

Examining the Relationship Between Problematic Internet Use and Smartphone Addiction Levels and School Motivation among Middle School Students

Ortaokul Öğrencilerinin Problemleri İnternet Kullanımı, Akıllı Telefon Bağımlılığı Düzeyleri ve Okul Motivasyonları Arasındaki İlişki

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Abstract

This study aims to examine the relationship between students' problematic situations caused by increased internet and digital technology use and their school motivation. The study was conducted using the relational screening method, one of the general scanning models in quantitative research. A total of 300 students, with 100 from each grade level (6th, 7th, and 8th grades) during the 2022-2023 academic year, participated in the study. Data were collected using the "Participant Demographic Data Form", "Problematic Internet Use Scale", "Smartphone Addiction Scale", and "School Motivation Evaluation Scale". Descriptive statistics were used to analyze the social media applications most frequently used by students according to class and gender differences. Inferential statistical methods were applied to determine problematic internet use and smartphone addiction levels based on independent variables such as grade level, gender, social media usage status, and internet usage duration. Male students exhibited higher levels of problematic internet use levels compared to female students. Problematic internet use levels were higher in lower grade levels. Students who used social media had higher levels of problematic internet use. Internet usage durations of 3 hours or more significantly increased problematic internet use behaviors. Smartphone addiction levels increased as grade levels increased. Social media use also contributed to higher smartphone addiction levels. Longer durations of internet use were associated with increased smartphone addiction. A significant negative relationship was found between students' problematic internet use and school motivation. The study identifies critical relationships between digital technology use and school motivation. The results suggest the need for interventions targeting internet and smartphone addiction to improve school motivation among students.

Keywords: Problematic internet use, Smartphone addiction, School motivation, Secondary school

Özet

Bu çalışmanın amacı öğrencilerin artan internet ve dijital teknoloji kullanımına bağlı problem durumları ile okul motivasyonları arasındaki ilişkiyi incelemektir. Araştırma ilişkisel tarama modeli ile gerçekleştirilmiştir. Araştırmaya 2022-2023 eğitim öğretim yılında her sınıf düzeyinden (6, 7 ve 8. sınıflar) 100'er olmak üzere toplam 300 öğrenci katılmıştır. Veriler "Katılımcı Demografik Veri Formu", "Sorunlu İnternet Kullanımı Ölçeği", "Akıllı Telefon Bağımlılığı Ölçeği" ve "Okul Motivasyonunu Değerlendirme Ölçeği" kullanılarak toplanmıştır. Öğrencilerin en sık kullandıkları sosyal medya uygulamalarını sınıf ve cinsiyet farklılıklarına göre analiz etmek için tanımlayıcı istatistiklerden yararlanılmıştır. Sınıf düzeyi, cinsiyet, sosyal medya kullanım durumu, internet kullanım süresi gibi bağımsız değişkenlere göre problemli internet kullanımı ve akıllı telefon bağımlılık düzeylerini belirlemek için çıkarımsal istatistiksel yöntemler uygulanmıştır. Çalışma bulguları erkek öğrencilerde problemli internet kullanımının daha yüksek olduğunu göstermektedir. Sınıf

düzeyleri azaldıkça problemli internet kullanım düzeyleri artmaktadır. Sosyal medya kullanan öğrencilerin problemli internet kullanım düzeyleri daha yüksektir. 3 saat ve üzeri internet kullanım süreleri problemli internet kullanım davranışlarını anlamlı düzeyde artırmaktadır. Cinsiyetin akıllı telefon bağımlılığı üzerinde anlamlı bir etkisi bulunmamıştır. Sınıf seviyeleri arttıkça akıllı telefon bağımlılığı düzeyleri de artmaktadır. Sosyal medya kullanımı akıllı telefon bağımlılığını arttırmaktadır. Daha uzun süreli internet kullanımı akıllı telefon bağımlılığı düzeyini arttırmaktadır. Öğrencilerin problemli internet kullanımı ile okul motivasyonları arasında negatif yönde anlamlı bir ilişki bulunmuştur. Çalışma, dijital teknoloji kullanımı ile okul motivasyonu arasındaki kritik ilişkileri tanımlamaktadır. Sonuçlar, öğrenciler arasında okul motivasyonunu artırmak için internet ve akıllı telefon bağımlılığını hedef alan müdahalelere ihtiyaç duyulduğunu göstermektedir.

Anahtar Kelimeler: Problemli internet kullanımı, Akıllı telefon bağımlılığı, Okul motivasyonu, Ortaokul

1. Introduction

The COVID-19 virus, which started to be seen in China in the last period of 2019, spread to many countries around the world in a short time (Canpolat & Yıldırım, 2021). The disease infected more than 10 million people in a period of 6 months after it was first detected and caused the deaths of more than 500 thousand people. As part of the fight against the epidemic, states have resorted to different measures, such as quarantine and social distance practices, to prevent the spread of the virus (Dickens et al., 2020). COVID-19, defined by the World Health Organization as a global epidemic, has caused significant changes in many areas of people's social lives, especially health, and has caused the suspension of many activities around the world (Marmarosh et al., 2020). The education system was also affected by social isolation practices, and schools and universities around the world had to suspend education (Can, 2020). In order for students who are away from face-to-face education to continue their educational lives, countries have made changes in their education policies and decided to switch to the distance education method until the process is completed for all levels of education (Canpolat & Yıldırım, 2021). According to the report published by UNESCO (2020), a total of 1,724,657,870 students across countries were affected by the pandemic process as of April 2020.

Due to the social isolation practices used within the scope of epidemic measures, the time individuals spend at home has increased, their daily habits have changed, and the use of the internet and digital technologies has increased excessively to reduce stress and anxiety due to both distance education activities and the epidemic (Göker & Turan, 2020). According to Király et al.'s study on the increased use of the internet and digital technology during the pandemic period, 67% of people worldwide watched more news broadcasts, 45% used messaging services more, 44% spent more time on social media, and 36% spend more time on computer/video games (Király et al., 2020). When the increase in media usage is examined by media types, the highest increase was experienced in Generation Z, also called digital natives (Göker & Turan, 2020). Similar results emerged in research conducted on social media and internet use in Turkey during the epidemic period, and daily internet use among the population aged 16-64 exceeded the world average by 1 hour, reaching 7 hours and 57 minutes. Social media usage was 2 hours 57 minutes, exceeding the general average by 32 minutes (TRT Haber, 2021). In another study, attention was drawn to the increase in the time users spent with digital technologies in Turkey during the pandemic period. According to the results of the survey conducted with nearly 300 participants from 73 provinces, it is revealed that 70 percent of individuals have increased their computer use and 80 percent of their mobile phone usage time (Öztürk, 2021). Similar studies conducted in this field have shown that people's tendency towards technology usage habits may turn into problems, such as watching television and videos, surfing the internet, and using social media or online games to reduce anxiety (Majeed et al., 2020).

The rapid and uncontrolled spread of the Internet and media use, faster than the natural flow of the process, has led to the emergence of various problems. While some individuals limit their internet use according to their needs, others struggle to set these limits and experience issues in their school and social lives due to excessive use (Emin & Altunel, 2021). Research in this area has uncovered various definitions. Different terms such as Internet Addiction, Problematic Internet Use (PIU), Smartphone Addiction (SA), Internet Gaming Disorder, Social Media Addiction, and Nomophobia are used to describe problems related to excessive internet and digital technology use (Tung et al., 2022). When examining the factors that make the internet and digital technologies problematic, variables such as students' purposes for using technology, duration/amount of use, usage history, and deprivation status are observed (Ercengiz et al., 2019).

Problematic internet use (PIU) is defined as individuals using the internet excessively, uncontrolledly, or inappropriately in a way that disrupts daily life functions (Ceyhan & Ceyhan, 2014; Young, 1998). PIU can have negative effects on a person's academic, social, and emotional life and can show addiction-like symptoms (Machado et al., 2018).

Smartphone addiction (SA) is a type of behavioral addiction characterized by individuals feeling the urge to constantly check and use their smartphones (Kwon et al., 2013). SA can cause emotional and cognitive problems, especially in young individuals, and have negative effects on academic success and social relationships (Demirci et al., 2014).

There is a positive relationship between PIU and SA. Studies show that intensive internet use and smartphone addiction levels increase in parallel and that the two situations trigger each other (Király et al., 2020; Yanık & Özçiçek, 2021). The relationship between these two types of addiction can be attributed to the central role of digital technologies in individuals' daily lives and the addictive properties of platforms such as social media and online games (Baltacı et al., 2021).

The effects of problem situations due to excessive internet and digital technology use on student behavior and school and learning motivation, which is one of the most important factors affecting these behaviors, have been the subject of various studies (Büyükgebiz Koca & Tunca, 2020; Machado et al., 2018). Some studies have revealed that the unlimited use of technological devices negatively affects children's cooperation skills, reduces their motivation, and prevents the development of their sense of responsibility, thus putting children's emotional progress at risk (Plowman et al., 2010). Motivation, which can occur differently in each person, for different reasons and for different periods of time, appears as an important prerequisite for learning. Motivation, which is one of the most important factors in determining the course, severity, and continuity of student behavior at school and the contribution of educational environments to the emotional and cognitive development of students, is also the source of a significant part of the learning difficulties and disciplinary incidents observed in the school and classroom environment (Akbaba, 2006). School adaptation and motivation of primary school children is a phenomenon with different dimensions that affect their emotional development, social relations, and ability to acquire social roles and responsibilities, as well as their school success (Önder & Gülay, 2010). The COVID-19 pandemic process, which lasted approximately 1.5 years, prevented students from attending their schools regularly and caused them to continue their education life in an unusual system (Yaşar, 2021). Studies had observed that children experienced problems in social and psychological areas during this time period when distance education was used, and excessive technology use was also affected (Metin et al., 2021).

With the widespread use of digital technologies, the effects of PIU and SA on individuals are increasing. The literature has focused on the effects of these addiction types on academic success,

social relationships, and psychological well-being, especially in adolescents (Büyükgebiz Koca & Tunca, 2020; Plowman et al., 2010). However, comprehensive evaluations of the effects of PIU and SA on school motivation are limited in these studies. One of the most important original contributions of this study is that it is one of the rare studies that simultaneously evaluate the effects of PIU and SA on academic motivation. While these two addiction types are usually considered separately in the literature, this study comprehensively analyzes the relationship between PIU and SA and the effect of this relationship on school motivation (Söyler, 2019; Tian et al., 2021). In addition, the findings obtained in the study were supported by detailed analyses based on demographic variables such as gender, grade level, and internet usage time.

The aim of this study is to explore the relationship between challenges associated with the increased use of the internet and digital technology during the pandemic and students' academic motivation. It is expected that the findings will offer valuable insights for all stakeholders (teachers, students, and families) by revealing the links between students' learning habits, disciplinary behavior, and their technology usage. The central research question of this study is, "Is there a relationship between problems related to internet and smartphone use and students' school motivation?" This study will seek to answer this question by examining the link between students' issues related to increased technology use and their school motivation.

For secondary school students (6th, 7th, 8th grades);

1. What are the social media applications used by secondary school students?
2. What are the problematic internet usage levels of students according to various variables?
 - 2.1. "Do students' problematic internet usage levels differ significantly according to gender?"
 - 2.2. "Do students' problematic internet usage levels differ significantly according to grade level?"
 - 2.3. "Do students' problematic internet usage levels differ significantly according to their social media account usage status?"
 - 2.4. "Do students' problematic internet use levels differ significantly according to the duration of internet use?"
3. What are the students' smartphone addiction levels according to various variables?
 - 3.1. "Do students' smartphone addiction levels differ significantly according to gender?"
 - 3.2. "Do students' smartphone addiction levels differ significantly according to grade level?"
 - 3.3. "Do students' smartphone addiction levels differ significantly according to their social media account usage status?"
 - 3.4. "Do students' smartphone addiction levels differ significantly according to internet usage time?"
4. Is there a relationship between problem situation variables related to students' technology use (internet use and smartphone use) and their school motivation?

2. Method

2.1. Research Model

In this research, the relational screening model, a type of general survey model commonly used in quantitative studies, was employed. Quantitative research is a method that allows for the replication of data and can be conducted without subjectivity (Karagöz, 2021). The screening model involves the entire process of describing an existing situation as it is and is used to facilitate learning and desired behaviors in individuals.

The relational screening model is a research approach that focuses on understanding the relationships between variables in a specific context (Hummel & Holyoak, 2003). This model can usually be done in a limited setting, such as a school, with a specific group of students, and the results obtained may be limited to this context (Fan et al., 2009). The purpose of this model is to understand the relationships within the group studied, and therefore, generalization is not necessary (Hummel & Holyoak, 2003). It aims to establish whether the variables vary together and, if they do, to understand the nature of this variation (Büyüköztürk et al., 2021; Karasar, 2011). The generalizability of the findings should be evaluated by considering the sample size, diversity, and methodological limitations of the study (Zhu et al., 2022).

2.2. Population and Sample

The population of the research consists of all students studying in a secondary school in the 2022-2023 academic year, and the sample consists of a total of 300 students, 100 students from each of the sixth, seventh, and eighth-grade levels, using the "stratified sampling" method from this universe. Fifth-grade students were not included in the sample because they were in the adaptation phase of middle school. The school is a middle school located in the Ortahisar district of Trabzon province. The school has an average student success according to the Trabzon province High School Entrance Exam (LGS) success.

The stratified sampling method is a sampling method used to select samples representing different subgroups (strata) of the population. This method aims to reflect the characteristics of the population more accurately by selecting a certain proportion or number of individuals from each stratum (Lohr, 2021). This method ensures that the overall results of the study more accurately represent all grade levels and reduces the possibility of bias in the sample (Cochran, 2007).

The school, which constitutes the population of the study, has nine branches (27 branches in total) at each level of education (6th, 7th, 8th grade), approximately 359 students at each grade level, and a total of 1077 students. According to the sample size calculation made for this study, as stated by Cochran (2007), a sample of 285 people was sufficient, but a sample of 300 people was determined against the possibility of data loss. Since the distribution of the determined sample into strata is based on the ratio of each stratum to the population (Lohr, 2021) and since there are approximately equal numbers of students at each level of education, 100 students from each level of education were included in the sample.

Since some of the students did not know their families' monthly income, "family income status" was not included in the study. However, since the participants' smartphone and internet access opportunities were important for this study, this situation was asked, and the participants were selected from students who had technological tools (desktop computer, mobile devices, smartphone) and internet access when they wanted. In addition, the educational status of the participants' mothers and fathers was determined, and it was determined that most of the participants were high school and university graduates. In light of this information, it is seen that the sample has similar opportunities in the demographic factors that can affect the problematic internet use and smartphone addiction discussed in the study. Demographic information about the students included in the study is presented in Table 1.

Table 1. *Information on Participants' Demographic Characteristics*

Demographic Information	Frequency	Percentage %
"Gender"		
"Female"	152	50.7
"Male"	148	49.3
"Class of Study"		
"6th grade"	100	33.3
"7th grade"	100	33.3
"8th grade"	100	33.3
"Smartphone Status"		
"Yes"	231	77
"No"	69	23
"Social Media Account Usage Status"		
"Yes"	234	78
"No"	66	22
"Access to Internet"		
"Desktop computer only"	15	5
"Desktop and mobile devices"	138	46
"Mobile devices only"	147	49
"Technology Usage Time"		
"0-1 Hours"	74	24.7
"1-3 Hours"	158	52.7
"3-5 Hours"	68	22.7
"Mother's Education Status"		
"Elementary School"	52	17.3
"High School"	101	33.7
"University"	103	34.3
"Master's Degree"	44	14.7
"Father's Education"		
"Primary School"	42	14
"High school"	93	31
"University"	113	37.7
"Master's Degree"	52	17.3

2.3. Data Collection Tools

To gather information about the relationship between students' problematic behaviors related to their increasing use of the internet and digital technology and their school motivation, various data collection instruments were utilized. The "Participant Demographic Data Form" was employed to identify the individual characteristics of the study group. To identify technology-related problematic behaviors, the "Problematic Internet Use Scale" and the "Smartphone Addiction Scale" were used. The "School Motivation Evaluation Scale" was applied to assess school motivation.

2.3.1. Participant Demographic Data Form

This form includes nine categorical questions designed by the researchers to collect demographic data on the participants, such as gender, grade level, parents' educational status, and certain technology and social media usage habits.

2.3.2. Problematic Internet Use Scale-Adolescent (PIUS-A)

The PIUS-A, developed by Ceyhan et al. (2007), is designed to assess the levels of PIU among university students. The version of the scale tailored for adolescents underwent validity and reliability testing by Ceyhan and Ceyhan in 2014. This scale comprises 27 items that are rated on a 1 to 5 scale, covering three sub-dimensions: social benefit comfort, excessive use, and negative consequences of internet use. The items are scored as follows: "Not at all suitable (1 point)", "Rarely suitable (2 points)", "Somewhat suitable (3 points)", "Quite suitable (4 points)", "Entirely suitable (5 points)". Items 7 and 10 are scored in reverse. The overall score can vary between 27 and 135. Higher scores on this scale suggest that an individual's internet use may be problematic. The internal consistency coefficient of the scale (Cronbach Alpha) is 0.94. The split-half reliability coefficient of the scale (Guttman Splithalf) is 0.83 (Ceyhan & Ceyhan, 2014). In this study, as a result of the analysis made with the scores obtained from the students, the internal consistency coefficient (Cronbach Alpha) was calculated as 0.903 and the split-half reliability coefficient (Guttman Splithalf) was calculated as 0.802.

2.3.3. Smartphone Addiction Scale (SAS)

This scale, originally developed by Kwon et al. for adolescents in their teens using Young's Internet addiction scale, was adapted into Turkish by Demirci et al. (2014). The scale is a Likert-type, with response options ranging from "1-Definitely No" to "6-Absolutely Yes". The scale's total score ranges from 33 to 198, with higher scores reflecting an increased risk of SA. The scale includes seven sub-dimensions, with items distributed as follows: "Factor 1 (disrupting daily life and tolerance), Factor 2 (withdrawal symptoms), Factor 3 (positive expectation), Factor 4 (cyber-focused relationships), Factor 5 (overuse), Factor 6 (social network addiction), Factor 7 (physical symptoms)". The internal consistency coefficient (Cronbach alpha) of the scale is 0.947. The split-half reliability coefficient (Guttman Splithalf) of the scale was calculated as 0.893 (Demirci et al., 2014). In this study, as a result of the analysis made with the scores obtained from the students, the internal consistency coefficient (Cronbach Alpha) was calculated as 0.912 and the split-half reliability coefficient (Guttman Splithalf) was calculated as 0.857.

2.3.4. School Motivation Assessment Scale

The "School Motivation Scale," consisting of 34 items, was developed by Yavuz (2006) to create a Likert-type scale measuring the school motivation of seventh-grade primary school students and to test its reliability. The scale consists of 34 items on a single dimension, scored as follows: "5 = Strongly Agree, 4 = Agree, 3 = Undecided, 2 = Disagree, 1 = Strongly Disagree. Higher total scores on the scale indicate higher school motivation". The internal consistency coefficient (Cronbach alpha) of the scale is 0.90. The scale's split-half reliability coefficient (Guttman Splithalf) was calculated as 0.89 (Yavuz, 2006). In this study, as a result of the analysis made with the scores obtained from the students, the internal consistency coefficient (Cronbach Alpha) was calculated as 0.879 and the split-half reliability coefficient (Guttman Splithalf) was calculated as 0.862.

2.4. Data Analysis

The suitability of the measured variables for normal distribution was assessed. If the normality assumption was not met, the Mann-Whitney U test and the Kruskal-Wallis test were used for comparisons; if the assumption was met, the independent t-test and ANOVA were used. For the analysis of relationships between scales, the Spearman correlation coefficient was applied if normality was not met, and the Pearson correlation coefficient was used if it was met (Field, 2009).

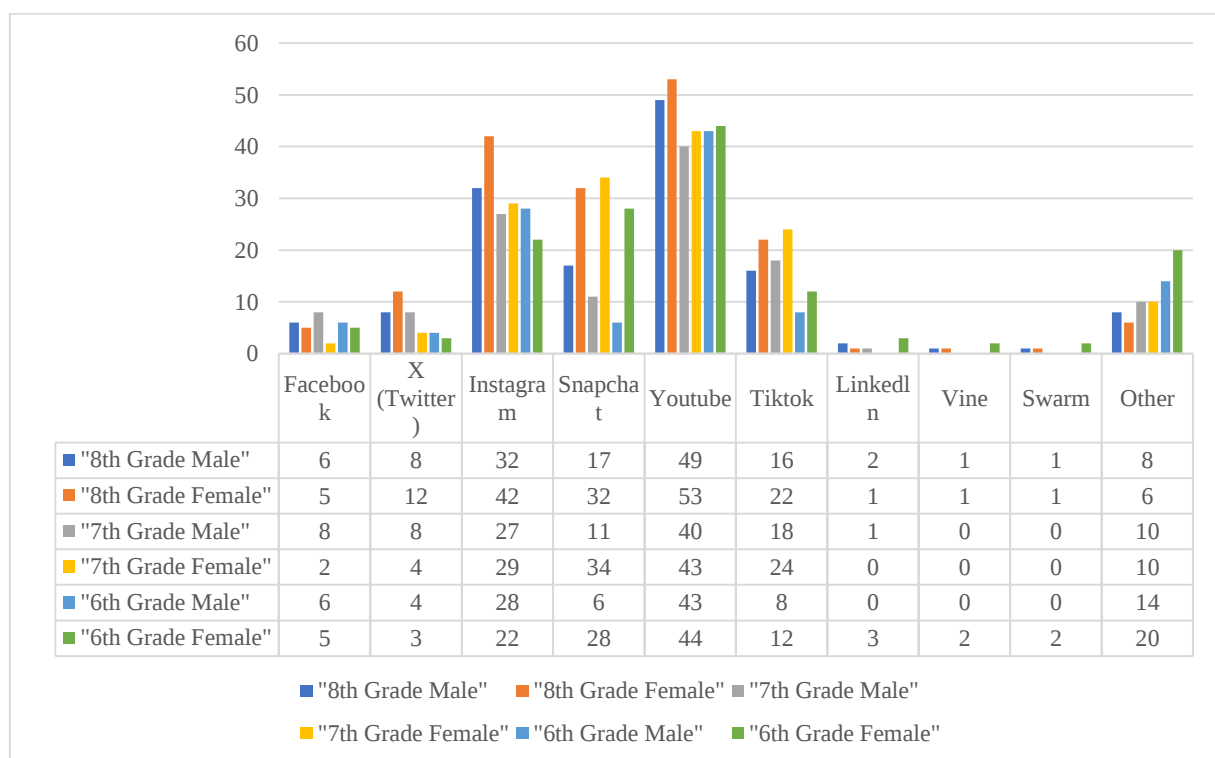
2.5. Ethics Committee Approval Information

This study was reviewed by Trabzon University Social and Human Sciences Scientific Research and Publication Ethics Committee, and an ethics committee approval certificate dated 16.12.2022 and numbered 2022-12/2.22 was issued.

3. Results

The data obtained from the study are presented below. "What are the social media applications used by secondary school students?" The data obtained from the question are presented in Figure 1.

Figure 1. Information on Social Media Applications Used by Participants



In the participant demographic data form, students were asked: What social media applications do you use? The quantitative analysis of the responses to the question revealed that the most commonly used social media application among the students surveyed was YouTube, followed by Instagram, Snapchat, and TikTok, respectively.

3.1. Problem Situations Related to Students' Internet Usage Levels

The research question of this study is "Do students' PIU levels significantly differ according to gender?" Based on the Kolmogorov-Smirnov normality test (Büyüköztürk et al., 2021) applied to the

results obtained from the PIU disorder scale administered to students, it was found that the distribution did not follow a normal distribution ($p=0.000$, $p>0.05$) due to the sample size ($n>50$) (see Table 2). The Mann-Whitney U test is used to compare two independent samples where the data does not show a normal distribution (Büyüköztürk et al., 2021).

Table 2. PIU by Gender

Gender	<i>n</i>	Mean Rank	$\bar{X}$	Sum of Ranks	<i>U</i>	<i>p</i>	<i>z</i>	Effect Size (<i>r</i>)
Girl	152	139.30	62.76	21173.50	9545.5	0.023	-2.267	0,13
Boy	148	162.00	68.57	23976.50				

* Mann Whitney U test was performed.

When the scores from the PIU disorder scale were analyzed by gender, the mean rank for female students was found to be 139.3 with an average score of $\bar{X}=62.76$, while the mean rank for male students was 162 with an average score of $\bar{X}=68.57$. The significance level of the Mann-Whitney U test, used to compare the PIU disorder scale scores by gender, was determined to be $p=0.023$. Since the analysis was performed by ranking the scores from lowest to highest, lower average ranks indicate lower average scores on the scale. The findings show that the difference between students' PIU levels according to gender is significant ($p<0.05$) and that male students' PIU levels are higher.

To objectively measure the effect of the significant difference found, the effect size must be considered (Büyüköztürk et al., 2021). Based on Pearson's correlation coefficient (*r*), for the Mann-Whitney U test, an *r* value of 0.1 represents a small effect, 0.3 signifies a medium effect, and 0.5 denotes a large effect (Field, 2009). The effect size of the significant difference in PIU by gender was calculated as $r=0.13$, following the formula in the study by Corder and Foreman (2009), indicating a small effect size.

The research question also explores the following: "Do students' problematic internet usage levels differ significantly according to grade level?" Based on the Kolmogorov-Smirnov normality test (Büyüköztürk et al., 2021) applied to the results from the PIU disorder scale administered to students, it was found that the distribution was not normal ($p=0.000$, $p>0.05$), likely due to the sample size ($n>50$) (see Table 3). The Kruskal-Wallis H test is used to compare more than two independent samples where the data does not show a normal distribution (Büyüköztürk et al., 2021).

Table 3. PIU by Grade Level

Class	<i>n</i>	Mean Rank	$\bar{X}$	χ^2	<i>p</i>	Significant difference*	Effect Size (η^2)
"6th grade"	100	162.84	70.40	9.758	0.008	"6th grade – 8th grade"	0.033
"7th grade"	100	160.23	67.00			"7th grade – 8th grade"	
"8th grade"	100	128.43	59.48				

* Mann Whitney U test was performed.

When the scores from the PIU scale were analyzed by grade level, the average scores for 6th grade students were $\bar{X}=70.40$, for 7th grade students $\bar{X}=67$, and for 8th grade students $\bar{X}=59.48$. According to the Kruskal-Wallis H test, a *p*-value of 0.008 ($p<0.05$) was found, indicating that the difference in PIU scores across grade levels is statistically significant. To identify between which grades this difference existed, pairwise comparisons were made using the Mann-Whitney U test. The results

revealed no significant difference between 6th and 7th grades, but both 6th and 7th-grade students had higher PIU scores compared to 8th-grade students.

For the Kruskal-Wallis H test, the eta square (η^2) value is used to calculate effect size (Pallant, 2017). An eta square value between 0 and 1 is considered small if it is 0.01, medium if it is 0.06, and large if it is 0.14 (Cohen, 1992). The effect size for the significant difference in PIU by grade level was calculated as $r = 0.033$, using the formula provided by Green and Salkind (2014), indicating a small effect size.

The research question also addresses "Do students' problematic internet usage levels differ significantly according to their social media account usage status?" Based on the Kolmogorov-Smirnov normality test applied to the findings from the PIU disorder scale administered to students, it was found that the distribution was not normal ($p = 0.000$, $p > 0.05$) (see Table 4). The Mann Whitney U test is used to compare two independent samples where the data does not show a normal distribution (Büyükoztürk et al., 2021).

Table 4. PIU by Social Media Account Usage Status

<i>Situation</i>	<i>n</i>	<i>Mean Rank</i>	$\bar{X}$	<i>Sum of Ranks</i>	<i>U</i>	<i>p</i>	<i>z</i>	<i>Effect Size (r)</i>
Yes	234	158.68	67.57	37130.50	5808.5	0.002	-3.075	0.031
No	66	121.51	58.73	8019.50				

* Mann Whitney U test was performed.

When the scores from the PIU disorder scale were analyzed based on social media usage status, the mean rank for students who used social media was calculated as 158.68, with an average score of $\bar{X} = 67.57$. In contrast, the mean rank for students who did not use social media was 121.51. According to the Mann-Whitney U test, the significance level was $p = 0.002$, and the effect size was $r = 0.177$ ($p < 0.05$). According to the analysis results, there is a significant difference between the groups and it has a small effect size ($r = 0.031$).

The study also investigates, "Do students' problematic internet use levels differ significantly according to the duration of internet use?" Based on the Kolmogorov-Smirnov normality test (Büyükoztürk et al., 2021) applied to the findings from the PIU disorder scale, it was determined that the distribution was not normal ($p = 0.000$, $p > 0.05$) due to the sample size ($n > 50$) (see Table 5). The Kruskal-Wallis H test is used to compare more than two independent samples where the data does not show a normal distribution (Büyükoztürk et al., 2021).

Table 5. PIU by Duration of Internet Use

<i>Duration</i>	<i>n</i>	<i>Mean Rank</i>	$\bar{X}$	χ^2	<i>p</i>	<i>Significant difference*</i>	<i>Effect Size (η^2)</i>
"0-1 hours"	74	120.38	59.01	35.240	0.000	"0-1 hours– 3-5 hours"	
"1-3 hours"	158	142.06	62.84			"1-3 hours – 3-5 hours"	0.12
"3-5 hours"	68	202.90	79.29				

* Mann Whitney U test was performed.

When examining the scores from the PIU scale based on the duration of internet usage, the average score for students who use the internet for 0-1 hours was $\bar{X} = 120.38$, while the average score for those using the internet for 1-3 hours was $\bar{X} = 79.29$. The analysis results show that there is a significant difference between the groups ($p = 0.000$). To identify between which durations this difference occurred, pairwise comparisons were made using the Mann-Whitney U test. The findings

showed no significant difference between the 0-1 hour and 1-3 hour groups ($p=0.056$, $p<0.05$), but a statistically significant difference was found between the 0-1 hour group and the 3-5 hour group ($p=0.000$, $p<0.05$), as well as between the 1-3 hour group and the 3-5 hour group ($p=0.000$, $p<0.05$). This means that while PIU does not significantly increase for up to 3 hours of daily internet use, it rises notably when usage exceeds 3 hours.

The effect size for the significant difference in PIU according to internet usage duration was calculated as $r = 0.12$, following the formula by Green and Salkind (2014), indicating a medium effect size.

3.2. Problem situations related to students' smartphone addiction levels

In response to the research question, "Do students' smartphone addiction levels differ significantly according to gender?" the Kolmogorov-Smirnov normality test was applied to the data obtained from the SAS. The results indicated that the data followed a normal distribution ($p = 0.200$, $p > 0.05$) (see Table 6). The independent sample t test is used to compare two independent samples where the data shows a normal distribution (Büyüköztürk et al., 2021).

Table 6. SA by Gender

Gender	n	$\bar{X}$	S	sd	t	p	Effect Size (Cohen's d)
Girl	152	83.72	32.176	298	0.204	0.838	-
Boy	148	82.98	30.218				

* Independent Sample t test was performed.

When analyzing the scores from the SAS based on gender, the average score for male students was $\bar{X} = 83.72$, while for female students it was $\bar{X} = 82.98$. The result of the independent sample t-test was $p=0.838$ ($p<0.01$). These findings suggest that there is no statistically significant difference between the SA scores of male and female students. As no significant difference was found, effect size values were not calculated.

The study also explores, "Do students' SA levels differ significantly according to grade level?" The Kolmogorov-Smirnov normality test (Büyüköztürk et al., 2021) applied to the data from the PIU disorder scale showed that the distribution was normal ($p=0.200$, $p>0.05$) due to the sample size ($n>50$) (see Table 7). The One-Way Anova test is used to compare more than two independent samples where the data shows a normal distribution (Büyüköztürk et al., 2021).

Table 7. SA by Grade Level

Class	n	$\bar{X}$	Sd	F	p	Significant difference*	Eta squared (η^2)
6th grade	100	74.32	3.02	6.720	0.001	"6th grade – 7th grade" "6th grade – 8th grade"	0.043
7th grade	100	89.15	3.19				
8th grade	100	86.61	2.97				

* Results with a difference of $p<0.017$ after Bonferroni correction

When analyzing the scores from the SAS by grade level, the average score for 6th grade students was $\bar{X} = 74.32$, for 7th grade students it was $\bar{X} = 89.15$, and for 8th grade students it was higher. The One-Way ANOVA test yielded a p-value of 0.001 ($p < 0.01$), indicating a statistically significant difference in SA scores across different grades. To identify which grades had significant differences, a Post Hoc test was conducted. The findings revealed a significant difference between 6th and 7th grades

as well as between 6th and 8th grades, but no significant difference was found between 7th and 8th grades. These results indicate that 6th grade students have significantly lower levels of SA compared to 7th and 8th grade students. To calculate the effect size for the One-Way ANOVA test, the eta square (η^2) value is used (Pallant, 2017). The effect size for the significant difference in SA scores according to grade level was calculated as $r = 0.043$, indicating a small effect size.

The study also investigates, "Do students' SA levels differ significantly according to their social media account usage status?" The Kolmogorov-Smirnov normality test applied to the data from the SAS indicated that the data followed a normal distribution ($p = 0.200$, $p > 0.05$) (see Table 8). The independent sample t test is used to compare two independent samples where the data shows a normal distribution (Büyüköztürk et al., 2021).

Table 8. SA by Social Media Account Usage Status

Situation	n	$\bar{X}$	S	sd	t	p	Effect Size (Cohen's d)
Yes	234	86.75	31.36	298	3.624	.000	0.505
No	66	71.31	27.49				

* Independent Sample t test was performed.

When examining the scores from the SAS based on social media usage, the average score for students who used social media was $\bar{X} = 86.75$, while the average score for students who did not use social media was $\bar{X} = 71.31$. The Independent Sample T-Test results indicated a significant level of $p = 0.000$, showing that the difference in SA levels between students with social media accounts and those without is statistically significant ($p < 0.01$).

One common method for calculating effect size for the Independent Sample T-Test is Cohen's d statistic (Green & Salkind, 2014). The effect size for the difference in SA levels according to social media usage was calculated as $d = 0.505$, indicating a moderate effect.

The study also investigates, "Do students' smartphone addiction levels differ significantly according to the duration of internet use?" The Kolmogorov-Smirnov normality test applied to the data from the PIU disorder scale indicated that the data followed a normal distribution ($p = 0.200$, $p > 0.05$) due to the sample size ($n > 50$) (Büyüköztürk et al., 2021) (see Table 9). The One-Way Anova test is used to compare more than two independent samples where the data shows a normal distribution (Büyüköztürk et al., 2021).

Table 9. SA by Internet Usage Duration

Duration	n	$\bar{X}$	Sd	F	p	Significant difference*	Eta square (η^2)
"0-1 hours"	74	69,09	24.37	26.865	0.000	Between 0-1 – 1-3 Between 0-1 – 3-5	0.153
"1-3 hours"	158	81.20	29.53			Between 1-3 – 3-5	
"3-5 hours"	68	103.91	31.34				

* Results with a difference of $p < 0.017$ after Bonferroni correction

When the scores obtained from the SAS were examined according to internet usage time, the average scores of students who use the internet for 0-1 hours were $\bar{X} = 69.09$, for 1-3 hours were $\bar{X} = 81.2$, and for 3-5 hours $\bar{X} = 103.91$. The One-Way ANOVA test results indicated a significance level of $p = 0.000$ ($p < 0.01$), suggesting that the difference in SA scores based on internet usage duration is

statistically significant. To identify which groups exhibited these differences, a Post Hoc test was conducted. The findings revealed significant differences among all three groups, indicating that SA levels increase with longer internet usage times. The effect size for this significant difference was calculated using the eta square (η^2) value (Pallant, 2017). The eta square value for the difference in SA scores based on internet usage duration was calculated as $r = 0.153$, indicating a large effect size.

The study also addressed the question: "Is there a relationship between problem situation variables related to students' technology use (internet use and smartphone use) and their school motivation?". Simple correlation methods were employed to assess the relationship between two continuous variables. In social sciences, if at least one of the datasets to be examined shows a normal distribution, the Pearson Correlation test is preferred; otherwise, the Spearman test is used (Field, 2009).

According to the normality test results, the scores obtained from the SAS showed a normal distribution ($p = 0.056$, $p > 0.05$), the scores from the school motivation scale also showed a normal distribution ($p = 0.200$, $p > 0.05$), but the scores from the PIU scale did not show a normal distribution ($p = 0.000$, $p < 0.05$) (see Table 10).

Table 10. *The Relationship Between Students' SA and PIU and School Motivation*

		<i>School Motivation Scale Score</i>	<i>SAS Score</i>	<i>PIUS Score</i>
School Motivation Scale Score	"Correlation Coefficient"	1.000	-0.376	-0.228
	"p-value"	-	0.000	0.000
	"N"	300	300	300
SAS Score	"Correlation Coefficient"	-0.376	1.000	0.415
	"p-value"	0.000	-	0.000
	"N"	300	300	300
PIUS Score	"Correlation Coefficient"	-0.228	0.415	1.000
	"p-value"	0.000	0.000	-
	"N"	300	300	300

* Pearson correlation test was performed.

The relationships are statistically significant since the p-value is less than 0.05 for all variables.

- School Motivation and SA: The Pearson correlation coefficient between the school motivation scale score and the SAS score is -0.376. This indicates a moderately significant negative relationship ($p = 0.000$, $p < 0.05$), meaning that as students' SA levels rise, their school motivation declines.
- School Motivation and PIU: The Pearson correlation coefficient between the school motivation scale score and the PIU scale score is -0.228. This signifies a weak but significant negative relationship ($p = 0.000$, $p < 0.05$), suggesting that an increase in PIU is associated with a decrease in school motivation.
- SA and PIU: The Pearson correlation coefficient between the SAS score and the PIU scale score is 0.415. This points to a moderately significant positive relationship ($p = 0.000$, $p < 0.05$), indicating that as SA increases, so does PIU.

4. Discussion, Conclusion and Recommendations

An analysis of students' responses to the first sub-question of the study, which focused on identifying the internet and digital technology tools/applications they use, revealed that YouTube was one of the most frequently used social media platforms. Then came Instagram, Snapchat, TikTok and other applications. According to the We Are Social 2024 report published in January 2024 regarding the number of users of social media applications worldwide, Facebook ranked first with 3,049,000 users, YouTube ranked second with 2,491,000 users, and Instagram came third with 2,000,000 users. The TikTok application, which is frequently used by students, ranked fifth with 1,562,000 users and Snapchat application ranked tenth with 700,000 users (We Are Social, 2024). Looking at Facebook's Marketplace demographics for 2022, it is seen that the usage rate among boys aged 13-17, which includes the sample group of this study, is 0.2% and girls are 0.1%. The age group with the highest Facebook usage was found to be between the ages of 25-34. It was determined that Facebook usage was 13.8% among women and 17.9% among men in the 25-34 age group (Recro Dijital Marketing, 2022). For this reason, it seems that the social media preferences of the students in this study coincide with trends around the world. In addition, it can be seen in Figure 1 that the social media applications used by students increase as their grade levels increase and that the social media applications used by female students are higher than those of male students. Previously, Atalay (2014) and Argın (2013) conducted studies showing that students' social media attitudes differ according to their grade levels. Another finding from these studies is that female students use social media applications significantly more than male students. Previous research on this topic has shown that female students are more active on social media and derive greater enjoyment from spending time on these platforms compared to their male counterparts (Deniz & Gürültü, 2018).

In the study, the findings obtained from the analysis of the question related to gender show that the difference between the PIU levels of male students and the PIU levels of female students is statistically significant ($p < 0.05$) and that the PIU levels of male students are higher than female students. Previous studies on this subject have also stated that male students use the internet more than female students in terms of gender (Fernández-Villa et al., 2015) and that their levels of PIU (Tian et al. 2021) are higher. One of the main reasons for this may be that male students are generally more interested in online games and technology. Online games and competitive platforms can lead men to use digital devices more frequently and for longer periods of time. As stated in Tian et al.'s (2021) study, the ways men access the internet and the reasons for their use can make them more prone to problematic internet use.

The analysis of the question "Do students' problematic internet use levels differ significantly according to grade level?" reveals a statistically significant difference in PIU scores across grade levels. The findings indicate that there is no significant difference between the PIU scores of both 6th grade and 7th grade students, but the PIU scores of both 6th and 7th grade students are higher than those of the 8th graders. This result is consistent with previous studies in the literature, which have reported similar findings. In their studies on adolescents, Günüş (2009) and Ceyhan (2011) stated that the highest levels of PIU were in the lower grades, with PIU and addiction levels decreasing as students progressed to higher grades. This situation may be attributed to the intense preparation process for the high school entrance exam in the final year of primary education, which limits the time students allocate to internet use.

The analysis of the relationship between students' problematic internet usage levels and their social media usage status reveals a statistically significant difference in PIU scores based on social media usage. In other words, students who use social media exhibit higher levels of PIU compared to

those who do not use social media. This finding aligns with previous studies (Baltacı et al. 2021) which suggest that increased social media use during the pandemic increases the risk of PIU. The impact of social media use on problematic internet use (PIU) can be evaluated in terms of the structural and psychological characteristics of these platforms. Social media platforms are designed to encourage continuous engagement and maximize content consumption. Features such as automatic video playback, notifications, and personalized content feeds supported by algorithms prolong the time users spend on these platforms. These elements can make it difficult to control students' ability to regulate their online behaviors, contributing to problematic internet use (PIU). In addition, the use of social media among young individuals to meet psychological needs such as social approval, self-perception, and sense of belonging can increase the risk of addiction. The feedback individuals, especially adolescents, receive through likes and comments on social media can reinforce their addiction to these platforms. As stated by Baltacı et al. (2021), this situation has become more evident during the pandemic period, leading to an increase in students' dependence on digital connections.

The findings reveal a statistically significant difference in PIU scores based on the duration of internet use. The results indicate that while there is no significant increase in PIU with daily internet use up to 3 hours, the rate of problematic behavior increases significantly when internet use exceeds 3 hours. The increase in internet use during the pandemic on PIU can be associated with individuals' growing need for online activities. Studies by Eidi and Delam (2020) and Guessoum et al. (2020) show that online activities were frequently used to reduce stress and anxiety during the pandemic and this behavior persisted in the post-pandemic period. This continuity may increase individuals' dependence on digital platforms and explain the duration-based increase in PIU.

The findings regarding students' smartphone addiction levels in relation to gender show that the difference between male and female students' smartphone addiction scores is not statistically significant. This suggests that smartphone addiction is influenced by general tendencies in how individuals use technology and that these tendencies depend on the function and purpose of the use of technology rather than gender differences. In a similar way, the study by Kumcağız et al. (2020) found comparable levels for smartphone addiction among male and female students, which can be interpreted as smartphones becoming equally accessible, attractive, and integrated into daily life for both genders.

The current study investigating whether students' smartphone addiction (SA) levels differ significantly by grade level indicates a statistically significant difference in SA scores across grades. The significant difference in smartphone addiction (SA) levels according to grade level can be attributed to the social, cognitive, and psychological needs of students, which vary depending on their age and level of education. Specifically, the SA levels of 6th grade students were found to be significantly lower than those of 7th and 8th grades, indicating that younger age groups tend to be less addicted to digital technologies. This finding has also been emphasized in previous studies such as Çetinkaya (2019) and Çakır & Oğuz (2017), which emphasize age as an important determinant of SA.

The findings in response to the question of whether students' smartphone addiction levels differ significantly based on their social media usage reveal that students with active social media accounts had higher phone addiction levels than those without. The effect of social media account use on smartphone addiction (SA) can be explained by the addictive design features of social media platforms and the psychological attachment that individuals feel towards these platforms. In the study, the fact that SA levels were higher in students with active social media accounts indicates the features of these platforms that encourage users to be constantly online and increase the risk of addiction. Durak and Seferoğlu's (2018) study similarly shows that social media use increases SA levels.

In the study examining whether students' smartphone addiction levels differ significantly based on the duration of internet use, the results indicated that as internet usage time increased, the scores on the smartphone addiction scale also rose. While the average scale score for 0-1 hour use is 69.09, it is seen that the average score increases to 81.20 for 1-3 hour use and 103.91 for 3-5 hour use. Studies conducted by Yanık and Özçiçek (2021) also revealed that the time spent on the internet is an important predictor of SA. The association between the increase in internet usage time and the increase in smartphone addiction (SA) levels can be evaluated as a result of the usage habits and behavioral addiction processes that individuals develop towards technology. In the study, the significant increase in the scores obtained from the addiction scale as the daily internet usage time increases can be interpreted as the fact that long-term exposure to digital platforms increases the intensity of individuals' use of their smartphones. As stated in the study of Yanık and Özçiçek (2021), the duration of internet usage stands out as an important determinant of SA.

By applying the Pearson correlation test, the study identified meaningful relationships between these three variables, suggesting that higher levels of PIU and SA are linked to lower school motivation among students. According to the findings, a significant negative relationship exists between students' SA levels, PIU, and school motivation. In other words, school motivation decreases as both SA and PIU increase. There is also a positive significant relationship between SA and the amount of PIU. In other words, SA and PIU are two variables that trigger each other and increase as one increases, the other increases. The negative relationship between students' problem situations regarding technology use (problematic internet use - PIU and smartphone addiction - SA) and school motivation can be explained by the effects of excessive or unbalanced use of technology on individuals' cognitive, emotional, and social processes. The finding that students' school motivation decreases as SA and PIU levels increase is consistent with similar studies in the literature (Sarıçam, 2015; Yıldırım et al., 2016). This situation shows that digital addiction prevents individuals from using their attention, energy, and time efficiently towards their learning processes.

In their study, Yıldırım, Yaşar, and Duru (2016) found that although students' use of technological tools such as smartphones and tablets in schools is beneficial in accessing and sharing course resources, there is a decrease in their course success due to the fact that students perform different activities such as using social media, playing games, and watching movies with these tools. It has been determined that they tend to withdraw from school. Similarly, Öztekin (2024) concluded in his study that students' internet use, even to study, undesirably shifts towards extracurricular activities, causing students to tend to move away from school. The findings of Akyürek's (2020) study on the use of smartphones by secondary school students also show that the increase in phone use distracts students from their lessons and causes them to move away from school. Sarıçam (2015), in his thesis study examining the effects of secondary school students' social media usage habits on their course success and, therefore, on their school motivation, stated that there was a negative relationship between the two variables and that as social media use increased, their school motivation decreased. Similarly, Söyler (2019) concluded in his study that SA is a significant predictor of school attachment in adolescents.

The findings obtained in this study align with existing literature. According to the research findings, more attention should be directed toward 6th and 7th grade students, particularly regarding PIU, as their levels are notably higher compared to 8th grade students. Furthermore, male students face greater challenges in this regard, and it is recommended that their daily internet usage should be limited to an average of 1-2 hours. Additionally, the study found that 8th grade students exhibit higher

levels of smartphone addiction, with both social media use and internet usage time contributing to this increase.

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Geniş Özet

Giriş

2019 yılının son döneminde Çin'de görülmeye başlanan Covid-19 virüsü kısa sürede dünyanın birçok ülkesine yayılmıştır (Canpolat & Yıldırım, 2021). Hastalık ilk tespit edildikten sonra 6 aylık bir sürede 10 milyondan fazla kişiyi enfekte etmiş ve 500 binden fazla kişinin ölümüne neden olmuştur. Salgınla mücadele kapsamında devletler virüsün yayılmasını önlemek amacıyla karantina ve sosyal mesafe uygulamaları gibi farklı önlemlere başvurmuştur (Dickens vd., 2020). Dünya Sağlık Örgütü tarafından küresel salgın olarak tanımlanan Covid-19, insanların sosyal yaşamlarının birçok alanında, özellikle sağlık alanında önemli değişikliklere neden olmuş ve dünya genelinde birçok aktivitenin askıya alınmasına yol açmıştır (Marmarosh vd., 2020). Sosyal izolasyon uygulamalarından eğitim sistemi de etkilenmiş, dünya genelinde okullar ve üniversiteler eğitime ara vermek zorunda kalmıştır (Can, 2020). Yüz yüze eğitimden uzak kalan öğrencilerin eğitim hayatlarına devam edebilmeleri için ülkeler eğitim politikalarında değişikliğe giderek tüm eğitim kademeleri için süreç tamamlanana kadar uzaktan eğitim yöntemine geçilmesine karar vermişlerdir (Canpolat & Yıldırım, 2021).

Salgın önlemleri kapsamında kullanılan sosyal izolasyon uygulamaları nedeniyle bireylerin evde geçirdikleri zaman artmış, günlük alışkanlıkları değişmiş hem uzaktan eğitim faaliyetleri hem de salgın nedeniyle stres ve kaygıyı azaltmak için internet ve dijital teknolojilerin kullanımı aşırı artmıştır (Göker ve Turan, 2020). Király vd.'nin pandemi döneminde internet ve dijital teknoloji kullanımının artmasına ilişkin yaptığı çalışmaya göre, dünya genelinde insanların %67'si daha fazla haber yayını izlemiş, %45'i mesajlaşma servislerini daha fazla kullanmış, %44'ü sosyal medyada ve %36'sı bilgisayar/video oyunlarında daha fazla zaman geçirmiştir (Király vd., 2020).

İnternet ve medya kullanımının doğal akışından daha hızlı ve kontrolsüz bir şekilde yaygınlaşması çeşitli sorunların ortaya çıkmasına neden olmuştur. İnternet ve dijital teknolojilerin aşırı kullanımına bağlı sorunları tanımlamak için İnternet Bağımlılığı, Problemlı İnternet Kullanımı (PİK), Akıllı Telefon Bağımlılığı (ATB), İnternet Oyun Oynama Bozukluğu, Sosyal Medya Bağımlılığı ve Nomofobi gibi farklı terimler kullanılmaktadır (Tung vd., 2022). İnternet ve dijital teknolojileri sorunlu hale getiren faktörler incelendiğinde öğrencilerin teknolojiyi kullanma amaçları, kullanım süresi/miktarı, kullanım geçmişi ve yoksunluk durumu gibi değişkenler gözlenmektedir (Ercengiz vd., 2019).

Problemlı internet kullanımı (PİK), bireylerin günlük yaşam fonksiyonlarını bozacak şekilde aşırı, kontrolsüz veya uygunsuz şekilde internet kullanması olarak tanımlanmaktadır (Ceyhan ve Ceyhan, 2014; Young, 1998). PİK, kişinin akademik, sosyal ve duygusal yaşamı üzerinde olumsuz etkilere neden olabilmekte ve bağımlılık benzeri semptomlar gösterebilmektedir (Machado vd., 2018).

Akıllı telefon bağımlılığı (ATB), bireylerin akıllı telefonlarını sürekli kontrol etme ve kullanma dürtüsü hissetmesiyle karakterize bir davranışsal bağımlılık türüdür (Kwon vd., 2013). ATB, özellikle genç bireylerde duygusal ve bilişsel sorunlara neden olabilir ve akademik başarı ve sosyal ilişkiler üzerinde olumsuz etkilere sahip olabilir (Demirci vd., 2014).

Dijital teknolojilerin yaygınlaşmasıyla birlikte PİK ve ATB'nin bireyler üzerindeki etkileri artmaktadır. Literatürde bu bağımlılık türlerinin özellikle ergenlerde akademik başarı, sosyal ilişkiler ve psikolojik iyi oluş üzerindeki etkilerine odaklanılmıştır (Büyükgebiz Koca ve Tunca, 2020; Plowman vd., 2010). Ancak bu çalışmalarda PİK ve ATB'nin okul motivasyonu üzerindeki etkilerine ilişkin kapsamlı değerlendirmeler sınırlıdır. Bu iki bağımlılık türü literatürde genellikle ayrı ayrı ele alınırken, bu çalışmada PİK ve ATB arasındaki ilişki ve bu ilişkinin okul motivasyonu üzerindeki etkisi kapsamlı olarak analiz edilmiştir (Söyler, 2019; Tian vd., 2021). Ayrıca çalışmada elde edilen bulgular cinsiyet, sınıf

düzeıı ve internet kullanım süresi gibi demografik deęiřkenlere dayalı ayrıntılı analizlerle desteklenmiřtir.

Bu alıřmanın amacı, pandemi sırasında internet ve dijital teknolojinin artan kullanımıyla iliřkili zorluklar ile ğrencilerin akademik motivasyonu arasındaki iliřkiyi arařtırmaktır. Bulguların, ğrencilerin ğrenme alışkanlıkları, disiplin davranıřları ve teknoloji kullanımları arasındaki baęlantıları ortaya ıkararak tüm paydařlar (ğretmenler, ğrenciler ve aileler) için deęerli içgörüler sunması beklenmektedir. Bu alıřmanın temel arařtırma sorusu, "İnternet ve akıllı telefon kullanımıyla ilgili sorunlar ile ğrencilerin okul motivasyonu arasında bir iliřki var mıdır?" řeklindeıir.

Yöntem

Bu arařtırmada, nicel arařtırmalarda yaygın olarak kullanılan genel tarama modelinin bir türü olan iliřkisel tarama modeli kullanılmıřtır. İliřkisel tarama modeli, belirli bir baęlamda deęiřkenler arasındaki iliřkileri anlamaya odaklanan bir arařtırma yaklařımıdır (Hummel ve Holyoak, 2003). Bu model genellikle belirli bir ğrenci grubuyla okul gibi sınırlı bir ortamda yapılabilir ve elde edilen sonuçlar bu baęlamla sınırlı olabilir (Fan vd., 2009).

Arařtırmanın evrenini 2022-2023 eęitim ğretim yılında bir ortaokulda ğrenim gören tüm ğrenciler, örneklemini ise bu evrenden "tabakalı örnekleme" yöntemi kullanılarak, altıncı, yedinci ve sekizinci sınıf düzeylerinden her birinden 100 ğrenci olmak üzere toplam 300 ğrenci oluřtırmaktadır. Beřinci sınıf ğrencileri ortaokulun adaptasyon ařamasında oldukları için örnekleme dahil edilmemiřtir. Okul, Trabzon ili Ortahisar ilçesinde bulunan bir ortaokuldur. Okul, Trabzon ili Liselere Giriř Sınavı (LGS) bařarısına göre ortalama bir ğrenci bařarısına sahiptir.

Katmanlı örnekleme yöntemi, nüfusun farklı alt gruplarını (tabakalarını) temsil eden örnekleri seçmek için kullanılan bir örnekleme yöntemidir. Bu yöntem, her tabakadan belirli bir oranda veya sayıda birey seçerek nüfusun özelliklerini daha doęru bir řekilde yansıtmayı amaçlar (Lohr, 2021). Bu yöntem, alıřmanın genel sonuçlarının tüm sınıf düzeylerini daha doęru bir řekilde temsil etmesini saęlar ve örneklemdaki önyargı olasılıęını azaltır (Cochran, 2007).

ğrencilerin internet ve dijital teknolojiyi giderek artan kullanımlarıyla ilgili sorunlu davranıřları ile okul motivasyonları arasındaki iliřki hakkında bilgi toplamak için eřitli veri toplama araçları kullanılmıřtır. alıřma grubunun bireysel özelliklerini belirlemek için "Katılımcı Demografik Veri Formu", teknolojiyle ilgili sorunlu davranıřlarını belirlemek için "Problemlı İnternet Kullanım Öleęi (PİK)" ve "Akıllı Telefon Baęımlılıęı Öleęi (ATB)" ve okul motivasyonlarını deęerlendirmek içinse "Okul Motivasyon Deęerlendirme Öleęi (OMD)" uygulanılmıřtır.

alıřmada, ölçülen deęiřkenlerin normal daęılıma uygunluęu deęerlendirilmiřtir. Normallik varsayımı karřılanmadıęı karřılařtırmalar için Mann-Whitney U testi ve Kruskal-Wallis testi kullanılmıř; varsayım karřılanıyorsa baęımsız t-testi ve ANOVA kullanılmıřtır. Ölekler arasındaki iliřkilerin analizi için normallik karřılanmıyorsa Spearman korelasyon katsayısı, karřılanıyorsa Pearson korelasyon katsayısı kullanılmıřtır (Field, 2009).

Bulgular

Katılımcı demografik bilgi formunda ğrencilere sorulan "Hangi sosyal medya uygulamalarını kullanıyorsunuz?" sorusuna verilen yanıtların nicel analizi, ankete katılan ğrenciler arasında en sık kullanılan sosyal medya uygulamasının YouTube olduęunu, ardından sırasıyla Instagram, Snapchat ve TikTok'un geldięini ortaya koymuřtur.

alıřmanın "ğrencilerin PİK düzeyleri cinsiyete göre anlamlı řekilde farklılařmakta mıdır?" sorusu erevesinde ğrencilere uygulanan PİK öleęinden elde edilen bulgular cinsiyete göre

incelendiğinde; kız öğrencilerin ortalama puanı $\bar{X}$ = 62,76 ile 139,3, erkek öğrencilerin ortalama puanı $\bar{X}$ = 68,57 ile 162 olarak bulunmuştur. PİK bozukluğu ölçeği puanlarının cinsiyete göre karşılaştırılmasında kullanılan Mann-Whitney U testinin anlamlılık düzeyi $p=0,023$ olarak bulunmuştur. Analiz, puanlar en düşükten en yükseğe doğru sıralanarak yapıldığından, düşük ortalama sıralar ölçekteki düşük ortalama puanları ifade etmektedir. Bulgular, öğrencilerin cinsiyete göre PİK düzeyleri arasındaki farkın anlamlı olduğunu ($p<0,05$), erkek öğrencilerin PİK düzeylerinin daha yüksek olduğunu göstermektedir.

Çalışmanın “Öğrencilerin problemleri internet kullanım düzeyleri sınıf düzeyine göre anlamlı bir şekilde farklılaşıyor mu?” sorusu çerçevesinde öğrencilere uygulanan PİK ölçeğinden elde edilen bulgular sınıf düzeyine göre incelendiğinde; 6. sınıf öğrencilerinin ortalama puanları $\bar{X}$ = 70.40, 7. sınıf öğrencilerinin ortalama puanları $\bar{X}$ = 67 ve 8. sınıf öğrencilerinin ortalama puanları $\bar{X}$ = 59.48 olarak bulunmuştur. Kruskal-Wallis H testine göre p değeri 0.008 ($p < 0.05$) olarak bulunmuş olup, sınıf düzeyleri arasında PİK puanları arasındaki farkın istatistiksel olarak anlamlı olduğu görülmüştür. Bu farkın hangi sınıflar arasında olduğunu belirlemek amacıyla Mann-Whitney U testi kullanılarak ikili karşılaştırmalar yapılmıştır. Sonuçlar 6. ve 7. sınıflar arasında anlamlı bir fark olmadığını ortaya koymuş ancak hem 6. hem de 7. sınıf öğrencilerinin 8. sınıf öğrencilerine kıyasla daha yüksek PİK puanlarına sahip olduğunu göstermiştir.

Çalışmanın “Öğrencilerin problemleri internet kullanım düzeyleri sosyal medya hesabı kullanım durumlarına göre anlamlı bir şekilde farklılaşmakta mıdır?” sorusu çerçevesinde öğrencilere uygulanan PİK ölçeğinden elde edilen bulgular sosyal medya hesabı olma durumuna göre incelendiğinde; sosyal medyayı kullanan öğrenciler için ortalama sıra 158.68 olarak hesaplanmış olup, ortalama puan $\bar{X}$ = 67.57'dir. Buna karşılık, sosyal medyayı kullanmayan öğrenciler için ortalama sıra 121.51'dir. Mann-Whitney U testine göre anlamlılık düzeyi $p=0.002$, etki büyüklüğü ise $r=0.177$ ($p<0.05$) olarak bulunmuştur. Analiz sonuçlarına göre gruplar arasında anlamlı fark vardır ve küçük bir etki büyüklüğüne sahiptir ($r=0.031$).

Çalışmanın “Öğrencilerin problemleri internet kullanım düzeyleri internet kullanım süresine göre anlamlı bir şekilde farklılaşmakta mıdır?” sorusu çerçevesinde öğrencilere uygulanan PİK ölçeğinden elde edilen bulgular internet kullanım süresine göre incelendiğinde; 0-1 saat internet kullanan öğrencilerin ortalama puanı $\bar{X}$ = 120,38 iken, 1-3 saat internet kullanan öğrencilerin ortalama puanı $\bar{X}$ = 79,29 olarak bulunmuştur. Analiz sonuçları gruplar arasında anlamlı fark olduğunu göstermiştir ($p=0,000$). Bu farkın hangi süreler arasında olduğunu belirlemek amacıyla Mann-Whitney U testi kullanılarak ikili karşılaştırmalar yapılmıştır. Bulgular 0-1 saat ve 1-3 saat grupları arasında anlamlı fark olmadığını ($p=0,056$, $p<0,05$), ancak 0-1 saat grubu ile 3-5 saat grubu arasında ($p=0,000$, $p<0,05$) ve 1-3 saat grubu ile 3-5 saat grubu arasında istatistiksel olarak anlamlı fark bulunduğunu göstermiştir ($p=0,000$, $p<0,05$). Bu bulgu, problemleri internet kullanımının günlük 3 saate kadar internet kullanımında önemli ölçüde artmadığı, ancak kullanımın 3 saati aşması durumunda belirgin şekilde arttığı anlamına gelmektedir.

Çalışmanın “Öğrencilerin akıllı telefon bağımlılık düzeyleri cinsiyete göre anlamlı bir şekilde farklılaşmakta mıdır?” sorusu çerçevesinde öğrencilere uygulanan ATB ölçeğinden elde edilen bulgular cinsiyete göre incelendiğinde; erkek öğrencilerin ortalama puanı $\bar{X}$ = 83,72 iken, kız öğrencilerin ortalama puanı $\bar{X}$ = 82,98 olarak bulunmuştur. Bağımsız örneklem t-testi sonucu $p=0,838$ ($p<0,01$) olarak bulunmuştur. Bu bulgular erkek ve kız öğrencilerin SA puanları arasında istatistiksel olarak anlamlı bir fark olmadığını göstermektedir.

Çalışmanın “Öğrencilerin akıllı telefon bağımlılık düzeyleri sınıf düzeyine göre anlamlı bir şekilde farklılaşıyor mu?” sorusu çerçevesinde öğrencilere uygulanan ATB ölçeğinden elde edilen bulgular sınıf düzeyine göre incelendiğinde; 6. sınıf öğrencileri için ortalama puan $\bar{X}$ = 74.32, 7. sınıf öğrencileri için

$\bar{X}$ = 89.15 ve 8. sınıf öğrencileri için daha yüksek olmuştur. Tek Yönlü ANOVA testi, farklı sınıflar arasında ATB puanlarında istatistiksel olarak anlamlı bir fark olduğunu gösteren $p=0,001$ ($p < 0,01$) değeri vermiştir. Hangi sınıflarda anlamlı fark olduğunu belirlemek için Post Hoc testi yapılmıştır. Bulgular, 6. ve 7. sınıflar ile 6. ve 8. sınıflar arasında anlamlı bir fark olduğunu ortaya koymuştur, ancak 7. ve 8. sınıflar arasında anlamlı bir fark bulunamamıştır. Bu sonuçlar, 6. sınıf öğrencilerinin 7. ve 8. sınıf öğrencilerine kıyasla anlamlı derecede daha düşük ATB düzeylerine sahip olduğunu göstermektedir.

Çalışmanın “Öğrencilerin akıllı telefon bağımlılık düzeyleri sosyal medya hesabı kullanım durumlarına göre anlamlı şekilde farklılaşıyor mu?” sorusu çerçevesinde öğrencilere uygulanan ATB ölçeğinden elde edilen bulgular incelendiğinde; sosyal medyayı kullanan öğrencilerin ortalama puanı $\bar{X}$ = 86,75 iken, sosyal medyayı kullanmayan öğrencilerin ortalama puanı $\bar{X}$ = 71,31 olarak bulunmuştur. Bağımsız Örneklem T-Testi sonuçları sosyal medya hesabı olan ve olmayan öğrenciler arasındaki SA düzeyleri arasındaki farkın istatistiksel olarak anlamlı olduğunu göstermektedir ($p < 0,01$).

Çalışmanın “Öğrencilerin akıllı telefon bağımlılık düzeyleri internet kullanım süresine göre anlamlı şekilde farklılaşıyor mu?” sorusu çerçevesinde öğrencilere uygulanan ATB ölçeğinden elde edilen bulgular incelendiğinde; 0-1 saat internet kullanan öğrencilerin ortalama puanları $\bar{X}$ = 69.09, 1-3 saat kullanan öğrencilerin ortalama puanları $\bar{X}$ = 81.2 ve 3-5 saat kullanan öğrencilerin ortalama puanları $\bar{X}$ = 103.91 olarak bulunmuştur. Tek Yönlü ANOVA testi sonuçları $p=0.000$ ($p<0.01$) anlamlılık düzeyini göstermiş olup, internet kullanım süresine dayalı ATB puanları arasındaki farkın istatistiksel olarak anlamlı olduğunu göstermektedir. Bu farklılıkların hangi gruplarda görüldüğünü belirlemek için Post Hoc testi yapılmıştır. Bulgular her üç grup arasında da anlamlı farklılıklar ortaya koymuş olup, ATB düzeylerinin internet kullanım süreleri uzadıkça arttığını göstermektedir.

Öğrencilerin problemleri internet kullanımı ile okul motivasyonları arasında negatif yönde anlamlı bir ilişki bulunmuştur. Bu durum, internet ve akıllı telefon bağımlılığının okul motivasyonunu düşürdüğünü göstermektedir. Öğrenciler ders çalışmak yerine daha fazla sosyal medya, oyun ve video içerikleriyle ilgilendikçe, akademik motivasyonlarında belirgin bir azalma meydana gelmektedir.

Tartışma, Sonuç ve Öneriler

Bu araştırma, ortaokul öğrencileri arasında internet ve akıllı telefon bağımlılığının yaygın olduğunu ve bu bağımlılıkların okul motivasyonu üzerinde olumsuz etkiler yarattığını göstermektedir. Elde edilen bulgular, öğrencilerin dijital medya kullanım alışkanlıklarının düzenlenmesi gerektiğine işaret etmektedir.

Çalışma bulguları erkek öğrencilerde problemleri internet kullanımının daha yüksek olduğunu göstermektedir. Sınıf düzeyleri azaldıkça problemleri internet kullanım düzeyleri artmaktadır. Sosyal medya kullanan öğrencilerin problemleri internet kullanım düzeyleri daha yüksektir. 3 saat ve üzeri internet kullanım süreleri problemleri internet kullanım davranışlarını anlamlı düzeyde artırmaktadır. Cinsiyetin akıllı telefon bağımlılığı üzerinde anlamlı bir etkisi bulunmamıştır. Sınıf seviyeleri arttıkça akıllı telefon bağımlılığı düzeyleri de artmaktadır. Sosyal medya kullanımı akıllı telefon bağımlılığını artırmaktadır. Daha uzun süreli internet kullanımı akıllı telefon bağımlılığı düzeyini artırmaktadır. Öğrencilerin problemleri internet kullanımı ile okul motivasyonları arasında negatif yönde anlamlı bir ilişki bulunmuştur.

Öğrencilerin sağlıklı bir teknoloji kullanım alışkanlığı geliştirmeleri için çeşitli önlemler alınmalıdır. Okullarda dijital bilinçlendirme programlarının artırılması, internet bağımlılığına yönelik rehberlik hizmetlerinin güçlendirilmesi ve velilere yönelik eğitim seminerlerinin düzenlenmesi önerilmektedir. Ayrıca, öğretmenler tarafından öğrencilerin teknoloji kullanımı ile akademik başarıları arasındaki dengeyi sağlamalarına yardımcı olacak rehberlik programları uygulanabilir.

Özellikle 7. ve 8. sınıf öğrencileri için, bilinçli teknoloji kullanımı konusunda eğitim verilerek, onların akademik başarılarını olumsuz etkilemeden dijital araçları verimli bir şekilde kullanmaları sağlanmalıdır. Aileler, çocuklarının teknoloji kullanım sürelerini sınırlayarak, akademik başarılarını destekleyecek fiziksel ve sosyal aktivitelerle denge kurmalarını teşvik etmelidir.

Declaration of Publication Ethics

This study was reviewed by Trabzon University Social and Human Sciences Scientific Research and Publication Ethics Committee, and an ethics committee approval certificate dated 16.12.2022 and numbered 2022-12/2.22 was issued. We hereby declare that the study does not have unethical issues and that research and publication ethics have been observed carefully.

Declaration of Contribution of Researchers

The subject of the study was determined by all authors. Data collection tools were determined by author1. The data collection process was carried out by author2. Analysis of the data was done by author1. The literature review was conducted by author2. The writing process was carried out with the joint contribution of all authors. Control and supervision of the process was done by author1. All authors discussed the results and contributed to the final manuscript. The author1 contributed 60% and the author2 contributed 40%.

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