

Investigating Digital Addiction Level of Pre-Service Teachers

Rabia SARICA
Kırşehir Ahi Evran Üniversitesi
rabiasarica@gmail.com
ORCID ID: 0000-0002-8725-3646

Özkan ÖZBAY
Artvin Çoruh Üniversitesi
ozkanozbay87@gmail.com
ORCID ID: 0000-0001-7754-2594

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ABSTRACT

Studies investigating the adverse effects of digital addiction on individuals have increased significantly in recent years. However, there are limited number of studies in the literature concerning pre-service teachers, who play a significant role in raising the future generation. In this study, pre-service teachers' digital addiction level was examined in terms of some relevant variables. The study was designed as a cross-sectional survey model. The convenience sampling method was preferred in determining the participants. 308 pre-service teachers studying in various departments of universities constituted the participants of the study. In the study, "Personal Information Form" and "Digital Addiction Scale" were used as data collection instruments. For data analysis, ANOVA, Mann-Whitney U test, Kruskal Wallis H, and Post HOC (LSD) tests were used. It was concluded in the study that the digital addiction level of pre-service teachers obtained no statistically significant difference with respect to gender, age, academic level, and internet skills, while a statistically significant difference was found with respect to departments, duration of daily internet use, and duration of access to social networks.

Keywords: Digital addiction, technology addiction, internet addiction.

Öğretmen Adaylarının Dijital Bağımlılık Düzeylerinin İncelenmesi

ÖZ

Dijital bağımlılığın bireyler üzerindeki olumsuz etkilerini araştıran çalışmalar son yıllarda önemli bir artış göstermiştir. Ancak alanyazında, gelecek nesillerin yetiştirilmesinde önemli rol oynayacak olan öğretmen adaylarına ilişkin sınırlı sayıda çalışma bulunmaktadır. Bu çalışmada, öğretmen adaylarının dijital bağımlılık düzeyleri bazı değişkenler açısından incelenmiştir. Araştırma, kesitsel tarama modelinde desenlenmiştir. Katılımcıların belirlenmesinde elverişli örnekleme yöntemi tercih edilmiştir. Araştırmanın katılımcılarını farklı üniversitelerin çeşitli bölümlerinde öğrenim gören 308 öğretmen adayı oluşturmaktadır. Araştırmada veri toplama aracı olarak "Kişisel Bilgi Formu" ve "Dijital Bağımlılık Ölçeği" kullanılmıştır. Verilerin analizinde ANOVA, Mann-Whitney U testi, Kruskal Wallis H ve Post HOC (LSD) testleri kullanılmıştır. Araştırmada öğretmen adaylarının dijital bağımlılık düzeylerinin; cinsiyet, yaş, sınıf ve internet kullanma becerilerine göre istatistiksel olarak anlamlı bir farklılık göstermediği, ancak öğrenim gördükleri bölüm, günlük internet kullanma süresi ve günlük sosyal ağları kullanma süresine göre istatistiksel olarak anlamlı bir farklılık olduğu sonucuna ulaşılmıştır.

Anahtar Kelimeler: Dijital bağımlılık, teknoloji bağımlılığı, internet bağımlılığı.

Introduction

Information and communication technology develop rapidly in the 21st century and introduce many innovations, influencing our lives positively. However, this rapid development also brings along some complex problems to manage (Aboujaoude and Gega, 2020). The foremost of these problems is digital addiction, affecting children and young people, in particular, revealing as the widespread use of mobile devices such as computers, smartphones, and tablets becoming almost mandatory in daily life (Berthon, Pitt and Campbell, 2019; Park, Kim and Cho, 2008).

Due to the facts that increased use of digital devices in our lives as well as their prolonged usage, digital addiction has become one of the top topics today (Almourad, McAlaney, Skinner, Pleva

and Ali, 2020). Various types of addiction in relation to digital addiction were mentioned in the literature, including computer addiction, internet addiction, smartphone addiction, and digital game addiction (Duke and Montag, 2017; Eppright, Allwood, Stern and Theiss, 1999; Shotton, 1989; Young, 2009). The concept of addiction, underlying all of these types, is defined as an irresistible, unavoidable desire to repeat a certain action or activity, although it harms an individual's own psychological and physical health or social life (Alexander and Schweighofer, 1988). Regardless of its type, addiction prevents the individual from using his/her willpower independently, adversely affecting the professional, social, and family lives (Lee and Chae, 2007; Soule, Shell and Kleen, 2003; Young, 1999; Young and Rogers, 1998). It can also lead to physical and psychological problems by negatively affecting behaviors, attitudes, and emotions (Kandell, 1998; Lee, Hoppenbrouwers and Franken, 2019). Hence, all types of addiction have negative impacts on the individual at the micro-level and on society at the macro-level.

Digital addiction is expressed as the individual's dependence on digital devices and applications, eventually leading to harmful consequences in her/his life (Almourad, McAlaney, Skinner, Pleva and Ali, 2020; Rahayu, Nugroho, Ferdiana and Setyohadi, 2020). Internet addiction, digital game addiction, computer addiction, and smartphone addiction should be considered as a whole within the scope of digital addiction (Rahayu, Nugroho, Ferdiana and Setyohadi, 2020). Although these addictions are named differently, in essence, they are intertwined with each other (Choliz, 2010). When relevant studies with different topics are considered in this respect, excessive use of digital devices, their interference with daily life, difficulty to abandon using digital devices, relapses, and emotional state dimensions, which can harm digital experiences in fact, take part in the basis of these studies (Almourad, McAlaney, Skinner, Pleva and Ali, 2020; Kesici and Tunç, 2018).

It is difficult today to keep away from digital devices such as computers, smartphones, and tablets, especially in business and education as well as in health issues, banking, shopping, entertainment, and routine daily activities. It is even unavoidable since it is not possible to perform some transactions without these digital devices (Seemiller, 2017). In addition, increasing use of the internet, especially on digital devices, is noted as one of the most important factors leading individuals to digital addiction (Bisen and Deshpande, 2018; Duke and Montag, 2017). Hence, excessive dependence on digital devices in modern life can lead to digital addiction in some individuals. As a result of exceeding the normal usage level of digital devices in daily life due to digital addiction, such people experience difficulty maintaining their daily lives. Simultaneously, time spent away from digital devices may become meaningless for these people, leading to harmful outcomes such as anxiety and aggression (Kanbay, Fırat, Akçam, Çınar and Özbay, 2021; Kanbay, Akçam, Çınar-Özbay, Özbay and Fırat, 2022; Lam, Peng, Mai and Jing, 2009).

As a result of unforeseen potential risks related to digital technology emerging due to their rapid development and their rapid integration into daily life, it becomes difficult to take the necessary precautions in time (Rahayu et al., 2020). Digital addiction is one of these unforeseen dangers requiring precautions to be taken (Cham et al., 2019). Although digital addiction poses a threat for every age group, it particularly threatens the K12 age group, perhaps even more. Children in this age group are more vulnerable to digital addiction when they unconsciously use digital devices and applications without family supervision (Miniakhmetova, Peterson, Chikova and Maximova, 2020; Park, Kim and Cho, 2008). Furthermore, children who prefer digital games rather than traditional games suffer from insufficient sporting and cultural activities in their lives, gradually decreasing the time spent with peers and eventually increasing their tendency to digital addiction (Hazar and Hazar, 2017; Miniakhmetova, Peterson, Chikova and Maximova, 2020). It is stated that digital addiction can have harmful and dangerous consequences for individuals such as loneliness, anxiety, and depression (Eryilmaz and Çukurluöz, 2018; Peper and Harvey, 2018). Certain measures should be taken within family and school environments to protect children suffering from digital addiction. Teachers play an important role in the school environment to ensure children use digital devices and applications consciously (Montag and Walla, 2016; Özbay, Doğan, Yıldız and Seferoğlu, 2021; Zhang, Bai, Jiang, Yang and Zhou, 2019). For this reason, it is an important issue to investigate the state of digital addiction among teachers in detail. In this context, teachers having an indispensable role in educating

today's students, so-called “digital natives” due to their involvement with technology, should have sufficient knowledge and skills in the appropriate use of digital devices and applications without causing digital addiction and behave accordingly. To this end, the present study aimed to determine the digital addiction level of pre-service teachers and examine the situation in terms of some variables. To address this, the following research questions were asked:

1. What is the digital addiction level of pre-service teachers?
2. Does the digital addiction level of pre-service teachers change with respect to gender?
3. Does the digital addiction level of pre-service teachers change with respect to age?
4. Does the digital addiction level of pre-service teachers change with respect to department?
5. Does the digital addiction level of pre-service teachers change with respect to academic level?
6. Does the digital addiction level of pre-service teachers change with respect to internet skills?
7. Does the digital addiction level of pre-service teachers change with respect to duration of daily internet usage?
8. Does the digital addiction level of pre-service teachers change with respect to duration of access to social networks?

Method

Design and Procedure

In this study, the digital addiction level of pre-service teachers studying in various departments of education faculties of different state universities in Turkey was examined in terms of gender, age range, department, class, internet skills, duration of daily internet usage, and duration of access to social networks. This is quantitative research designed as a cross-sectional survey model. Cross-sectional surveys are used for determining the frequency or level of a specific subject in a specified sample at a particular time (Fraenkel, Wallen and Hyun, 1993).

Participants

Convenience sampling method was used to form the participants. Convenience sampling method is often used when it is difficult or sometimes impossible to use systematic random or non-random sampling methods. What is important in this sampling method is that sample selection is easily accessible by the researcher(s) without causing any loss of time, money, and labor (Fraenkel, Wallen and Hyun, 1993).

The participants consist of pre-service teachers studying in various departments of education faculties at different state universities. A total of 308 pre-service teachers, 209 female (67.86%) and 99 male (32.14%), were contacted in the study. Data of the participants are presented in Table 1.

Table 1
Distribution of the participants by gender and departments

Departments	Gender				Total	
	Male		Female		f	%
	f	%	f	%		
Physical Education and Sports	48	15.58	27	8.77	75	24.35
Social Sciences Education	17	5.52	44	14.29	61	19.81
Elementary Mathematics Education	13	4.22	46	14.94	59	19.16
Elementary School Education	4	1.30	27	8.77	31	10.06
Guidance and Psychological Counseling	7	2.27	21	6.82	28	9.09
Computer Education and Instructional Technology	4	1.30	17	5.52	21	6.82
Turkish Language Education	2	0.65	17	5.52	19	6.17
Elementary Science Education	4	1.30	10	3.25	14	4.55
Total	99	32.14	209	67.86	308	100.00

Out of 308 pre-service teachers included in the study, 24.35% (n=75) in Physical Education and Sports, 19.81% (n=61) in Social Sciences Education, 19.16% (n=59) in Elementary Mathematics Education, 10.06% (n=31) in Elementary School Education, 9.09% (n=28) in Guidance and Psychological Counseling, 6.82% (n=21) in Computer Education and Instructional Technology, 6.17% (n=19) in Turkish Language Education, and 4.55% (n=14) in Elementary Science Education departments.

Data Collection Instruments

Two data collection instruments were used in this study. One of these is the "Personal Information Form" prepared by the researchers, and the other is the "Digital Addiction Scale".

Data was collected online, using a Google Form, in the period from January 01 to February 28, 2021. The Google Form was delivered to respective lecturers at education faculties, and the students were asked to fill in the form by using computers or mobile phones under their supervision.

Personal Information Form

The first data collection instrument, the "Personal Information Form", comprised questions about the socio-demographic characteristics of the pre-service teachers included in the research sample.

Digital Addiction Scale

The second data collection instrument, "Digital Addiction Scale", developed by Kesici and Tunç (2018), was used to determine the digital addiction level of pre-service teachers (Kesici and Tunç, 2018). The scale was prepared in a 5-point Likert type varying between (1) and (5) and consisted of 19 items, and none of them was reverse-scored. The scale consisted of 5 dimensions: overuse (5 items), non-restraint (3 items), inhibiting the flow of life (4 items), emotional state (4 items), and dependence (3 items). The lowest score that can be obtained from the scale was 19, and the highest score was 95. The higher the score obtained from the scale, the higher the digital addiction level.

The Cronbach Alpha value, used by Kesici and Tunç (2018) for the reliability of the scale, was calculated as 0.874 for the whole scale. For the sub-dimensions of the scale, the Cronbach Alpha value was calculated as 0.753 for overuse, 0.845 for non-restraint, 0.739 for inhibiting the flow of life, 0.695 for emotional state, and 0.695 for dependence.

The Cronbach Alpha value, used for determining the reliability of the scale within the context of this study, was re-calculated for the entire scale and its sub-dimensions. Cronbach Alpha values calculated for all scales and sub-dimensions are presented in Table 2.

Table 2
Cronbach alpha reliability analysis results of the scale and its sub-dimensions

The Scale and Its Sub-dimensions	Number of Items	Cronbach Alfa
Digital Addiction Scale	19	0.959
Overuse Sub-Dimension	5	0.889
Non-restraint Sub-Dimension	3	0.992
Inhibiting the Flow of Life Sub-Dimension	4	0.911
Emotional State Sub-Dimension	4	0.866
Dependence Sub-Dimension	3	0.821

The Cronbach Alpha value was found at 0.959 for the whole scale. For the sub-dimensions, the Cronbach Alpha value was calculated as 0.889 for overuse, 0.992 for non-restraint, 0.911 for inhibiting the flow of life, 0.866 for emotional state, and 0.821 for dependence.

Data Analysis

The data obtained by data collection forms applied to pre-service teachers were evaluated with the IBM SPSS Statistics v23 package program. Descriptive and inferential statistics were used. There were no outliers or missing data, due to the online form prompting all the questions to be answered compulsorily. The data were examined in terms of normal distribution before starting the analysis. The skewness and kurtosis values were used to check the normality of the data. As an assumption of normality, the skewness and kurtosis values between -1 and +1 were indicated to be acceptable (George and Mallery, 2019). These values range from -1 to +1 for the entire scale as well as its sub-dimensions. It was also concluded that the data were distributed normally since the histogram graph reflected the normal distribution and the Q-Q Plot graph was close to the 45-degree angle (Buyukozturk, 2010). Levene's homogeneity test was performed to determine the parametric or non-parametric tests to be used for answering the research questions, and according to the result of this test, Mann-Whitney U, one-way analysis of variance (ANOVA), Kruskal Wallis H, and Post HOC (LSD) tests were used. For analysis, .95 confidence interval and .05 significance were used.

Ethical Considerations

Ethics committee approval was received from Kırşehir Ahi Evran University, Ethics Committee for Social Sciences and Humanities (Number: 2020-5 and Date: 25.12.2020) to assess the ethical suitability of the study. Before participating in the study, written informed consent was obtained from all participants who participated in this study.

Results

The results are presented separately, in such a way that the research questions determined in line with the purpose of this study are answered one by one. In this regard, the findings obtained as a result of the statistical analysis for each research sub-problem are given below.

Level of Digital Addiction

The first research question of this study was specified as "What is the digital addiction level of pre-service teachers?" The mean scores of the digital addiction scale and its sub-dimensions were determined in order to find an answer to this question. Data on the scale and its sub-dimensions are presented in Table 3.

Table 3
Mean scores and standard deviation values of the digital addiction scale and its sub-dimensions

Scale and its Sub-dimensions	\bar{X}	Standard Deviation
Digital Addiction Scale	56.73	18.51
Dependence Sub-Dimension	10.36	3.37
Overuse Sub-Dimension	14.97	5.37
Inhibiting the Flow of Life Sub-Dimension	11.50	4.65
Emotional State Sub-Dimension	11.39	4.20
Non-restraint Sub-Dimension	8.48	3.52

The overall mean score of the digital addiction scale was determined as $\bar{x} = 56.73 \pm 18.51$. As for the scores of the sub-dimensions, the participants' mean scores were the highest in the overuse sub-dimension ($\bar{x} = 14.97 \pm 5.37$) and the lowest in the non-restraint sub-dimension ($\bar{x} = 8.48 \pm 3.52$).

Digital Addiction Level with respect to Gender

The second research question of this study was specified as "Does the digital addiction level of pre-service teachers change with respect to gender?"

Table 4

Mann Whitney U test results of pre-service teachers' digital addiction level by gender

Groups	N	Mean Rank	Sum of Rank	U	p
Male	99	162.57	16094.50	9546.50	.274
Female	209	150.68	31491.50		

There was no statistically significant difference between the digital addiction level and the gender of pre-service teachers, according to the results of the Mann Whitney U test shown in Table 4 ($U = 9546.50$; $p > 0.05$).

Digital Addiction Level with respect to Age

The third research question of this study was specified as "Does the digital addiction level of pre-service teachers change with respect to age?"

Table 5

ANOVA test results of pre-service teachers' digital addiction level by age

Range of Age	N	\bar{X}	Standard Deviation	F	p
17-19	26	54.92	20.41	1.278	.282
20-22	205	57.84	18.63		
23-25	55	56.05	18.26		
25 and above	22	50.18	14.78		

There was no statistically significant difference between the digital addiction level and the age of pre-service teachers, according to the results of the ANOVA test shown in Table 5 ($F = 1.278$; $p > 0.05$).

Digital Addiction Level with respect to Department

The fourth research question of this study was specified as "Does the digital addiction level of pre-service teachers change with respect to department?"

Table 6

Kruskal-Wallis H test results of pre-service teachers' digital addiction level by departments

Departments	N	Mean Rank	df	χ^2	p
*Social Sciences Education ^a	61	178.18	7	18.446	.01**
Elementary School Education ^b	31	169.13			
Physical Education and Sports ^c	75	166.14			
Turkish Language Education ^d	19	150.66			
Elementary Mathematics Education ^e	59	146.88			
Elementary Science Education ^f	14	143.36			
Guidance and Psychological Counseling ^g	28	114.32			
Computer Education and Instructional Technology ^h	21	108.43			

* $a > b = c = d = e = f = g = h$

** $p < 0.05$

A statistically significant difference was determined between the digital addiction level and the departments of pre-service teachers, according to the results of the Kruskal-Wallis H test in Table 6 ($\chi^2 = 18.446$; $p < 0.05$).

As a result of the Post HOC (LSD) test performed in order to determine the significance between the groups, there was a statistically significant difference higher digital addiction level determined in pre-service teachers studying in Social Sciences Education in comparison to those studying in Guidance and Psychological Counseling, as well as in Computer Education and Instructional Technology departments.

Digital Addiction Level with respect to Academic Level

The fifth research question of this study was specified as "Does the digital addiction level of pre-service teachers change with respect to academic level?"

Table 7

Kruskal-Wallis H test results of pre-service teachers' digital addiction level by academic level

Academic Level	N	\bar{X}	Standard Deviation	F	p
1 st grade	27	52.48	18.32	1.790	.149
2 nd grade	89	58.92	19.13		
3 rd grade	92	54.08	17.05		
4 th grade	100	58.37	19.05		

Digital addiction level and the academic level of the pre-service teachers revealed no statistically significant difference as shown by the Kruskal-Wallis H test in Table 7 ($F = 1.790$; $p > 0.05$).

Digital Addiction Level with respect to Internet Skills

The sixth research question of this study was specified as "Does the digital addiction level of pre-service teachers change with respect to internet skills?"

Table 8

Kruskal-Wallis H test results of pre-service teachers' digital addiction level by internet skills

Internet Skills	N	Mean Rank	df	χ^2	p
Average	74	169.97	2	5.497	.064
Good	152	142.77			
Very good	82	162.27			

A statistically significant difference could not be found between the digital addiction level and internet use skills of pre-service teachers, according to the results of the Kruskal-Wallis H test as shown in Table 8 ($\chi^2 = 5,497$; $p > 0.05$).

Digital Addiction Level with respect to Duration of Daily Internet Usage

The seventh research question of this study was specified as "Does the digital addiction level of pre-service teachers change with respect to duration of daily internet usage?"

Table 9
ANOVA test results of pre-service teachers' digital addiction level by duration of daily internet usage

Duration of Daily Internet Usage	N	\bar{X}	Standard Deviation	F	p
1-3 hours daily ^a	103	51.19	16.98		
4-6 hours daily ^b	122	55.09	16.76	17.144	.000**
*More than 7 hours daily ^c	83	66.01	19.49		

*a=b<c

**p<0.05

A statistically significant difference was determined between the digital addiction level and the duration of daily internet usage of pre-service teachers, according to the results of the ANOVA test in Table 9 (F= 17.144; p < 0.05).

As a result of the Post HOC (LSD) test performed in order to find out that significant difference between the groups, a statistically significant difference higher digital addiction level was determined in pre-service teachers using internet for more than 7 h daily with respect to those using internet for 1-3 h and 4-6 h daily.

Digital Addiction Level with respect to Duration of Connection to Social Networks

The eighth research question of this study was specified as "Does the digital addiction level of pre-service teachers change with respect to duration of access to social networks?"

Table 10
Kruskal-Wallis H test results of pre-service teachers' digital addiction level by duration of access to social networks

Duration of Access to Social Networks	N	Mean Rank	χ^2	df	p
*1-3hours daily ^a	159	126.65			
4-6 hours daily ^b	90	165.41	42.315	2	.000**
More than 7 hours daily ^c	59	212.92			

*a<b<c

*p<0.05

A statistically significant difference was determined between the digital addiction level and duration of access to social networks for pre-service teachers, according to the results of the Kruskal-Wallis H test as shown in Table 10 ($\chi^2 = 42.315$; p < 0.05). Digital addiction level increased as the duration of access to social networks increased.

Discussion and Conclusion

In this study, the digital addiction level among pre-service teachers was examined in terms of some variables. It was concluded that the digital addiction level obtained no statistically significant difference in terms of gender, age, academic level, and internet skills, but there was a statistically significant difference in terms of departments, duration of daily internet usage, and duration of access to social networks.

The results of our study indicated a higher digital addiction level among pre-service teachers in comparison to the mean scale score. As for the sub-dimensions of the scale, the overuse dimension displayed the highest mean score, whereas the non-restraint dimension had the lowest mean score. Along with the increasing use of digital devices and applications including smartphones, wearable devices, social media (Facebook, Twitter, Instagram, etc.), and messaging applications (WhatsApp, Signal, Telegram, etc.), individuals become unable to avoid using these devices and applications. And the resulting digital addiction can also lead to digital distraction (Awofala et al., 2020).

In the study, the digital addiction level of the pre-service teachers displayed no statistically significant difference with respect to the gender variable. There are results in the literature that support and do not support our study findings. In the studies carried out with pre-service teachers, women were found to be much more affected by the negative consequences of using the internet, while men were more prone to problematic internet use with respect to women; nonetheless, excessive use of the internet obtained no difference by gender (Sirakaya and Seferoğlu, 2013). On the other hand, it was also reported in the literature that men preferred to spend more time on the internet with respect to women (Kırmık, Susam and Özbek, 2019).

In the study, the digital addiction level of pre-service teachers did not obtain a statistically significant difference with respect to the age variable. In other words, the digital addiction level did not obtain any alteration depending on increasing or decreasing age. Similar results were also reported in various other studies (Kvintová, Cakirpaloglu and Hájková, 2020).

Digital addiction level of the pre-service teachers obtained a statistically significant difference with respect to the department variable in the study. Pre-service teachers studying in Social Sciences Education had a higher digital addiction level with respect to those studying in Guidance and Psychological Counseling, and Computer Education and Instructional Technology. Although digital addiction is not yet recognized as a typical mental disorder, studies reveal that it presents symptoms similar to those seen in substance addiction (Chou, Condrón and Belland, 2005; Yen et al., 2008). It can be said that pre-service teachers in Guidance and Psychological Counseling, having adequate comprehension regarding addiction, displayed a lower addiction level due to their increased awareness of digital addiction. Proper use of information and communication technology at a level that can be controlled by individuals has an important role in coping with digital addiction (Rahayu, Nugroho, Ferdiana and Setyohadi, 2020). The pre-service teachers studying Computer Education and Instructional Technology displayed a lower digital addiction level, which may be attributed to their sufficient knowledge about the proper use of digital devices and applications.

In the study, it was concluded that the digital addiction level of pre-service teachers did not obtain a statistically significant difference with respect to the internet skills variable. In other words, the digital addiction level displayed no statistically significant difference between individuals having either very high or rather low internet skills.

It was also concluded that the digital addiction level of pre-service teachers obtained a statistically significant difference with respect to the variable of the duration of daily internet usage. The digital addiction level was found to be higher in the pre-service teachers with longer duration of daily internet usage while lower in those with shorter duration of daily internet usage. In similar studies, pre-service teachers with longer duration of daily internet usage were identified to be more internet addicted in comparison to those with shorter duration of daily internet usage (Chou, Condrón and Belland, 2005; Griffiths, 2000; Kuss and Lopez-Fernandez, 2016). Digital addiction can also cause digital distraction. Pre-service teachers suffering increased digital distraction were found to check their social networks and e-mails hourly during the day, thus reducing their efficiency both at home and at school (Awofala et al., 2020).

It was determined in the study that the digital addiction level of pre-service teachers obtained a statistically significant difference with respect to the variable of the duration of access to social networks. Pre-service teachers who spent more time on social media had a higher digital addiction level than those who spent less time. It was determined that the frequency of using social networks was a significant predictor of problematic social network use (Kesici, 2019). The inability of a person to control himself/herself against the motives of access to social networks, as well as an excessive amount of time spent on social networks, may be considered indicators of digital addiction. It was also stated in the literature that excessive use of social networks can lead to the development of addictions such as internet addiction and smartphone addiction (Roberts, Yaya and Manolis, 2014; Romero-Rodríguez, Rodríguez-Jiménez, Ramos Navas-Parejo, Marín-Marín and Gómez-García, 2020).

Limitations and Directions/Suggestions for Future Research

This study has potential limitations that need to be addressed. The generalization of the study was limited because of its sampling method and small sample size. Furthermore, the cross-sectional design of this study prevents making causal inferences. Further longitudinal or experimental research designs are required to examine the longitudinal effects and the causal inferences about the digital addiction of pre-service teachers.

In conclusion, considering that it is no longer possible to keep away from digital devices and applications, it is essential to investigate the digital addiction level of the pre-service teachers who will assume the responsibility of raising future generations, and it is also crucial to increase their awareness about the proper use of digital devices and applications in a way that will not end up with digital addiction. Since digital devices and applications are frequently required in educational environments as well as in our daily routine activities, situations that can trigger digital addiction may occur (Seemiller, 2017). Therefore, teachers, who play a significant role in the education of students, should behave in an exemplary manner while using digital devices and applications, and use digital devices and applications properly in a way that will not cause digital addiction.

Contribution Rate of Researchers

In this study, the first author's contribution rate was 50%, the second author's contribution rate was 50%.

Conflict of Interest

There is no conflict of interest in this study.

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Genişletilmiş Özet

Giriş

Bilgi ve iletişim teknolojileri 21. yüzyılda hızlı bir gelişme yaşamakta ve hayatımızı her açıdan olumlu etkileyecek pek çok yeniliği de beraberinde getirmektedir. Ancak bu hızlı gelişme aynı zamanda çözülmesi güç birtakım sorunların da ortaya çıkmasına neden olmaktadır (Aboujaoude & Gega, 2020). Bu sorunların başında ise bilgisayar, akıllı telefon ve tablet gibi dijital araçların günlük hayatta kullanımının yaygınlaşmasına ve neredeyse zorunlu hale gelmesine bağlı olarak ortaya çıkan özellikle çocukları ve gençleri etkileyen dijital bağımlılık gelmektedir (Berthon, Pitt & Campbell, 2019; Park, Kim & Cho, 2008).

Dijital bağımlılık, bireyin dijital araçlara ve uygulamalara bağımlı olması ve bu durumun bireyin yaşantısında olumsuz etkiler ortaya çıkarması olarak ifade edilmektedir (Almourad, McAlaney, Skinner, Pleva & Ali, 2020; Rahayu, Nugroho, Ferdiana & Setyohadi, 2020). Dijital bağımlılık kapsamında; internet bağımlılığı, dijital oyun bağımlılığı, bilgisayar bağımlılığı ve akıllı telefon bağımlılığının birlikte bir bütün olarak ele alınması gerekmektedir (Rahayu, Nugroho, Ferdiana & Setyohadi, 2020). Çünkü bu bağımlılıklar her ne kadar birbirinden farklı adlandırılıyor olsa da temelde kullanılan araçlar ve uygulamalar birbiri ile iç içe geçmiş durumdadırlar. Bu bağlamda farklı başlıklar altında yapılan araştırmalar dikkate alındığında bu araştırmaların temelinde dijital deneyimlere zarar verecek; aşırı kullanma, hayatın akışını engelleme, bırakamama, nüks etme ve duygu durumu boyutları yer almaktadır (Almourad, McAlaney, Skinner, Pleva & Ali, 2020; Kesici & Tunç, 2018).

Dijital teknolojilerin hızlı gelişmesi ve bu teknolojilerin günlük hayata hızlı bir biçimde entegre edilmesi ortaya çıkabilecek bazı tehlikelerin ön görülememesine ve hatta gerekli önlemlerin alınmamasına neden olmaktadır. Dijital bağımlılık da bu ön görülemeyen ve gerekli önlemlerin alınması gereken tehlikelerden biridir (Cham vd., 2019; Seemiller, 2017). Dijital bağımlılık her yaş grubunu tehdit etmekle birlikte özellikle K12 yaş grubunu daha çok tehdit etmektedir. Bu yaş grubundaki çocuklar aile denetimi olmadan dijital araçları ve uygulamaları bilinçsizce kullandıklarında dijital bağımlılığa karşı daha savunmasız hale gelmektedirler (Miniakhmetova, Peterson, Chikova & Maximova, 2020; Park, Kim & Cho, 2008). Ayrıca çocukların geleneksel çocuk oyunları yerine dijital oyunlara yönelmeleri, spor ve kültürel aktivitelerin hayatlarında yeteri kadar yer almaması, akranları ile geçirdikleri zaman diliminin giderek azalması çocukların dijital bağımlılığa yatkınlıklarını artırmaktadır (Hazar & Hazar, 2017; Miniakhmetova, Peterson, Chikova & Maximova, 2020). Çocukların dijital bağımlılığa maruz kalmaması için gerek aile ortamında gerek okul ortamında birtakım önlemler alınması gerekmektedir. Çocukların dijital araçları ve uygulamaları bilinçli kullanmalarını sağlamada okul ortamında özellikle öğretmenlere önemli roller düşmektedir (Montag & Walla, 2016; Özbay, Doğan, Yıldız & Seferoğlu, 2021; Zhang, Bai, Jiang, Yang & Zhou, 2019). Bu nedenle dijital bağımlılığın öğretmenlerde detaylı bir şekilde araştırılması önemli bir konu olarak karşımıza çıkmaktadır. Bu bağlamda teknoloji ile iç içe olan ve dijital yerliler olarak da adlandırılan günümüz öğrencilerini yetiştirmede önemli bir yere sahip olan öğretmenlerin, dijital araçları ve uygulamaları dijital bağımlılık yaratma tehdidi olmadan uygun kullanmada yeterli bilgi ve beceriye sahip olmaları ve buna uygun davranışlar sergilemeleri gerekmektedir.

Yöntem

Bu araştırmada Türkiye'deki farklı devlet üniversitelerinin eğitim fakültelerinin çeşitli bölümlerinde öğrenim görmekte olan öğretmen adaylarının dijital bağımlılık düzeyleri; cinsiyet, yaş, bölüm, sınıf, internet kullanma becerisi, günlük internet kullanma süresi ve sosyal ağlara erişim süresi değişkenleri açısından incelenmiştir. Araştırma nicel bir araştırma olup kesitsel tarama modelinde desenlenmiştir. Araştırmanın çalışma grubunun oluşturulmasında elverişli örnekleme yöntemi kullanılmıştır. Çalışmada 209'u kadın (%67,86), 99'u erkek (%32,14) olmak üzere toplam 308 öğretmen adayına ulaşılmıştır. Çalışmada iki adet veri toplama aracı kullanılmıştır. İlk veri toplama aracı araştırmacılar tarafından hazırlanan "Kişisel Bilgi Formu"dur. İkinci veri toplama aracı ise

Kesici ve Tunç (2018) tarafından oluşturulan “Dijital Bağımlılık Ölçeği” başlıklı bir ölçektir. Araştırmanın verileri; 01 Ocak - 28 Şubat 2021 tarihleri arasında Google Form kullanılarak çevrimiçi olarak toplanmıştır.

Bulgular ve Tartışma

Öğretmen adaylarının dijital bağımlılık düzeylerinin; cinsiyet, yaş, sınıf ve internet kullanma becerilerine göre istatistiksel olarak anlamlı bir farklılık göstermediği ancak bölüm, günlük internet kullanma süreleri ve sosyal ağlara erişim sürelerine göre istatistiksel olarak anlamlı bir farklılık gösterdiği sonucuna ulaşılmıştır.

Çalışmadan elden edilen bulgular bağlamında, öğretmen adaylarının dijital bağımlılık düzeylerinin ölçek ortalamasına ($\bar{X} = 56,73 \pm 18,51$) oranla yüksek olduğu sonucuna ulaşılmıştır. Ölçeğin alt boyutlarından olan aşırı kullanma boyutunun en yüksek ($\bar{X} = 14,97 \pm 5,37$), nüks etme boyutunun ise en düşük ($\bar{X} = 8,48 \pm 3,52$) ortalamaya sahip olduğu belirlenmiştir.

Çalışmada, öğretmen adaylarının dijital bağımlılık düzeylerinin cinsiyet değişkenine göre istatistiksel olarak anlamlı bir farklılık göstermediği sonucuna ulaşılmıştır. Alanyazında yer alan çalışmalarda ise bu çalışmadan elde edilen bulguları destekleyen ve desteklemeyen sonuçlar yer almaktadır. Öğretmen adayları ile yapılan çalışmalarda kadınların internetin olumsuz sonuçlarından daha fazla etkilendiği, erkeklerin ise kadınlardan daha fazla problemlerle internet kullanımına yatkın oldukları ancak internetin aşırı kullanımının cinsiyete göre farklılık göstermediği sonucuna ulaşılmıştır (Sirakaya & Seferoğlu, 2013). Başka bir çalışmada ise erkeklerin kadınlara göre internette daha fazla zaman geçirmeyi tercih ettikleri görülmüştür (Kırnık, Susam & Özbek, 2019).

Öğretmen adaylarının dijital bağımlılık düzeyleri yaş değişkenine göre istatistiksel olarak anlamlı bir farklılık göstermemiştir. Yapılan çalışmalarda da benzer sonuçlara ulaşılmıştır (Kvintová, Cakirpaloglu & Hájková, 2020).

Çalışmada, öğretmen adaylarının dijital bağımlılık düzeyleri bölüm değişkenine göre istatistiksel olarak anlamlı bir farklılık göstermektedir. Sosyal Bilgiler Öğretmenliği bölümünde öğrenim gören öğretmen adaylarının, Psikolojik Danışmanlık ve Rehberlik ile Bilgisayar ve Öğretim Teknolojileri Öğretmenliği bölümünde öğrenim gören öğretmen adaylarına göre daha yüksek dijital bağımlılığa sahip olduğu sonucuna ulaşılmıştır. Bağımlılıkla ilgili yeterli bilgi seviyesine sahip olan Psikolojik Danışmanlık ve Rehberlik Öğretmenliği bölümündeki öğretmen adaylarının dijital bağımlılıkla ilgili farkındalık düzeylerinin yüksek olmasından dolayı bağımlılık düzeylerinin daha düşük olduğu söylenebilir. Bilgisayar ve Öğretim Teknolojileri Öğretmenliği bölümündeki öğretmen adaylarının ise dijital araçların ve uygulamaların uygun kullanımı ile ilgili yeterli bilgi seviyesine sahip olmalarından dolayı dijital bağımlılık düzeylerinin daha düşük olduğu düşünülebilir.

Öğretmen adaylarının dijital bağımlılık düzeylerinin internet kullanma becerisi değişkenine göre istatistiksel olarak anlamlı bir farklılık göstermediği sonucuna ulaşılmıştır. Diğer bir değişle internet kullanma becerisi çok yüksek ya da düşük olan bireylerin dijital bağımlılık düzeyleri, istatistiksel olarak anlamlı bir farklılık göstermemektedir.

Çalışmada, öğretmen adaylarının dijital bağımlılık düzeylerinin günlük internet kullanma süresi değişkenine göre istatistiksel olarak anlamlı bir farklılık gösterdiği sonucuna ulaşılmıştır. Günlük internet kullanma süresi daha yüksek olan öğretmen adaylarının dijital bağımlılık düzeyleri daha yüksek iken günlük internet kullanma süresi daha düşük olan öğretmen adaylarının dijital bağımlılık düzeyleri daha düşüktür. Benzer şekilde yapılan çalışmalarda da günlük internet kullanma süresi daha fazla olan öğretmen adaylarının günlük internet kullanım süresi daha düşük olan öğretmen adaylarına göre daha fazla internet bağımlısı oldukları tespit edilmiştir (Chou, Condron & Belland, 2005; Griffiths, 2000; Kuss & Lopez-Fernandez, 2016). Dijital bağımlılık aynı zamanda dijital dikkat dağınıklığına da neden olmaktadır. Dijital dikkat dağınıklığı yüksek olan öğretmen adaylarının günün

her saatinde sosyal ağlarını ve e-postalarını kontrol ettikleri böylece evde ve okulda verimliliklerinin düştüğü belirlenmiştir (Awofala vd., 2020).

Öğretmen adaylarının dijital bağımlılık düzeylerinin günlük sosyal ağlara erişim süresi değişkenine göre istatistiksel olarak anlamlı bir farklılık gösterdiği sonucuna ulaşılmıştır. Sosyal ağlara erişim süresi daha fazla olan öğretmen adaylarının dijital bağımlılık düzeyleri sosyal ağlara erişim süresi daha az olan öğretmen adaylarına göre daha yüksektir. Sosyal ağları kullanma sıklığının problemlili sosyal ağ kullanımının anlamlı bir yordayıcısı olduğu belirlenmiştir (Kesici, 2019). Kişinin sosyal ağlara erişim sağlama güdüsüne karşı kendini kontrol edememesi ve sosyal ağlarda geçirilen zamanın artması dijital bağımlılığın bir göstergesi olabilir. Alan yazında yer alan araştırmalarda da sosyal ağların aşırı kullanımının internet bağımlılığı, akıllı telefon bağımlılığı gibi bağımlılıkların gelişmesine yol açtığı ifade edilmektedir (Roberts, Yaya & Manolis, 2014; Romero-Rodríguez, Rodríguez-Jiménez, Ramos Navas-Parejo, Marín-Marín & Gómez-García, 2020).

Sonuç

Sonuç olarak, günümüzde dijital araçlardan ve uygulamalardan uzaklaşmanın artık mümkün olmadığı dikkate alındığında ileride gelecek nesilleri yetiştirmekten sorumlu olacak öğretmen adaylarının dijital bağımlılık düzeylerini araştırmak, dijital araçları ve uygulamaları dijital bağımlılığa yol açmayacak biçimde doğru kullanmaları konusunda bilinçlendirmek gerekmektedir. Çünkü gerek eğitim ortamlarında dijital araçlara ve uygulamalara ihtiyaç duyulması gerekse günlük rutin faaliyetlerimizde bu araçları ve uygulamaları kullanmak zorunda kalmamız dijital bağımlılığı tetikleyecek durumları ortaya çıkarmaktadır. Dolayısıyla öğrencilerin eğitiminde önemli bir role sahip olan öğretmenlerin dijital araçları ve uygulamaları kullanırken örnek davranışlar sergilemeleri, dijital araçları ve uygulamaları dijital bağımlılık yaratmayacak biçimde uygun kullanmaları gerekmektedir.