Examining Pre-service Preschool Teachers' Technology Addiction Levels

Zeynep Dere*

Makale Geliş Tarihi:02/10/2024 *Makale Kabul Tarihi:03/01/2025*

DOI: 10.35675/befdergi.1560094

Abstract

It is possible to say that one of the most common problems of the modern age is technology addiction. Technology addiction can be defined as spending time obsessively on social media and games, online shopping and applications, and isolating oneself from social life accordingly. The purpose of this research is to examine the technology addiction levels of pre-service preschool teachers. For this purpose, 201 students studying in the 4th grade of the preschool teaching departments of the education faculties of five state universities were focused on. The data of the research was collected using the Personal Information Form and Technology Addiction Scale. It can be said that the PPTs participating in the research are moderately addicted to technology, moderately addicted to websites and instant messaging, and lowly addicted to online games and social networks. When the differences between the gender and addictions of the PPTs are examined, it can be said that men are more addicted to technology in all dimensions except the instant messaging dimension.

Keywords: *Pre-service preschool teachers(PPT), technology, addiction, technology addiction*

Okul Öncesi Öğretmen Adaylarının Teknoloji Bağımlılık Düzeylerinin İncelenmesi

Öz

Modern çağın en yaygın sorunlarından birinin teknoloji bağımlılığı olduğunu söylemek mümkündür. Teknoloji bağımlılığı, sosyal medya ve oyun, çevrimiçi alışveriş ve uygulamalarda takıntılı bir şekilde vakit geçirmek ve buna bağlı olarak kişinin kendini sosyal hayattan soyutlaması olarak tanımlanabilir. Araştırmanın amacı, okul öncesi eğitimi öğretmeni adaylarının teknoloji bağımlılığı düzeylerinin incelenmesidir. Bu amaçla beş devlet üniversitesinin eğitim fakültesi okul öncesi eğitimi anabilim dalı 4. Sınıfta öğrenim gören 201

* Ege Üniversitesi, Ödemiş Sağlık Bilimleri Fakültesi, Çocuk Gelişimi Bölümü, İzmir, Türkiye, zeynep.dere@ege.edu.tr, ORCID: 0000-0001-6078-7077

This study was presented as an oral representation paper 6th IECEC in Kars, 2-5 October, 2019.

Kaynak Gösterme: Dere, Z. (2025). Examining pre-service preschool teachers' technology addiction levels. *Bayburt Eğitim Fakültesi Dergisi, 20*(45), 363-393.

öğrenciye odaklanılmıştır. Araştırmanın verileri Kişisel Bilgi Form ve Teknoloji Bağımlılığı Ölçeği ile toplanmıştır. Elde edilen bulgular ışığında okul öncesi öğretmeni adaylarının bağımlılık düzeyleri incelendiğinde araştırmaya katılan okul öncesi öğretmeni adaylarının; orta düzeyde teknoloji, orta düzeyde web siteleri ve anlık mesajlaşma, düşük düzeyde olsa da çevrimiçi oyun ve sosyal ağ bağımlısı olduklarını söylemek mümkündür.

Anahtar Kelimeler: *Okul öncesi öğretmeni adayı, teknoloji, bağımlılık, teknoloji bağımlılığı*

Introduction

Addiction can be defined as having an excessive desire for certain substances and not being able to give them up despite being harmed (Ögel, 2001). It is the situation where the substance intake cannot be controlled despite causing cognitive, behavioral and physical problems in the individual using the substance and disrupting his/her adaptation to social life. Addiction criteria according to DSM-V can be listed as; using for a longer period than planned, unsuccessful attempts to quit in the past, spending most of his/her time finding and using the substance, continuing to use despite its negative effects and harm, desire to use the substance, gradually increasing the amount of the substance used because it is not enough, i.e. tolerance level, and withdrawal (2013). In case of addiction, some changes occur in the structure and functions of the brain. These changes are accompanied by deteriorations in the person's mood, thoughts and behaviors.

Internet Addiction was first discussed as a research topic in the literature in 1996. The findings of this study were published by the American Psychiatric Association. Accordingly, the idea that internet addiction is a behavioral disorder has taken its place in the literature. Scientific research states that excessive internet use is caused by serious psychosocial problems. Addiction symptoms include: feeling guilty and enjoying spending so much time in front of the computer, giving or trying to distribute e-mail addresses and internet addresses to everyone, doing shopping online, losing interest in non-internet activities and constantly wanting to connect to the internet when not connected to the internet, decreasing social activities, feeling like friends are not understanding each other, staying away from sports activities and losing fitness, decreasing work efficiency, constant sleeplessness and fatigue, weakening of family ties due to not being able to spend enough time with family members, the idea that other tasks and people in daily life interfere with online life, disagreements and problems between spouses due to computer use (Güçlü, 2015; Karaman & Kurtoğlu, 2009). According to TUIK data, it was determined that 15.8 percent of the population, which was 82 million 3 thousand 882 as of the end of 2018, was young people in the 15-24 age group. When looking at higher education statistics, it was seen that 3 million 620 thousand, or 28 percent of this population, were in higher education. When looking at the 18-22 age group, it was noted that 40 of this population were in higher education (TUIK, 2018).

Considering time spent on the Internet and the applications used, adolescents used social networks, instant messaging, online games, and websites.

Some Technological Applications Used by Adolescents

Use of social networks: Social networks entered our life rapidly and found its place in the community. It now allows adolescents to instantly reach information and virtual communication. In this regard, based on the increase of the importance of social network in modern life, there is an increase in the time period allocated to social networks on the Internet (Wire, 2011). We can define social networks as Internet communities that allow users to share their profile information, send private or online messages, and communicate with other users through several ways such as sharing photos and videos (Pempek, Yermolayeva & Calvert, 2009). Social networks are among the most used platforms to establish Internet communication between individuals. It is possible to create an online profile to be served to the public or a selected audience through social networks. Profiles can be updated at any time and in any form. Thus, individuals can put any friend or watchlist from among people who are members of the same social network. They share digital content such as text, photos, videos, etc. created with their friends. These are online environments where they both share their content with friends on social networks and follow the content shared by their friends (Tosun, 2019). YouTube, Facebook, Instagram, Twitter, and LinkedIn are among the most current social networks used in Turkey. Each of them has a different purpose, with Twitter being for current news, Instagram for photos, YouTube for videos, Facebook for socializing and entertaining free time, and LinkedIn for professional life content. According to 2021 world Internet, social media and mobile usage statistics, 59% of the word population actively use the Internet. Statistics show that users spend an average of 135 minutes per day on social networks (DIJILOPEDI, 2022). Besides the use of social networks, adolescents also engage in instant messaging on the Internet.

Instant messaging: Instant messaging application is a series of communication technologies used to establish text-based contact on the Internet or other types of networks between two or more people (BRITANNICA, 2024). We can say that instant messaging is a daily method to establish communication with friends, family members and workmates. However, online privacy and safety should be cared while using these applications online. Instant messaging applications are Signal, Telegram, Wire, WhatsApp, Threema, Wickr Me, Viber, Dust, iMessage, Line (KASPERSKY, 2024). In addition to these applications, they also use instant messaging applications of Snapchat, Facetime, Facebook Messenger, Skype, Discord, Instagram DM, Hangouts, Kakaotalk & Bip. Another application used by adolescents to spend time on the Internet is online games.

Online gaming: Online games are played using a computer that is connected to the Internet so that more than multiple players can interact (Jones, 2003). Willoughby, Adachi and Good (2012) conducted a three-year study on adolescents living in Canada

and found that playing video games with violent content increased their aggressive behaviors. Lam, Cheng and Liu (2013) conducted a study with adolescent living in China, which investigated the relationship between exposure to violent games and cyber bullying. The study found that exposure to violent online games was a predictor of cyber bullying behavior. Gaming is generally a place where users become depressed and distant themselves from offline individuals. Online gaming environments can be characterized as a dangerous and risky Internet environment in terms of psychological safety (Chee, Vieta & Smith, 2006). All developments in the Internet world have increased the acceptance of online games in real life. The perception that playing these games is normal has taken hold in society. Previously, social interactions took place around games played in face-to-face areas such as game center arcades, homes, or dormitories. Over time, as these games became playable over local network connections, access to games has become increasingly popular (Cole & Griffiths, 2007).

Use of websites: It would be right to say that Internet access started with a website. Without a website, it is not possible to access a program easily. Thinking of the Internet, websites come to mind first. Websites begin with "www...". The biggest revolution on the network was the design of www sites and pages. Websites and pages are like computer programs, yet they differ from a computer program in many aspects. The conversion of the information provided by computers on this network into a form that everyone can understand, such as text, images, audio, video, etc. is one of these differences (Ergün & Ergün, 2008). It is important for users to easily use websites. A website is designed in a way that visitors can easily understand how to access the content they want in line with their goals when visiting the site. Guiding users to the pages they want can be a challenging task. The homepage of a website is very important because it is the first thing visitors encounter when they access the site. It greatly affects the number of visits to a website. For this reason, a homepage is prepared in a way that attracts users' attention (Nielsen, 2000). Today's websites have a simple, user-friendly and consistent interface appearance that does not change frequently (Morkes & Nielsen, 1997). There are some technological tools commonly used by PPT's.

Some Technological Tools Used by Adolescents

Television: The word television is a combination of the Latin word "tele" meaning distance and "visio" meaning to see, thus representing the idea of viewing things from a distance. Television, which has become a part of life, is a mass communication tool. Mass communication can be ensured with specific tools. Therefore, when explaining mass communication tools, it is necessary to mention more advanced tools and equipment rather than tools that provide interpersonal communication. Television, a visual and auditory mass communication tool, stands out distinctively from other mass communication tools, particularly the press, due to its ability to appeal to the eyes and ears (Erdoğan & Budak, 2016). We can say that television is the medium that has a

wider impact area compared to other mass communication tools today. It is one of the most popular mass communication tools in terms of knowledge acquisition in Turkey where literacy is low (Geçer, 2015). It was invented to transfer recorded moving images and sound to a recipient located in another place either simultaneously or with brief delays (Şentürk, 2009).

Desktop PC: A computer is an electronic machine that quickly and accurately processes existing data and converts it into information. In other words, it is the name given to electronic machines that process data from the outside environment by passing it through a series of mathematical and logical operations and convert it into meaningful values, can classify the information obtained as it is sorted, store the information obtained when necessary, and provide data transfer to the outside environment (Yalçın, 2011). A desktop computer is a type of personal computer that is designed to be used on a console or table.

Smartphone: Smartphones, in addition to the functions of calling and text messaging, are featured phones that have reached computer functions with the development of mobile operating systems (Akın, 2018). Their processing capacity is increasing day by day with the advancement of technology. They are mobile communication devices that can connect to the Internet and almost all operations performed on a computer can be carried out through applications. Due to their ability to perform most operations applicable on a computer, mobile communication devices provide many different opportunities to individuals in daily life such as communication, gaming, shopping, taking photos, watching videos, etc. (Yiğit, 2019). Smartphones with a changing functionality constantly with the advancement of technology offer more applications, better cameras, more power, and more memory. Similarly, they become increasingly attractive to children, youth, and adults by providing current information through social networks and enabling socialization with other people (Lee, Tse, Wu, Mak & Lee, 2020).

Laptop PC: Laptops have the same features as traditional desktop computers. They have high-performance processors, are impact-resistant, offered in various sizes and weights, are available at roughly the same prices as desktop computers, and are the largest physical communication devices among portable communication devices (Yomralıoğlu & Döner, 2005). Laptops are equipped with GSM, GPS, Wi-Fi, Bluetooth, and infrared communication standards, allowing for mobile or wireless communication (Acar & Gürsoy, 2009).

Tablet PC: A tablet PC allows for direct input of handwriting and annotations with the use of an electronic pen. It is a new computer technology that increases the capabilities of portable computers (Cox, 2006). Tablets are smaller and easier to carry compared to other computers (Daşdemir, Cengiz, Uzoğlu & Bozdoğan, 2012). They can be defined as portable devices that have a small touchscreen, Internet access, and data storage. Due to these features, tablet computers have become popular and widely used in many fields in recent years. They are becoming more widespread with Internet

access, the ability to play music, send email, watch and record videos, and read e-books (Shurtz, Halling & Mckay, 2011). There are many social networking sites that adolescents get connected to and use frequently with technology devices. There are some social networks commonly used by PPT's.

Some Social Networks Used by Adolescents

Facebook: Adolescents can spend time together in virtual environments like Facebook.com. Facebook is one of the social networks offering a platform to individuals where they can share and have fun together (Kobak & Biçer, 2008). Initially created by Mark Zuckerberg, a computer science student at Harvard University, in 2004 for use among students on his own campus, this software has now become one of the most recognized and widely used social networks throughout the world (Lim, 2010).

Twitter: It is a platform where adolescents share what they are doing in real-time and express their thoughts and ideas in 280 characters to those who follow them. People can share any news shared in Twitter by quoting it and adding their own commentary. They can explain their moments and share photos in short phrases. They can announce their current status on the Internet with messages like "I am abroad" or "I am shopping" (Yıldırım, 2014). What makes Twitter important and unique among other social media is that it allows messages to be conveyed from the source to target audiences in the easiest and least inconvenient way (Kuyucu & Karahisar, 2013). Another feature that makes Twitter unique is that it allows users to search for keywords on any topic and access tweets posted by users in real-time, enabling them to gain information about the subject (Bakshy, Hofman, Mason, & Watts, 2011). With this feature, users can have real-time information about the events occurring anywhere in the world. Furthermore, the "Trending Topic" section on Twitter also contains a list of what is most being discussed globally or regionally. The users can have information of the current news from this list. Trending Topic allows users to see a topic by using tags, referred to as hashtags, which become a link when preceded by (#). It allows Twitter users to easily access a topic discussed through the hashtags. When a topic reaches a certain percentage in discussion, it enters the list (Kwak, Lee, Hosung & Moon, 2010).

Instagram: On Instagram, adolescents express themselves using creative visuals. Instagram is a social media platform that helps establishing communication. It allows sharing photos, videos and reels, which brings out the photographer inside. Users can express themselves by sharing their personal stories and photos of their interests, using the freedom to exhibit themselves. They can personalize their contents using various filters and captions available on the application. They can create photo galleries of their own in their profile grids. Instagram gives its users the chance to present their ideal appearances of how they want to be seen to others (Ginsberg, 2015). It is one of the most popular applications of recent years.

LinkedIn: LinkedIn is a social network site that helps job seekers, employees, businesses, and entrepreneurs easily make professional connections. It also offers its users bidirectional use, both institutional and personal (Acar, Gürsoy & Ünsal, 2014). It is a social network used by professionals in business life to scale up networks, find jobs, track sales trends, and connect with business partners (Del Giudice, Della Peruta & Carayannis, 2014).

YouTube: YouTube can meet adolescents' many needs such as listening to music, watching television and education programs, and entertainment. It is one of the largest social media video sharing platforms in the world. It is regarded an alternative to many content providers, particularly music industry. The most important feature of the platform is that its content can be produced by multiple users at the same time. One of the biggest advantages of YouTube, compared to traditional media, is that it has brought together millions of users and content creators. Users can be the world's largest video content providers without spending for the content. With this feature, YouTube has become a medium that receives both the contents and ratings from the users, and become the largest online video store in the world (Kuyucu, 2017).

Google Plus: Google Plus is different from other social networks. It supports chatting with a certain number of people at the same time. It allows to transfer and broadcast recorded chats to YouTube accounts. Thanks to Google Plus and its applications, there are groups formed based on timing principle but independent from location. These groups can share between each other, and effectively use these environments in terms of communication and feedback for out-of-class learning (Yiğit, 2013).

Foursquare: Foursquare is a smartphone application that has been used since 2009. Adolescents share their real-time locations by checking in with their friends. Foursquare aims to help users find the best places through local search, by offering recommendations for places based on their similar preferences and needs, and scoring them. It is used by consumers to discover the services, cities and places. It shows the location of its users on social network and can make places more attractive (Bakır & Aydoğan, 2018).

Myspace: Myspace is a social network site established in 2003 and is similar to Facebook. It allows individuals to express themselves more than Facebook by enabling them to publish music, writing, videos, graphics, and photos online (Boyle & Johnson, 2010).

Tumblr: Tumblr was established by David Karp in February 2007. It served more than 341.8 million of users in 2017. Its users have personal blogs where they can share photos, videos and texts. They can have followers by their sharing contents (Barış, 2019). There are instant messaging programs used by PPT's.

Instant Messaging Programs Used by Adolescents

WhatsApp: WhatsApp is a social media platform developed by Jan Koum and Brian Acton in 2009. More than a billion people use it every day. By using it, users send messages, photos, videos, audio records and share current status (Barış, 2019).

Snapchat: Snapchat was developed by Evan Spiegel, Bobby Murphy, Daniel Smith, Leo Noah Katz and David Kravitz in September 2011. According to February 207 data of Snapchat, there are 166 million of active users daily. This is more than the number of users of Twitter. Users can publish timed photos and videos, and use several effects on this platform (Barış, 2019).

Skype: Skype is a communication system based on voice call and video call features. With Skype, individuals can easily make one-to-one or group calls. Thanks to its screen sharing feature, it is possible to prepare presentations and share documents. It also allows sending messages for free to the groups including more than 50 people (ATAUNI, 2024).

Preschool teachers play a critical role in raising healthy generations of the future. No study has been found on the technology addiction of PPTs. Therefore, this study conducted with PPTs is considered important. In order to examine the technology addiction levels of PPTs, answers were sought to the following questions.

Pre-school teacher candidates;

- What is their technology usage status?
- What is their technology addiction level?

Methods

This research is a descriptive study conducted to determine the technology addiction levels of PPTs. This part of the study will examine the method, population, study group, sample size, tools, and data analysis.

Survey Research: This study is a survey study. Survey studies are conducted to reveal the characteristics of the participants (Fraenkel, Wallen & Hyun, 2012).

Study Group: It was conducted with students enrolled in the pre-school education departments of the education faculties of five state universities in 2019 academic year. There are a total of 360 students who continue to compile in the 4th grade in these departments. The study group was selected using the criterion sampling method. A set of criteria(s) is created by the researcher in the criterion applications (Campbell, Greenwood, Prior, Shearer, Walkem, Young, Bywaters & Walker, 2020).The recorded criterion in this research is that the teacher candidates in the education faculty continue to the 4th grade.

Sample Size: The majority of the 201 preschool teacher candidates who accepted to participate in the research and volunteered.

The demographic distribution of senior undergraduate students studying in the preschool teaching departments of the education faculties of the five state universities focused on in the scope of the research is given below.

Table 1.

Percentage Distribution of Universities Where Participants Studied

University	**f**	**%**
Yozgat Bozok University	90	44.8
Ege University	34	16.9
Abant İzzet Baysal University	30	14.9
Kırşehir Ahi Evran University	25	12.4
Gazi University	22	10.9
Total	**201**	**100.0**

According to Table 1, 44.8% of pre-service preschool teachers are studying at Yozgat Bozok University, 16.9% at Ege University, 14.9% at Abant İzzet Baysal University, 12.4% at Kırşehir Ahi Evran University and 10.9% at Gazi University.
Table 2.

Percentage Distribution of Participants by Gender

Gender	**f**	**%**
Female	177	88.1
Male	24	11.9
Total	**201**	**100.0**

According to Table 2, 88.1% of preschool teacher candidates are female and 11.9% are male.

Table 3.

Percentage Distribution of Participants' Ages

Age range	**f**	**%**
18-20 years old	4	2.0
21-23 years old	162	80.6
24-26 years old	27	13.4
27 years old and older	8	4.0
Total	**201**	**100.0**

When Table 3 is examined, it is possible to say that 80.6% of the pre-school education teacher candidates studying at the faculty of education in five state universities are between the ages of 21-23.

Data collection tools: The "Personal Information Form" developed by the researcher and the "Technology Addiction Scale" developed by Aydın (2017) were used in the study. Descriptive statistics were used to examine the personal information of the participating teacher candidates and their technological usage habits and frequencies, and the Personal Information Form consisting of 18 questions was presented to the students in order to obtain the necessary data for the purpose of the study. The Personal Information Form includes questions to determine the demographic characteristics of the participants such as faculty, department, gender and age. It includes questions to determine whether the participants have a smartphone, desktop or laptop computer and their socioeconomic levels. The device used to access the internet, whether they are subscribed to social networking sites, which social networking sites they are subscribed to, the time spent on social networking sites, which instant messaging programs they use and how long they have been using instant messaging programs were asked. The types of online games used by the students, how long online games are played, the types of websites visited, how long websites are browsed and how much time is spent on technology applications in total during the day were asked. There are questions that determine the habits and frequencies of teacher candidates in technology areas. The Technology Addiction Scale is a 5-point Likert-type scale consisting of 24 items. The scale has four six-item subscales: "Social Network Addiction," "Instant Messaging Addiction," "Online Game Addiction," and "Websites Addiction." The validity-reliability study of the scale was conducted at three universities. For this purpose, 463 students studying in Ankara were focused on. The analyses showed that the Technology Addiction Scale is a valid and reliable tool that can be used for university students. This study is a survey study. Survey studies

are conducted to reveal the characteristics of the participants (Fraenkel, Wallen & Hyun, 2012).

Measures: The measurement tools were photocopied as many times as the number of students. The forms were applied to the students face to face. During the measurements, the teacher candidates were informed about the research and explanations were made. No problems were encountered during data collection.

Analysis of data: The answers to the first sub-problem of the research are given in the form of frequency and percentage distribution of demographic characteristics of teacher candidates in tables. The frequency and percentage distribution of the answers given to the variables related to the first sub-objective of the research were calculated and presented in tables.

In the data analysis section, which was carried out to answer the second sub-problem of the research, it was first examined whether the data provided a normal distribution. Since the data showed a normal distribution, parametric statistical analysis methods were used. When the results were interpreted, 0.05 was used as the significance level ($p<0.05$).

Variance analysis is a statistical approach that investigates whether there is a difference between the means of two different groups using variance. The most common one used in comparing two groups is Variance Analysis (ANOVA, Analysis of Variance). When the significance level of more than two groups is to be evaluated, the difference between them can only be done with Variance Analysis (Çayır-Ervural, 2020).

Findings

In this section, the first sub-problem of the research was answered between tables 4-17. The second sub-problem of the research was answered in tables 18 and 19.

Table 4.

Percentage Distribution Regarding Ownership of a Technological Device

Possession status	**f**	**%**
Yes	200	99.5
No	1	0.5
Total	**201**	**100.0**

According to Table 4, it is possible to say that 99.5% of pre-service preschool teachers have a technological device.

Table 5.

Percentage Distribution of the Socio-Economic Level of the Families of the Participants

Level	**f**	**%**
Low	18	9.0
Middle	174	86.6
High	9	4.5
Total	**201**	**100.0**

When the economic levels of prospective teachers are analysed, it can be said that 86.6% of them have medium income, 9% have low income and 4.5% have high income.

Table 6.

Percentage Distribution of the Environments to Which the Internet is Connected

Utilisation Status of Connected Spaces	**Yes**		**No**	
	f	**%**	**f**	**%**
Home or dormitory	166	82.6	35	17.4
Mobile	164	81.6	37	18.4
Faculty	53	26.4	148	73.6
Internet cafe	11	5.5	190	4.5

In Table 6, the environments where PPTs connect to the internet are presented. Accordingly, 82.6% of them connect from home or dormitory, 81.6% from mobile phones, 26.4% from faculty, 5.5% from internet cafes.

Table 7.

Percentage Distribution of the Usage Status of the Devices Connected to the Internet

Usage Status of Devices Connected to Internet	**Yes**		**No**	
	f	**%**	**f**	**%**
Smartphone	198	98.5	3	1.5
Laptop PC	120	59.7	81	40.3
Desktop PC	45	22.4	156	77.6
Tablet PC	22	10.9	179	89.1
Television	18	9.0	183	91.0

According to Table 7, 98.5% of the pre-service teachers connect to the internet via smartphone, 59.7% via laptop PC, 22.4% via desktop PC, 10.9% via tablet PC and 9.0% via television.

Table 8.

Percentage Distribution of the Usage Status of Social Networking Sites

Use of Social Networking Sites	**Yes**		**No**	
Status	**f**	**%**	**f**	**%**
Instagram	171	85.1	30	14.9
Youtube	164	81.6	37	18.4
Facebook	101	50.2	100	49.8
Twitter	85	42.3	116	57.7
Google plus	23	11.4	178	88.6

Tumblr	11	5.5	190	94.5
Foursquare	9	4.5	192	95.5
Linkedin	3	1.5	198	98.5
Myspace	2	1.0	199	99.0

According to Table 8, 85.1% of pre-service teachers use Instagram, 81.6% use Youtube, 50.2% use Facebook, 42.3% use Twitter, 11.4% use Google plus, 5.5% use Tumblr, 4.5% use Foursquare, 1.5% use Linkedin and 1.0% use Myspace.

Table 9.

Percentage Distribution of Daily Usage Time of Social Networking Sites

Time of use	**f**	**%**
Less than 1 hour	23	11.4
1-2 hours	54	26.9
3-4 hours	81	40.3
5-6 hours	37	18.4
7 hours and over	6	3.0
Total	**201**	**100.0**

When Table 9 is analysed, it is seen that 40.3% of the participants use social networking sites for 3-4 hours, 26.9% for 1-2 hours, 18.4% for 5-6 hours, 11.4% for less than 1 hour and 3.0% for 7 hours or more.

Table 10.

Percentage Distribution of Instant Messaging Programmes Used

Instant Messaging Programme	**Yes**		**No**	
	f	**%**	**f**	**%**
Whatsapp	200	99.5	1	0.5
Facebook Messenger	39	19.4	162	80.6
Snapchat	23	11.4	178	88.6
Facetime	21	10.4	180	89.6
Skype	12	6.0	189	94.0
Hangouts	1	0.5	200	99.5

The instant messaging programmes used by PPTs were examined. According to Table 10, it can be said that 99.5% of the candidates use Whatsapp, 19.4% use Facebook Messenger, 11.4% use Snapchat, 10.4% use Facetime, 6.0% use Skype and 0.5% use Hangouts.

Table 11.

Percentage Distribution of Daily Usage Time of Instant Messaging Programmes

Time of use	**f**	**%**
Less than 1 hour	43	21.4
1-2 hours	82	40.8
3-4 hours	46	22.9
5-6 hours	24	11.9
7 hours and over	6	3.0

Total	**201**	**100.0**

Table 11 shows that 40.8% of PPTs used instant messaging programmes for 1-2 hours, 22.9% for 3-4 hours, 21.4% for less than 1 hour, 11.9% for 5-6 hours, 3.0% for 7 hours or more.

Table 12.

Percentage Distribution of the Types of Online Games Played

Type of Online Game Played	**Yes**		**No**	
	f	**%**	**f**	**%**
Puzzle	78	38.8	123	61.2
Adventure	33	16.4	168	83.6
War	31	15.4	170	84.6
Strategy	25	12.4	176	87.6
Action	24	11.9	177	88.1
Race	24	11.9	177	88.1
Sport	19	9.5	182	9.5
Simulation	18	9.0	183	91.0
Online life	15	7.5	186	92.5
Fighting	10	5.0	191	95.0

Table 12 shows that 38.8% of pre-service preschool teachers play puzzle/puzzle, 16.4% adventure, 15.4% war, 12.4% strategy, 11.9% action and racing, 9.5% sports, 9.0% simulation, 7.5% online life, 5.0% fighting type games.

Table 13.

Percentage Distribution of Daily Playing Time of Online Games

Time of use	**f**	**%**
Less than 1 hour	145	72.1
1-2 hours	36	17.9
3-4 hours	14	7.0
5-6 hours	3	1.5
7 hours and over	3	1.5
Total	**201**	**100.0**

Table 13 shows that 72.1% of PPTs play games for less than 1 hour, 17.9% for 1-2 hours, 7.0% for 3-4 hours, 1.5% for 5-6 hours or more.

Table 14.

Percentage Distribution of the Types of Websites Visited

Website Type	**Yes**		**No**	
	f	**%**	**f**	**%**
Shopping	140	69.7	61	30.3
Search Engines	116	57.7	85	42.3
Online film/series	104	51.7	97	48.3
Online Music/Video	89	44.3	112	55.7
Beauty	67	33.3	134	66.7
Fashion	56	27.9	145	72.1

Block	53	26.4	148	73.6
Technology	50	24.9	151	75.1
Online Newspaper	49	24.4	152	75.6
Travelling	40	19.9	161	80.1
Friendship	33	16.4	168	83.6
Finance	22	10.9	179	89.1
Erotic	6	3.0	195	97.0

According to Table 14, 69.7% of the candidates are interested in Shopping, 57.7% in Search Engines, 51.7% in Online Film/Series, 44.3% in Online Music/Video, 33.3% in Beauty, 27.9% in Fashion, 26. 4% of them browse Block, 24.9% of them browse Technology, 24.4% of them browse Online Newspaper, 19.9% of them browse Travelling, 16.4% of them browse Friendship, 10.9% of them browse Finance, 3.0% of them browse Erotic type websites.

Table 15.

Percentage Distribution of Daily Time Spent on Websites

Time of use	**f**	**%**
Less than 1 hour	57	28.4
1-2 hours	97	48.3
3-4 hours	33	16.4
5-6 hours	13	6.5
7 hours and over	1	0.5
Total	**201**	**100.0**

According to Table 15, it was determined that 48.3% of the pre-service preschool teachers spent 1-2 hours, 28.4% spent less than 1 hour, 16.4% spent 3-4 hours, 6.5% spent 5-6 hours, and 0.5% spent 7 hours or more.

Table 16.

Percentage Distribution of the Total Time Spent on Technological Applications Per Day

Time of use	**f**	**%**
Less than 1 hour	8	4.0
1-2 hours	38	18.9
3-4 hours	74	36.8
5-6 hours	57	28.4
7 hours and over	24	11.9
Total	**201**	**100.0**

Table 16 shows that 36.8% of pre-service preschool teachers spend 3-4 hours, 28.4% spend 5-6 hours, 18.9% spend 1-2 hours, 11.9% spend 7 hours or more, and 4.0% spend less than 1 hour on technological applications.

Table 17.

Percentage Distribution of Participants' Neglecting or Not Neglecting Lessons

Neglecting the lesson	**f**	**%**
Yes	80	39.8
No	121	60.2
Total	**201**	**100.0**

When Table 17 is analysed, it is possible to see that 60.2% of the participants do not neglect their lessons and 39.8% of them neglect their lessons.

Table 18.

Descriptive Statistics Related to the Sub-Dimension Averages of Technology Addiction Levels and Scale Total Score Averages

Subscale Type	**f**	**Min**	**Max**	**x̄**	**ss**	**Addiction Level**
Social Network Addiction Dimension	201	6	29	12.99	5.3	Low level
Instant Messaging Addiction Dimension	201	6	30	13.18	5.2	Medium level
Online Game Addiction Dimension	201	6	30	10.14	6.3	Low level
Web Sites Addiction Dimension	201	6	30	13.59	6.1	Medium level
Technology Addiction Scale Total Score	201	24	110	49.90	19.2	Medium level

In Table 18, the addiction levels of PPTs are analysed. It is possible to say that PPTs are addicted to technology at medium level, websites and instant messaging at medium level, online games and social networking at low level.

Table 19.

ANOVA Test Results of Sub-Dimensions and Technology Addiction Averages According to Gender

Subscale Type	Cinsiyet	f	x̄	ss	f	p
Social Network Addiction Subdimension	Female	177	12.69	5.1	4.516	**.035***
	Male	24	15.13	5.9		
Instant Messaging Addiction Subscale	Female	177	12.95	4.9	2.894	.090
	Male	24	14.88	6.8		
Online Game Addiction Subscale	Female	177	9.20	5.5	38.012	**.000***
	Male	24	17.04	7.8		
Websites Addiction Subdimension	Female	177	13.27	5.9	4.245	**.041***
	Male	24	16.00	6.8		
Technology Addiction Scale Total Score	Female	177	48.11	1.3	13.494	**.000***
	Male	24	63.04	4.4		

*p<.05

Table 19 shows the differences between the gender of pre-service preschool teachers and their addictions. Accordingly, it can be said that males are more technology addicted in all dimensions except instant messaging dimension.

Discussion and Conclusion

All of the pre-service preschool teachers have a technological tool. It is possible to list the technological tools used by adolescents as television, smartphone, desktop PC, laptop PC, tablet PC. Digital technology allows using social networks, instant messaging, online gaming and using websites. Adolescents use technological devices for instant messaging. They have good command of WhatsApp, Snapchat ve Skype, Signal, Telegram, Wire, Threema, Wickr Me, Viber, Dust, iMessage, Line**,** Snapchat, Facetime, Facebook Messenger, Discord, Instagram DM, Hangouts, Kakaotalk and

Bip. They can connect social network sites such as Facebook, Twitter, Instagram, LinkedIn, YouTube, Google Plus, Myspace and Tumblr with their technological devices.

All of them use instant messaging service. Although the playing time is not long, almost all of them spend time to play games every day. Seventy per cent of the preschool candidates do their shopping online and 39.8% of them neglect their lessons. It was observed that almost half of the PPTs spend at least 1-2 hours with instant messaging, 48.3% spend 1-2 hours with shopping on websites, search engines, online music-movies, 40.3% spend 3-4 hours with social networks such as Instagram, Youtube, Facebook, Twitter, 36.8% spend 3-4 hours and 28.4% spend 5-6 hours with technological applications in total within 1 day. When the addiction levels are analysed, it is possible to say that the PPTs participating in the research are addicted to technology at a medium level, websites and instant messaging at a medium level, online games and social networks at a low level. When the differences between the gender of the prospective teachers and their addictions are analysed; it can be said that males are more technology addicted in all dimensions except instant messaging dimension.

The American Academy of Child and Adolescent Psychiatry published an article in 2018 titled "Social Media and Adolescents." The article said that teens spend about nine hours a day on the internet, excluding time for schoolwork. The Pew Research Center conducted a survey in 2022. This survey said that the percentage of teens who say they use the internet almost constantly is increasing. 46% of teens say they use the internet almost constantly. This rate was around 24% in 2014-15. Cerniglia, Zoratto, Cimino, Laviola, Ammaniti and Adriani (2017) say that over 80% of the adolescent population in the UK, US and Asia have access to the internet. However, these rates are lower in South America (45-55%). Although the rates are lower, young internet users in Africa and the Middle East have increased by 3000% in the last decade. According to international research, more than 30% of children under the age of two have used a tablet or smartphone, and 80% of adolescents have a similar device. Ektiricioğlu, Arslantaş and Yüksel (2020), in their research examining technology addiction, say that in studies conducted worldwide, technology addiction during adolescence varies between 4.2% and 21%, and in studies conducted in our country, it varies between 2.33% and 14%. Yüksel, Kocarı, Arslantaş and Söylemez (2020) investigated the factors affecting adolescents' internet addiction. For this purpose, they worked with 355 adolescents. The research findings show that 36.9% of adolescents say they use the internet the most between 18-21 hours during the day, and 40.4% say they use the internet for 1-3 hours a day. 74.6% of students have social media memberships. Students stated that they use the internet 99.7% for social media, 87.9% for communication, 82.3% for researching coursework, 67.8% for watching TV series, 56.3% for downloading applications, 52.8% for playing games, 41.6% for reading news, 35.4% for shopping, and 18.6% for finding friends. Karakoyun (2017) determined the internet addiction levels of teacher candidates. As a result, it was found

that male teacher candidates were more addicted to the internet than female teacher candidates. It was determined that teacher candidates with more daily internet use time were more addicted to the internet than those with less. It was determined that teacher candidates who used social networks showed more internet addiction symptoms than those who used them for homework research. Yüksel, Kocairi, Arslantaş and Söylemez (2020) investigated the technology addictions of adolescents. For this purpose, they focused on 5111 adolescents. According to the research findings, it can be said that male digital game addictions are more than female students. Aktan (2018) focused on 315 students studying at university and examined their social media addiction levels according to various variables. According to the research results; It can be said that university students' social media addiction levels are at a low addiction level. Arslan (2020) investigated the digital addiction levels of university students with some variables. He worked with a total of 1108 students, 653 girls and 455 boys, studying at eight different faculties of a university. It was found that the students' digital addiction score averages were high. The findings are similar to the findings of this study. This situation suggests that some precautions should be taken for adolescents.

The American Academy of Child and Adolescent Psychiatry published an article titled 'Social Media and Adolescents' in 2018. The article said that young people spend about nine hours a day online, excluding time needed for schoolwork. The Pew Research Centre conducted a survey in 2022. This survey says that the proportion of young people who say they use the internet almost constantly has increased. 46 per cent of adolescents say they use the internet almost constantly. This rate was about 24 per cent in 2014-15. Cerniglia, Zoratto, Cimino, Laviola, Ammaniti, and Adriani (2017) found that more than 80 per cent of adolescents in the UK, US and Asia have access to the internet. However, in South America, these rates are lower (45-55 per cent). Although there are lower rates, young internet users in Africa and the Middle East have increased by 3000 per cent in the last decade. According to international studies, more than 30 per cent of children under the age of two have used a tablet or smartphone and 80 per cent of adolescents own a similar device. Ektiricioğlu, Arslantaş and Yüksel (2020), in their research on technology addiction, state that technology addiction in adolescence varies between 4.2% and 21% in studies conducted in the world and between 2.33% and 14% in studies conducted in our country. Yüksel, Kocairi, Arslantaş and Söylemez (2020) investigated the factors affecting adolescents' internet addiction. For this purpose, they worked with 355 adolescents. The findings of the research show that 36.9% of adolescents say that they use the internet mostly between 18-21 hours during the day and 40.4% say that they use the internet 1-3 hours a day. 74.6% of the students have social media membership. The students stated that 99.7% of them use the internet for social media, 87.9% for communication, 82.3% for researching course assignments, 67.8% for watching TV series, 56.3% for downloading applications, 52.8% for playing games, 41.6% for reading news, 35.4% for shopping, 18.6% for finding friends. Karakoyun (2017) determined the internet addiction levels of pre-service teachers. As a result, it was

found that male pre-service teachers were more internet addicted than female pre-service teachers. It was determined that pre-service teachers with more daily internet usage time were more internet addicted than those with less internet usage time. It was found that pre-service teachers who used social networks showed more symptoms of internet addiction than those who used social networks to do homework research. The findings are similar to the findings of this study. This situation suggests that some measures should be taken for adolescents.

Recommendations

The technology addiction levels of PPTs were examined. Technology addiction should be considered as a clinical disease. This situation necessitates early detection of addiction and interventions. It shows that these behaviours should be controlled in terms of being a positive role model in the future, especially for prospective teachers who will work in the field of early childhood. It is possible to list the suggestions developed for adolescents who will take part in the education of healthy generations of the future as follows;

- Initiatives should be taken for early detection of internet addiction,

- It is important that pre-service teachers are guided to use technology correctly,

- It is important that the Ministry, in cooperation with non-governmental organisations and universities, develops and implements preventive mental health programmes to reduce adolescents' dependence on technology,

- The study needs to be renewed with different student groups.

Statements of Publication Ethics

The studies involving humans were approved by Ege University Social and Human Sciences Scientific Research and Publication Ethics Board's decision dated 26.05.2021 and numbered 997. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Conflict of Interest

The author declare that the research was conducted in the absence of any commercial or financial relationships that could not be construed as a potential conflict of interest.

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Genişletilmiş Özet

Bağımlılık, belirli maddelere karşı aşırı istek duyma ve zarar görmesine rağmen bunlardan vazgeçememe olarak tanımlanabilir (Ögel, 2001). Madde kullanan bireyde bilişsel, davranışsal ve fiziksel sorunlara yol açmasına ve sosyal yaşama uyumunu bozmasına rağmen madde alımının kontrol edilememesi durumudur. DSM-V'e göre bağımlılık kriterleri; planlanandan daha uzun süre kullanma, geçmişte başarısız bırakma girişimleri, zamanının çoğunu maddeyi bulmak ve kullanmakla geçirme, olumsuz etkilerine ve zararlarına rağmen kullanmaya devam etme, maddeyi kullanma isteği, yeterli gelmediği için kullanılan madde miktarının giderek artması yani tolerans düzeyi ve yoksunluk olarak sıralanabilir (2013). Bağımlılık durumunda beynin yapısında ve işlevlerinde bazı değişiklikler meydana gelir. Bu değişikliklere kişinin ruh hali, düşünce ve davranışlarında bozulmalar eşlik eder.

İnternet Bağımlılığı ilk kez 1996 yılında bir araştırma konusu olarak ele alınmıştır. Araştırmanın bulguları Amerikan Psikiyatri Birliği tarafından yayımlanmıştır. Artık internet bağımlılığının davranışsal bir bozukluk olduğu görüşü ağırlık kazanmaya başlamıştır. Bilimsel araştırmalar, aşırı internet kullanımının ciddi psikososyal sorunlardan kaynaklandığını öne sürmüştür. Bağımlılık belirtilerini şu şekilde sıralamak mümkündür: Kendini suçlu hissetme ve bilgisayar başında çok fazla zaman geçirmekten zevk alma, herkese e-posta adresi ve internet adresi verme ya da dağıtmaya çalışma, internetten alışveriş yapma, internete bağlanamadığı zamanlarda internet dışı aktivitelere ilginin azalması ve sürekli internete bağlanmaya istek duyma. Sosyal aktivitelerin azalması, arkadaşların kendini anlamıyormuş gibi hissetmesi, Spor aktivitelerinden uzak kalma ve formdan düşme, iş veriminin düşmesi, sürekli uykusuzluk ve yorgunluk, aile bireyleriyle yeterince vakit geçirememe nedeniyle aile bağlarının zayıflaması. Günlük hayattaki diğer işlerin ve kişilerin çevrimiçi hayata engel olduğu düşüncesi, bilgisayar kullanımı nedeniyle eşler arasında anlaşmazlıklar ve sorunlar yaşanması (Güçlü, 2015; Karaman & Kurtoğlu, 2009). TÜİK verilerine göre 2018 yılı sonu itibariyle 82 milyon 3 bin 882 olan nüfusun yüzde 15,8'ini 15-24 yaş grubundaki gençlerin oluşturduğu tespit edilmiştir. Yükseköğretim istatistiklerine bakıldığında ise bu nüfusun 3 milyon 620 bininin yani yüzde 28'inin yükseköğretimde olduğu görüldü. 18-22 yaş grubuna bakıldığında ise bu nüfusun 40'ının yükseköğretimde olduğu kaydedildi (TUIK, 2018).

Okul öncesi öğretmenleri, geleceğin sağlıklı nesillerinin yetiştirilmesinde kritik bir rol oynamaktadır. Okul öncesi öğretmen adaylarının teknoloji bağımlılığı üzerine herhangi bir çalışmaya rastlanmamıştır. Bu nedenle okul öncesi öğretmen adayları ile yapılan bu çalışmanın önemli olduğu düşünülmektedir. Bu araştırma okul öncesi öğretmen adaylarının teknoloji bağımlılık düzeylerinin incelemesi amacıyla yapılmıştır.

Bu çalışma bir tarama çalışmasıdır. Tarama çalışmaları katılımcıların özelliklerini ortaya çıkarmak için yapılır (Fraenkel, Wallen & Hyun, 2012). Beş devlet üniversitesinin eğitim fakültelerinin okul öncesi eğitimi bölümlerine kayıtlı

öğrencilerle yürütülmüştür. Bu bölümlerde 4. sınıfa devam eden toplam 360 öğrenci bulunmaktadır. Çalışma grubu ölçüt örnekleme yöntemi kullanılarak seçilmiştir. Ölçüt uygulamalarında araştırmacı tarafından bir dizi ölçüt(ler) oluşturulur (Campbell, Greenwood, Prior, Shearer, Walkem, Young, Bywaters & Walker, 2020) Bu araştırmada kaydedilen ölçüt, eğitim fakültesindeki öğretmen adaylarının 4. sınıfa devam ediyor olmasıdır. Araştırmaya katılmayı kabul eden ve gönüllü olan 201 okul öncesi öğretmen adayına odaklanılmıştır.

Araştırmanın verileri araştırmacı tarafından geliştirilen "Kişisel Bilgi Formu" ve Aydın (2017) tarafından geliştirilen "Teknoloji Bağımlılığı Ölçeği" kullanılarak toplanmıştır. Katılımcıların kişisel bilgileri ile teknoloji kullanım alışkanlıkları ve sıklıklarını incelemek için betimsel istatistikler, araştırmanın amacı için gerekli verileri elde etmek için ise 18 maddelik Kişisel Bilgi Formu kullanılmıştır. Kişisel Bilgi Formu'nda katılımcıların fakülte, bölüm, cinsiyet, yaş gibi demografik özelliklerini belirlemeye yönelik sorular yer almaktadır. Katılımcıların akıllı telefon, masaüstü ya da dizüstü bilgisayar sahibi olup olmadıklarını ve sosyo-ekonomik düzeylerini belirlemeye yönelik sorular bulunmaktadır. Ayrıca, internete erişmek için kullanılan cihaz, sosyal ağ sitelerine üye olup olmadıkları, hangi sosyal ağ sitelerine üye oldukları, sosyal ağ sitelerinde geçirilen süre, hangi anlık mesajlaşma programlarının kullanıldığı ve anlık mesajlaşma programlarının ne kadar süreyle kullanıldığı gibi sorular bulunmaktadır. Kullanılan çevrimiçi oyun türleri, çevrimiçi oyunların ne kadar süreyle oynandığı, ziyaret edilen web sitesi türleri, web sitelerinde ne kadar süreyle gezinildiği ve gün içinde teknoloji uygulamalarına toplamda ne kadar zaman harcandığı gibi sorular katılımcıların teknoloji alanlarına ilişkin alışkanlıklarını ve sıklıklarını ortaya koymaktadır. Teknoloji Bağımlılığı Ölçeği 24 maddeden oluşan 5'li Likert tipi bir ölçektir. Ölçeğin altışar maddelik dört alt ölçeği bulunmaktadır: Sosyal Ağ Bağımlılığı, Anlık Mesajlaşma Bağımlılığı, Çevrimiçi Oyun Bağımlılığı ve Web Siteleri Bağımlılığı.

Araştırma sonuçlarına göre; öğretmen adaylarının hepsinin teknolojik bir aracı bulunmaktadır. Ergenlerin kullandığı teknolojik araçları; televizyon, akıllı telefon, masaüstü PC, dizüstü PC, tablet PC olarak sıralamak mümkündür. Dijital bir teknoloji ile sosyal ağ kullanmak, anlık mesajlaşmak, çevrimiçi oyun oynamak ve web siteleri kullanmak mümkündür. Ergenler anlık mesajlaşabilmek amacıyla teknolojik aygıtlar kullanırlar. Ergenlerin kullandıkları anlık mesajlaşma programları olarak WhatsApp, Snapchat ve Skype, Signal, Telegram, Wire, Threema, Wickr Me, Viber, Dust, iMessage, Line**,** Snapchat, Facetime, Facebook Mesenger, Discord, Instagram DM, Hangouts, Kakaotalk, Bip gibi programlara hakim oldukları söylenebilir. İnternete bağlandıkları teknolojik cihazla Facebook, Twitter, Instagram, Linkedin, Youtube, Google Plus, Myspace**,** Tumblr gibi sosyal ağ sitelerini kullanıyorlar. Hepsi anlık mesajlaşma servisini kullanmaktadır. Oynama süresi uzun olmasa da tamamına yakını oyun oynamaya her gün zaman ayırmaktadır.

Okul öncesi adaylarının %70'i alış-verişini internetten yapmaktadır ve %39.8'i derslerini ihmal etmektedir. Öğretmen adaylarının 1 gün içerisinde; yarıya yakınının en az 1-2 saatini anlık mesajlaşma ile %48.3'ünün1-2 saatini internet sitelerinde alış-veriş, arama motorları, çevrimiçi müzik-film ile %40.3'ünün 3-4 saatini Instagram, Youtube, Facebook, Twitter gibi sosyal ağlarda, %36.8'inin 3-4 saatini, 28.4'ünün ise 5-6 saatini toplamda teknolojik uygulamalarla vakit geçirmekte olduğu görülmüştür.

Bağımlılık düzeyleri incelendiğinde araştırmaya katılan okul öncesi öğretmeni adayları için; orta düzeyde teknoloji, orta düzeyde web siteleri ve anlık mesajlaşma, düşük düzeyde olsa da çevrimiçi oyun ve sosyal ağ bağımlısı olduklarını söylemek mümkündür. Öğretmen adaylarının cinsiyeti ile bağımlılıkları arasındaki farklar incelendiğinde; anlık mesajlaşma boyutu hariç diğer tüm boyutlarda erkeklerin daha fazla teknoloji bağımlısı oldukları söylenebilir.