology that develops with globalization is an indispensable element in meeting our needs at every moment of our lives. For countries, the use of technology in several fields such as business, education, defense and health is seen as a necessity to keep up with the times. The necessity of using technology has made access to technology quite easy. Today, in almost every home and office, computers and the internet, as well as smart phones and related technology have become a part of every human's life. The fact that the use of technology becomes an indispensable activity for individuals brings about a kind of behavioral addiction. Griffiths (1995, 1996a) describes technology dependence as a behavioral dependence involving the interaction of people with machines. In technology addiction, stimuli such as television keep the person passive, stimuli such as computer games provide active participation of the person, while all technological tools have strengthening and triggering features such as sound effects, attractive colors and awards that increase the tendency of addiction. Griffiths (1996a) suggested that well-known addiction types, such as alcohol, gambling, and substance addiction, and behavioral addiction have similar effects on individuals. Intense desire, stress when not reached, distress situations are cited as common effects of substance addiction and behavioral addiction (Marks 1990). The determination of behavioral addiction depends on the existence of some certain factors. Griffiths (2005) in his study investigating the model of the components of addiction concluded that the criteria of behavioral addiction such as technology addiction include drawing attention, mood change, tolerance, deprivation, conflict and relapse. Drawing attention refers to the fact that a person considers a certain behavior as the most important event in his life. In the case of technology addiction, the tendency to use some certain technological tools even when there is no need for such tools is an example of drawing attention. In the context of technology addiction mood change occurs when one feels much more comfortable when s/he accesses technology. Tolerance refers to the need to increase the time allocated for technology use in regard to technology addiction. In the context of technology addiction deprivation refers to the negative conditions that occur when the person cannot reach the technology. The bad mood of an individual who is addicted to computer games when he does not play the game is an example of the deprivation. Conflict is an internal conflict between a person's life, which involves the use of technology, and his or her personal responsibilities in regard to technology addiction. Relapse refers to a situation where the person tries to get away from technology addiction voluntarily but fails to do so (Güçlü 2015, Aydın 2017).

The technological world consisting of television, mobile phone, internet and computer games has had a say in the social and psychological development of children and young people. The frustration, sadness and anxiety of people resulted from the fact that they do not have an internet connection, computers that do not support the operation of digital games, and televisions that do not have more than one channel are the results of technology addiction (İlhan 2007). Griffiths (1996) stated that technology addiction is categorized as television addiction, computer addiction (computer piracy, internet use, programming), computer game addiction and virtual reality addiction. However, it is stated that research on technology addiction is not sufficient. In such studies the topics of Internet addiction and computer game addiction are mostly analysed. Taking into consideration the students' teaching processes, technology addiction has been classified by Griffiths (2005) as "social network addiction", "instant messaging addiction", "online game addiction" and "website addiction". This study focuses on social network addiction, online game addiction and instant messaging addiction. Social network addiction can be limited to the use of platforms such as Facebook, Instagram, Twitter, LinkedIn and Youtube where users create individual profiles, connect with friends, and make friends (Kuss and Griffiths 2011). Online gaming addiction refers the use of web-based and entertainment-oriented applications of multi-user virtual environments with a wide network from simple text-based games to complex graphic-design games on electronic networks (Gao 2005). Instant messaging addiction includes the use of one-to-one communication tools based on the chat model of multiple components such as e-mail, chat room, telephone, and voice mail (Chung and Nam 2007).

Young (1996) conducted the first experimental study on internet addiction and stated that internet addiction like gambling and alcohol addiction poses important problems in family, social and professional lives of individuals. Studies on Internet addiction mostly attempt to reveal the level of Internet use by students and to determine negative dimensions of it (Griffiths and Parke 2002, Balcı and Gülnar 2009, Karaman and Kurdođlu 2009, Odacı and Kalkan 2010, Ceyhan 2011, Gökçearsın and Günbatır 2012, Tanrıverdi 2012, Yu et. al. 2013, Çam 2014, Khan et. al. 2014, Şahin 2014, Waldo 2014, Ateş 2016, Gencer 2017, Topal 2018). Young (2004) for the first time put forth the criteria of internet addiction and mentioned the similarity between internet addiction and gambling addiction. He stated that the impulse control mechanisms of internet addicts are somewhat distorted. Chou and Hsiao (2000) in their studies on internet addiction among university and high school students stated that the internet addict group is negatively affected from it in terms of their work and social life. In the research on internet addiction among university students it is found that internet addicts had problems in making friends, completing their homework and sleeping patterns (Anderson 2001). Yang and Tung (2007) found that internet addict students have high levels of depression and suicidal tendency and Yen et. al. (2007) concluded that adolescents with internet addiction have depression, social phobia and hyperactivity disorders. Young and Rogers (1998) suggested that depression is the most important factor in the formation of pathological internet use. Computer games replaced traditions children's games where children meet and play different games together (Horzum 2011) and it is suggested that computer games are similar to gambling in terms of being reasons for violence and lack of attention among students in schools (Gentile 2009). Young and Rogers (1998), Grüsser and Thalemann (2006) stated that technology

addiction has some physical, psychological and social negative effects. Such physical effects include burning in the eyes, pain in the neck muscles, disturbances in body posture and numbness in certain parts of the body. Major psychological effects are low academic achievement, personal, family and school problems, and lack of time control, difficulty in communicating, lack of self-confidence, and inability to express oneself.

The studies on technology addiction emphasize the fact that in dealing with the problems related to technology addiction family plays a significant role (Wallenius and Punamaki 2008, Akçay and Özcebe 2012, Solak 2012, Şahin and Tuğrul 2012, Çakır 2013, Arslan et. al. 2015). In addition to the family, it should be taken into consideration that schools, which shape students' future and are an important part of their daily lives, have an impact on students in technology addiction. It is thought that school management and teachers' activities about preventing technology addiction will have an impact on students. Research is very rare on the level of technology addiction of students, the attitudes of families about technology addiction of students, technology, media and socialization, the positive and negative effects of technology on people. On the other hand, the schools and teachers thought to have an important role in the development of students in technology addiction, which is one of the biggest problems today, have an important role in shaping their behaviors. In addition, it has been suggested that quantitative studies should be supported with qualitative methods in order to gain an in-depth view of the data on technology addiction in schools (Aydın 2017). It is thought that the results of such studies will provide a conceptual framework for future research. In this context, the general purpose of the study is to reveal the views of teachers about technology addiction among students. In line with this aim the study attempts to answer the following research questions: (i) "What are the effects of technology addiction that teachers observe on students?" and (ii) "What is the role of schools in preventing technology addiction among students?" Teachers are the first people after the family members who meet the students and offer them more qualified social experiences, guide them and be role models for them (Sünbül 2004). Considering the critical role of teachers and schools on students, the current study is important to support the development of educational policies to prevent or at least reduce technology addiction among students.

Method

Study Design

The present study which aims to reveal the views of teachers about technology addiction is structured within the framework of qualitative research method which questions the meanings of individuals or groups towards a social or human problem using its own methods (Creswell 2018). Qualitative research is a method in which the topic at hand is handled in its natural environment and a holistic approach is followed as well as the facts related to the topic are interpreted (Denzin 2005). Phenomenology, which is one of the qualitative research designs, was used in the study. Phenomenology focuses on the facts that are realized through the experiences of daily life and that are needed to make an in-depth examination and to reach a detailed understanding (Yıldırım and Şimşek 2008). Interpretation of these phenomena that people experience as a result form in their own consciousness is the main objective of phenomenological studies.

(Bloor and Wood 2006, Patton 2018). Phenomenological research examines how people understand the phenomenon, how they describe it, how they feel about it and how it makes sense, and phenomenology attempts to uncover the relevant experiences of people in a given context and at a given time. The most important point in phenomenological studies is to understand the individual meaning structures and intentions of individual individuals by approaching them from the perspectives (Patton 2018). The reason for using this method can be explained as the focus of the research is on how teachers' observations and experiences underlying the phenomenon of technology addiction, and the basic assumption of the study is which pattern makes it possible to discover this meaning. In this study, teachers' experiences were analysed in order to obtain a more holistic perspective about the phenomenon of technology addiction (Fraenkel and Wallen 2006). Accordingly, teachers' views on technology addiction seen among students were revealed and interpreted.

Participatnts

In the study, maximum diversity sampling method was used for the purpose of selection of the participants. Maximum diversity was provided through selecting participants from different types of schools and from different teaching areas. The maximum diversity sampling method involves predetermining some criteria that are different among individuals and then selecting the participants according to these criteria. Maximum diversity sampling method is a method that enriches qualitative research in terms of reflecting different perspectives of the findings (Creswell 2018). With maximum diversity method, it is possible to explain in detail the specific dimensions of each group in the sample and to reveal common themes between the situations that show different characteristics (Yıldırım and Şimşek 2008).

In quantitative research, power analysis and effect size calculations are used to determine the number of samples, while qualitative research does not have a standard scale indicating cultural and social expressions and does not employ probability models that determine the distribution of expressions for statistical power analysis (Luborsky and Rubinstein 1995). Neuman and Robson (2014) emphasized that the quality of the sample is important, not because of the quantity, but because it is necessary to collect detailed data on a small number of samples especially in qualitative studies conducted in the phenomenology design. In phenomenology studies the number of participants can be just one (Miles and Huberman 1994) or 325 (Neuman 2014). Charmaz (2011) stated that it is appropriate to have a study group consisting of at least 10 people in a phenomenology study. In this context, as a result of the preliminary interviews with teachers, the study group consisted of twenty-five teachers who teach different subject areas working in either public or private schools and at primary schools, secondary schools and high schools and who teach at least four lessons per week. The study was approved by the Research Committee of Social and Educational Sciences (2018/9). All teachers were informed that participation was voluntary and that they could withdraw from the study. They gave informed verbal consent to participate in the study. Table 1 presents information about the teachers participated in the study. Table 1 indicates that eleven of the participants were male and 14 were female. According to the data from the Ministry of Education, there are 632781 female and 436471 male teachers working at public and private schools. When the distribution of male and female teachers is

considered, it can be said that the male-female ratios of the participants in this study represent this general distribution of the teachers.

Table 1. Information about the participants of the study

Code	Gender	School	Branch
Beril	Female	Secondary school (Private)	Sciences
Can	Male	Elementary school (Public)	Elementary school teacher
Cemal	Male	Secondary school (Private)	Social studies
Doruk	Male	High school (Public)	Literature
Elif	Female	High school (Public)	Literature
Esra	Female	Secondary school (Public)	Math
Figen	Female	Elementary school (Public)	Elementary school teacher
Fikret	Male	High school (Public)	Biology
Gökmen	Male	Secondary school (Private)	Social studies
Gül	Female	Secondary school (Private)	Sciences
Hale	Female	Secondary school (Public)	Social studies
Hasan	Male	High school (Private)	Math
Leyla	Female	High school (Private)	Chemistry
Melek	Female	Secondary school (Private)	Math
Metin	Male	Secondary school (Public)	Sciences
Niyazi	Male	Secondary school (Private)	School counselor
Nuray	Female	Secondary school (Private)	Turkish
Önder	Male	High school (Private)	Literature
Sercan	Male	High school (Public)	Tarih
Sibel	Female	Secondary school (Private)	İngilizce
Şebnem	Female	Secondary school (Private)	Sciences
Tarik	Male	High school (Public)	Chemistry
Yağmur	Female	High school (Public)	School counselor
Yaren	Female	Secondary school (Private)	Turkish
Zerrin	Female	Secondary school (Public)	Math

Measure

The data of the study were collected using interview technique. In-depth analysis of the participants' views on technology addiction among students was needed. In case studies, it is considered appropriate to use interview technique in order to express clearly the experiences of the participants about the topic at hand (Bloor and Wood 2006, Creswell 2018). During the interview, behaviors and emotions that are not observed in the mind of the participant are revealed (Patton 2018). In the present study interviews were conducted using a semi-structured interview form consisting of open-ended items. The semi-structured interviews (Yin 2011) was preferred in order to allow for the participants to express their perceived world through his / her own thoughts and to reach new ideas about the subject during the interview (Merriam 2009).

Semi-structured interview form was developed based on the review of the related studies. Then, the interview form was developed in a manner to cover the one-dimensional, easy-to-understand, motivating participants and general-specific items (Bogdan and Biklen 1992). The basic principle of qualitative interviews is to make it easier for the participants to explain their understanding about the topic to be analysed in their own words (Patton 2018). The draft interview form consisted of nine items aimed at revealing the experiences and personal perspectives of the participants that are

deep in their views on technology addiction among students. After the development of the draft, two experts' opinions about qualitative research methods and addiction were used to revise the form. Based on the expert feedback two items were combined and one item was removed from the form. Preliminary interviews were conducted with three randomly selected teachers to determine the comprehensibility of the interview items. The interview items developed by the authors were organized, and the interview form was finalized. The interview form consisted of six open-ended items:

1. What does technology addiction mean to you? Can you give me a few examples?
2. What level of technology dependence do your students have? Which technologies are more dependent on them?
3. How do students' technology addictions affect them? Can you give an example?
4. Do you think your school administrators is aware of technology addictions among students? Why?
5. Do your school administrators and yourself have studies on students' technology addictions? If so what?
6. Can you evaluate your school administrators and your role in preventing technology addiction in students?

The participants were informed about the purpose of the study. In addition, they were told that the interview would be conducted on a voluntary basis. All of the interviews were conducted by the authors themselves and recorded with a voice recorder. The items were asked to the interviewees in the same order, and no restrictions were imposed on the answers given by the participants. Thus, teachers were given an opportunity to express their thoughts that they found important on the topic at hand.

Procedure

Interview records were transcribed by the authors without any corrections. Next the data were analysed through the descriptive analysis. The data obtained were arranged according to the pre-determined conceptual framework and themes, and direct quotations were used to present the views of the interviewed individuals to the reader (Yıldırım and Şimşek 2008). The procedures of descriptive analysis employed in the study are as follows: to record the interviews in the audio recordings without making any changes, to form a framework for data analysis based on the dimensions of the interviews, to determine the themes to be presented according to the framework, to gather the data in a meaningful way and to interpret the findings. The thematic framework of the study consisted of (i) teachers' perception of technology addiction, (ii) technology addiction and its effects on students and (iii) schools' role in technology addiction against students.

Validity and Reliability

The perspectives and terms used to establish validity and reliability in qualitative research differ from one study to another. Guba and Lincoln (1982) argued that the terms credibility, transferability, reliability and verifiability should be used for validity (Creswell 2018). In order to ensure the validity of the present study, importance was given to its credibility and transferability. Processes to ensure the internal validity of the

study are as follows: (i) In the process of developing a semi-structured interview form, the related studies were reviewed, and the theoretical framework was established in line with these studies. In the process of obtaining the credibility of the data the objectivity of the researchers was given importance and in this context, the data recorded with the voice recorder was checked with the participant confirmation (Merriam 2013); the interview form, which was developed to reach the participants who could not be directly observed, was developed considering the themes created for the descriptive analysis; (iii) the internal validity of the themes was determined based on the descriptive analysis carried out for the consistency of the findings and provided by considering internal homogeneity and external heterogeneity criteria. In order to ensure the external validity of the study, the method of the study, sample selection and the process of the participants are presented in detail (Merriam 2013, Creswell 2018). The reliability of qualitative studies refers to the fact that if the study is carried out again, the results should be replicated (Neuman 2006). The procedures to ensure the internal reliability of the study were as follows: (i) The findings obtained in the data analysis were presented directly to the reader without any comment and (ii) the codes generated during the data analysis were developed separately by the authors, and a comparative method was used. The procedures to ensure the external reliability of the study were as follows: (i) detailed description of the methods used in the study and (ii) recording of raw data and analysis to provide detailed information for future studies on the similar topic.

Results

Teachers' views on technology dependence among the students are divided into the following themes: (i) teachers' perception of technology addiction, (ii) the effects of technology addiction on students and (iii) schools' role in technology addiction among students. In this section, teachers' views and direct quotations on these themes are given.

Teachers' Perceptions about Technology Addiction

The participants were asked what technology addiction meant to them. When the participants' answers about technology addiction are examined, it is understood that they are aware of the technology addiction problem. They described technology addiction as follows: using technology more than necessary, moving away from the real world, not being able to do anything without technology, being stuck in the virtual world, asocialization, not being able to leave their phones, expressing himself/herself only through technology, a disease that ruins human relations and waste of time. In addition, the participants described technology addiction using metaphors such as octopus and virus:

I think it is a harmful habit. I do not think we have a chance to get rid of the addiction to the mobile phones due to the fact that this habit is like octopus arms (Fikret).

We can think of technology addiction as a virus that has taken over a child's brain. I would say that technology addresses the brain and obscures the child's perceptions (Şebnem).

Technology Addiction and Its Effects on Students

The participants reported that technology addiction is very common among students.

Although this views was shared by the teachers working at primary schools, secondary schools and high schools, they also stated that based on school type students develop different types of technology addiction. They argued that technology addiction among students can be categorized as follows which reflect the common views in the related studies: social network addiction (Facebook, Instagram, Twitter, Linkedin, Youtube applications), online game addiction (web based and entertainment oriented applications of multi-user virtual environments) and instant messaging addiction (Whatsapp, Snapchat, Skype, Hangouts applications).

Most of the participants stated that technology addiction differs between boys and girls. They reported that social network addictions and instant messaging addictions are more common among female students, while male students have higher level of game addictions.

Instagram is mostly used especially by female students, and male students use more games (Melek).

While female students like to share photos on social media, male students use technology by playing games (Metin).

With the desire to be liked more, female students use social media especially instagram. They think that their popularity may increase among their friends being commented on the number of followers. Male students spend more time for games with their mobile phones (Önder).

Boys like technological games that are more violent. We see that female students are more addicted to social media. They think that comments on their costumes will increase their popularity (Zerrin).

The views of the teachers who had an opportunity to observe the students at least forty minutes during the break periods each day were analysed in order to identify the negative effects of technology addiction on the students. The views of the participants in this regard were also similar to the findings of the previous studies. These views are grouped under three themes and are given in Figure 1: physical, social and psychological effects.

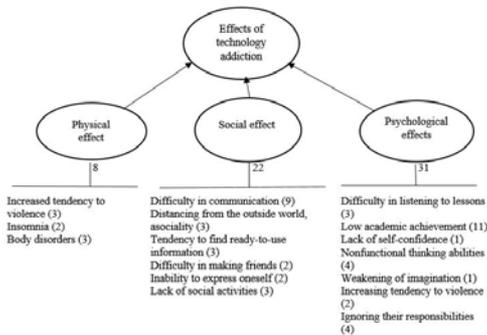


Figure 1. Negative effects of technology addiction on students

The participants argued that one of the most striking negative effects of technology addiction among students is lower levels of academical achievement:

I feel like they are physically in the courses, but their minds are not there. They have difficulty in listening to lectures, so their academic achievement is low (Beril). Their academic achievement decreases, because they spend more time on the phone while they should be interested in the lesson (Hale).

They dedicate all their time to mobile phone use and that is why I believe that their success in the courses is low (Leyla).

They are adversely affected academically. Because they are just physically in the classroom when the teacher is explaining the lesson, they mentally think of the game and the mind of the children is in the game played the day before (Nuray).

They use technology as a distractor in their course work. I hear that some students play games for three hours without interruption, but I see that a five-minute study is a huge burden to them. They say that (Hasan).

The participants also stated that communication problems and distancing themselves from the outside world and inability to express themselves efficiently are another major problems related to technology addiction:

When they meet someone in daily life, they do not know what to do. They do not know how to behave, how to talk and where to talk. This will create a huge problem in the future for them, I think (Cemal).

I think their relationship with their family and their friends is broken. Unfortunately, we are producing a generation who cannot produce two appropriate words and cannot form proper sentences (Esra).

It significantly affects them socially. They can not even talk. They have trouble in expressing themselves. They do not really know how to communicate (Gökmen).

... I think it affects their social relations very negatively. A student who only talks about computer games does not participate in any other conversation about topics other than a computer game. They only talk to those who play games (Niyazi).

Technology addiction causes our students to break away from the world. It distracts our students from the outside world. A generation who is unaware of the current events, who avoids communication and is drawn to its own shell is waiting for us (Önder).

Our students' technology addiction affects them in regard to many aspects negatively. For example, they have difficulty in speaking Turkish and therefore our language is disturbed. They use abbreviated words, use artificial words, find it difficult to put together two words and form sentences (Sibel).

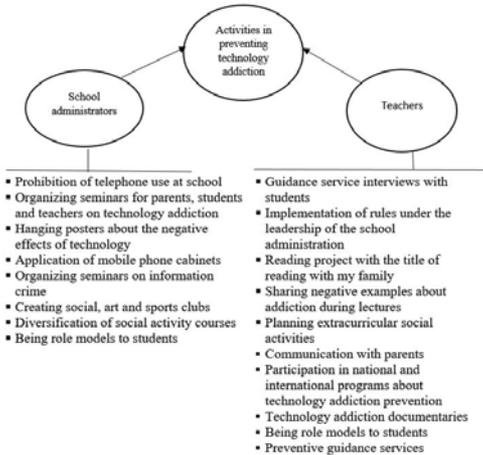


Figure 2. School administration's and teachers' efforts to prevent technology addiction in students

One of the participants shared a memory of a student with technology addiction stating that technology addiction leads children to violence, angry, unloved relationships in friendship:

The student was very angry that day. I wondered if he had any problems at home. The answer is: "No teacher, I am playing an online game, and they are attacking my castles while I am here and I can't do anything. I was very surprised and upset by the student's response (Nuray).

Role of Schools against Technology Addiction among Students

The awareness of the schools about the technology addiction among the students was examined based on teachers' activities in preventing technology addiction. Most of them reported that schools have higher levels of the technology addiction among the students and that there are certain activities at schools to prevent it. Such activities are divided into the following themes and are given in Figure 2: prevention activities by school administrators and prevention activities by teachers.

The participants reported that instead of prohibiting students use technology at schools it would be better to direct them to social activities. Both the school administrators and the teachers' activities on referring to social activities are stated as follows:

If the child does something he likes, he will not need to deal with something different. The child who is directed to a social activity will not have time to use the technology. The important thing is that he should train and develop himself with activities that are beneficial to him and that he enjoys doing, such as painting, dancing, singing and reading books (Gül).

There are also some activities to be done to get rid of technology addiction. I want to talk about this. First of all, doing sports relaxes the body and mind. Sports keeps people away from addiction. Instead of spending time in the virtual world, we may direct our students to sportive, artistic and cultural activities (Niyazi).

I think it is necessary to encourage students to read books in order to reduce their dependence on technology. Instead of giving phone or tablet to them the greatest gift to them would be books, I think. We realized the project entitled reading with my family at our school (Yaren).

The participants argued that it is necessary to provide a productive parent-school cooperation in order for school administration and teachers' activities on preventing technology addiction among students to be effective.

I think the family is more significant in this regard. School principal or school administrators or guidance counselor or classroom teacher can intervene to some extent (Esra).

Parents and also, teachers need to tell students that they should use technology in a beneficial way. The reason for the high level of technology addiction among students is the whole environment of the child, not just the school (Figen).

Parents use technology as silencers for their children, they give their childrens phones and tablets. From time to time, even I give my cell phone to my child to make him silent. I think families have more to do with preventing technology addiction than teachers (Gökmen).

I think that families should be aware of this rather than school staff. Children reflect what they see in their family (Hale).

Cooperation is very important, not only the school management is responsible in this regard. The teacher, the school administration and the parents need to cooperate. All these parts are significant, and if any of them does not exist in the chain, it breaks (Melek).

As families, we should not design our homes based on technology use. It is normal for our children to become addicted to technology in a few years when they see television, telephone and computer from the day they were born (Sercan).

I think that school and family cooperation is a very valuable and effective factor to prevent addiction. Parents give technological devices to their children thinking that their child should shut up and does not mess with them. Parents should be more conscious about this subject and ensure that the technology addiction in children should be at lower levels (Şebnem).

Discussion

In this study, teachers' views about technology addiction among students, the effects of technology addiction on students and the role of schools in preventing technology addiction were analysed. The findings showed that they are aware of technology addiction among students. They described technology addiction as follows: using technology more than necessary, moving away from the real world, not being able to do anything without technology, being stuck in the virtual world, asocialization, not being able to leave their phones, expressing himself/herself only through technology, a disease that ruins human relations and waste of time. The participants described phone, tablet and computer addictions as technology addiction. Griffiths (1995) describes technology dependence as a non-chemical dependence and as a cause and effect between individuals and technological equipment. Technology addiction is considered as a general concept covering computer, internet and television addictions.

The participants reported that the level of technology addiction among students is very high. They divided technology addiction among students into the following groups: social network addiction, online game addiction and instant messaging addiction. In the study these categories of addiction are employed as the focus of the study. Social network addiction is the use of platforms such as Facebook, Instagram, Twitter, LinkedIn and Youtube where users create individual profiles, connect with friends, and make new friends who have common interests (Kuss and Griffiths 2011). Online gaming addiction is the use of web-based and entertainment-oriented applications of multi-user virtual environments that run across electronic networks, ranging from simple text-based games to complex graphic-design games (Gao 2005). Instant messaging addiction is the use of one-to-one communication tools based on the chat model of multiple components such as e-mail, chat room, telephone, and voice mail (Chung and Nam 2007). The use of just three categories of technology addiction can be given as one of the limitations of the study. Teachers think that students have more online game addictions. It is known that game addiction is the most common technological addiction in recent years, and the treatment methods towards it as a psychological disease are investigated (Köksal 2015). The participants stated that the game addiction of male students was higher than that of female students. The studies by Griffiths and Hunt (1995, 1998), Hauge and Gentile (2003), Onay et. al. (2005) and Horzum (2011) produced similar findings about the fact that male students play computer games and are addict to these games more often than female students.

The effects of technology addiction on students were also analysed based on the views of the participants. They argued that technology addiction has negative physical, social and psychological effects on students. Young and Rogers (1998), Grüsser and Thalemann (2006) also suggested that technology addiction has negative physical, social and psychological effects. It is found that technology addiction have mostly psychological effects on students. Most of the teachers stated that the academic achievement of students with technology addiction was low. The findings by Anderson (2001),

Young and Case (2004), Chang and Man Law (2008), İnan (2010), Leung and Lee (2012), Toraman (2013) and Karakuş (2016) also indicate that there is a negative correlation between students' academic achievement and their technology addiction and that the academic achievement of students with technology addiction was low. Concerning the negative social effects of technology addiction the most of the participants reported that those students with technology addiction have communication problems. In the study by Caplan (2002) it is found that Internet addiction of lonely and withdrawn individuals in society is high. It is stated that, unlike the real life identity of these individuals, they develop another identity in the virtual environment and could express themselves only through this virtual identity. Horzum (2011) argued that game addiction prevents socialization among children, and that as a consequence of it children's communication skills do not improve. Ögel (2012) emphasized that technology addiction leads to the problems of loneliness and isolation from interpersonal relations for such individuals.

The participants reported that the school administrators and they do some activities to prevent or at least, reduce technology addiction of students. Such activities are grouped into two categories: prevention activities by school administrators and prevention activities by teachers. One of the most important activities of the school administration to prevent technology addiction is to organize technology addiction seminars for teachers, students and parents. In addition, the participants stated that students were not allowed to bring and use mobile phones at their schools by the decision of the school administration. They also reported that they tried to be role models for students in order to prevent technology addiction, gave negative examples about the effects of the excessive use of technology in the lessons and directed students to social activities in order to keep away them from technology addiction. The teachers also emphasized that the significant part of the activities in regard to the prevention activities against technology addiction among students is the functional and productive parent-school cooperation. It is argued that prevention activities at schools will not be effective unless there is parental support. In order to eliminate or minimize the negative effects posed by technology, strong family support is required to complement the prevention activities of schools (Young 1999, Ayas and Horzum 2013, Günüç and Doğan 2013, Çetinkaya and Sütçü 2016, Yiğit 2017).

Schools and teachers are an important variable in the childhood and adolescence period during which behaviors are gained in regard to prevent technology addiction and to whether students will become technology addicts or not. However, many factors are very influential in technology addiction. In this study, examining only schools and conducting this study in schools which are thought to be close to each other due to the socioeconomic level similarity of the location of the schools are some of the limitations of the study. Another limitation is that the study dealt with only teacher views about technology addiction among students.

The study was carried out in a phenomenological design that examines how teachers understand, describe, perceive, and make sense of the technology addiction phenomenon among students. Case studies in which students' technology addiction is examined in depth using multiple data collection tools (i.e., observation, interview, documents) can be carried out. It can be also suggested that studies using theory development designs can be carried out in order to develop a model on combating addic-

tion. It may be suggested to increase the number of qualitative studies that provide the opportunity to work on deep and detailed topics and also, to carry out quantitative studies where addiction factors are identified and described.

It is not appropriate for teachers to think that any student who is closely interested in technology experiences technology addiction. However, their excessive reaction about students' use of technological tools, the long-term use of technological tools, and the failure of the lessons in the form of experiencing disruptions shaped their views. In such cases, teachers may be advised to discuss the issue with experts. With the cooperation of parents, students should raise awareness about the use of technology in educational institutions where they spend a significant part of their daily life. Instead of isolating students from technology, it would be appropriate for schools to have a mission of keeping pace with the technology of the period and to use their interest in technological devices to gain useful information from technology. In this context, it may be suggested that the Ministry of National Education may increase the devices supporting educational technologies in educational institutions and organize educational technology seminars to teachers. It will be effective for schools to show students the reasons for the rules to be followed in using technology and to make students adopt the logic of establishing these rules based on these reasons.

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