Research Article

An Analysis of Students' Approaches to Studying in terms of the Problematic Use of Mobile Phones

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Article Info	Abstract
	The objective of this study is to examine the impact of various variables on the problematic use of mobile phones among secondary school students and the approaches of students to studying. The data were collected through three instruments: (1) Personal Information Form, (2) Problematic Use of Mobile Phones Scale, and (3) Study Process Questionnaire. Following the acquisition of the requisite permissions, these instruments were administered to students from two public schools. The findings of the study indicate that gender, grade level, daily internet use, mobile phone purpose, and ownership significantly affect problematic phone use. Female students exhibited a higher prevalence of problematic mobile phone use, primarily for social media and music, while male students predominantly used mobile phones for gaming. The study also found that higher grade levels and increased daily Internet use contribute to problematic phone use. A notable finding is that students who adopt a surface study approach exhibit a higher incidence of problematic phone use, while those who adopt a deep study approach demonstrate a lower frequency of such use.

Introduction

In light of the rapid advancements in technology, there has been a considerable shift in the skills that are currently deemed essential for individuals to possess. These developments have precipitated substantial modifications in the curricula, which have been augmented by the incorporation of new skills. It is evident that the changes experienced in response to these developments significantly affected the curriculum of social studies courses. For instance, the content and outcomes developed for digital literacy and media literacy in the field of science, technology, and society learning domain included in the social studies curriculum published by the Ministry of National Education are aimed at helping primary and secondary school students adapt to the digital world (MoNE, 2018; 2023). In the

common text of the curriculum published in 2024, the system literacy, which combines different types of literacy, was included. This type of literacy is defined as an interdisciplinary skill that people of all ages should have (MoNE, 2024a). In the social studies curriculum implemented in the same year, information literacy, digital literacy, and data literacy are included in the technology and social sciences learning domain. In the Social Studies course, students are expected to be aware of the developments in information technologies, use them, and understand their effects on life. The curriculum stipulates that students must pay close attention to security, privacy, the use of technological products, and the effects of technological products on society in digital environments (MoNE, 2024b).

While mobile phones were initially used primarily for communication, they have since evolved to serve a variety of purposes, including shopping, paying bills, staying informed about current events, and playing games. Furthermore, mobile phones have been employed for educational purposes. These devices offer a wealth of information on diverse subjects, facilitate research beyond the confines of the classroom, enable online training, provide access to educational activities and resources, facilitate interactive learning experiences, and enable instantaneous communication between students and teachers (Tamilarasi, 2023). Mobile technologies have been shown to offer students opportunities for interactive and personalized learning experiences (Ghoulam et al., 2024). In the study by Ganyani and Muchemwa (2024), it is stated that the utilization of mobile phones has a facilitating effect on students' learning of mathematics and has a positive effect on their academic success. However, the efficacy of these devices in educational settings remains a subject of debate.

It is not always feasible to respond affirmatively to this debate due to the problematic use of mobile phones, otherwise referred to as smartphone addiction. Although the official diagnostic criteria for problematic mobile phone use have not yet been developed, the following definition is used to describe the internet addiction: the excessive use of mobile phones to the extent that it disrupts the daily activities of individuals (Demirci et al., 2015; Sezer & Şenbakar, 2023). Excessive or unconscious use of mobile phones has been demonstrated to have a detrimental effect on students (Yang et al., 2021). A study was conducted to examine the use of mobile phones in the classroom. The study's findings indicated that mobile phones disrupt the learning process. Furthermore, students have reported that their learning is disrupted when they text message in class (Froese et al., 2012).

In the study conducted by Mojaye (2015), it is asserted that the utilization of mobile phones in educational settings has been associated with a number of deleterious consequences, including diminished cognitive abilities, substandard writing skills, and the development of an addiction. Research indicates that excessive smartphone usage is associated with diminished academic performance, with a daily screen time exceeding one hour resulting in a grade point average reduction of 0.152 points (Sapcı et al., 2021). A subsequent study by Arıkan (2022) found a negative correlation between problematic mobile phone use and psychological resilience. As indicated in the study conducted by Şahin (2023), problematic mobile phone use among students was found to be associated with diminished academic motivation and elevated levels of hopelessness. A study conducted on a sample of secondary school students reported that allowing the use of mobile phones during school hours caused widespread loss of concentration and distraction (Fisayo et al., 2022). In light of these findings, it can be posited that the problematic and excessive use of mobile phones has the potential to diminish students' academic motivation, disrupt their focus, exert a negative psychological influence, and impede their academic success.

The utilization of mobile phones has exhibited a marked increase among the youth demographic, contrasting with the adoption patterns observed among adults. This shift can be attributed to the decline in manufacturing costs and the concomitant rise in living standards, which have rendered mobile phones more accessible and affordable for younger demographics. According to data from the Turkish Statistical Institute (TÜİK) collected in 2024, 66.3% of children aged 6–10 and 86.2% of those aged 11–15 reported using mobile phones. The same report revealed that 32.6% of children aged 6–15 who use mobile phones regularly check their devices at least every 30 minutes. Additionally, it was documented that some children reduced their reading time in order to allocate more time to screen-based activities (TÜİK, 2024).

While there are certain advantages to mobile phone usage, the problematic use of these devices gives rise to numerous issues. The failure to regulate problematic mobile phone use can have adverse consequences for students' academic lives. The incessant notifications received on mobile phones have been shown to cause distraction, disrupt the learning process, and lead to a decline in productivity. The problematic and excessive use of mobile devices can pose a significant threat, particularly for secondary school students whose self-control skills and sense of responsibility are still developing. Consequently, there is a

compelling need for further research in this domain. According to Pamuk and Kutlu (2017), studies concerning the problematic use of mobile phones have recently emerged in Türkiye. A notable surge in such studies was observed, particularly during the period of 2015-2016. The majority of these studies were conducted with samples of undergraduate students and adolescents. The focal points of these inquiries encompass the interplay between problematic mobile phone utilization and its correlation with diverse variables, including health (Jenaro et al., 2007), psychological problems (Ha et al., 2008); social anxiety (Deniz, 2014), subjective well-being (Eker, 2016), sleep disorders (Turna, 2016), interaction anxiety (Doğaner, 2017), missing developments in social environments, life satisfaction (Hızarcı, 2018), academic stress (Akıncı, 2021), technostress (Sayıner, 2022), and academic procrastination (Zhou et al., 2024). Despite the contributions of these studies to the understanding of the problems associated with excessive mobile phone use, there remains a dearth of research on the study habits of students in relation to mobile phone use. Therefore, the objective of this study is to analyze the correlations between students' approaches to studying and the problematic use of mobile phones. It is anticipated that the findings of the study will provide valuable insights to social studies educators tasked with imparting digital literacy, media literacy, and information literacy; teacher training academics; program development specialists; and researchers who aspire to contribute to this domain.

The Aim of Study

The objective of this study is to examine the approaches of secondary school students to studying in terms of the problematic use of mobile phones. In accordance with the aforementioned objective, the study endeavors to address the following research inquiries:

- ✓ Is there a significant difference in problematic mobile phone use among secondary school students in terms of gender?
- ✓ Do the reasons for using mobile phones differ significantly in terms of gender?
- ✓ Is there a significant difference in problematic mobile phone use among secondary school students in terms of grade levels?
- ✓ Do the reasons for using mobile phones differ in terms of frequency of mobile phone use?
- ✓ Is there a significant difference in problematic mobile phone use among secondary school students in terms of mobile phone ownership?

✓ Is there a significant difference in problematic mobile phone use among secondary school students in terms of mobile phone use duration?

✓ Is there a significant difference in problematic mobile phone use among secondary school students in terms of daily internet use?

✓ Is there a significant difference in problematic mobile phone use among secondary school students in terms of their approaches to studying?

Method

Study Model

In this study, the quantitative research method was employed. The study was designed based on correlational survey design among quantitative research designs. This model endeavors to elucidate the interrelationships between a minimum of two variables (Karasar, 2013). If any correlation is detected, the model endeavors to ascertain its relative strength.

Sampling

The study's objective is to encompass all secondary school students residing in the Umraniye district of Istanbul, Türkiye. Two public secondary schools were selected from this district for the study. The participants of the study are 302 students attending these two secondary schools during the 2023–2024 academic year. The distribution of participants based on gender is as follows: The sample included 149 female participants (49.3%) and 153 male participants (50.7%). The distribution of these resources by grade level is outlined as follows: The sample population was comprised of 53 sixth-grade students, constituting 17.5% of the total; 115 seventh-grade students, representing 38.1% of the total; and 134 eighth-grade students, comprising 44.4% of the total.

Instruments

The data for the study were collected using the following three tools: (1) Personal Information Form, (2) Problematic Use of Mobile Phone Scale, and (3) Study Process Questionnaire. The personal information form was developed by the author to gather information about the variables analyzed in the study.

Problematic Use of Mobile Phone Scale

The Problematic Use of Mobile Phone (PUMP) scale, developed by Yılmaz (2017), is a tool employed to identify problematic mobile phone use among students. The scale employed in this study is a five-point Likert-type scale. The scale comprises 22 items, which are grouped into three factors: The scale under consideration comprises a total of 22 items, with the following categories: dependency (9 items), overuse and violation (9 items), and inability to control and neglect (4 items). The scale ranges from a minimum of 22 to a maximum of 110 points. The internal consistency coefficient (Cronbach's Alpha) calculated for the overall scale is .92. The coefficient varies between .82 and .88 for the sub-factors. Pursuant to the implementation of the confirmatory factor analysis, the goodness of fit indexes were calculated as follows: the chi-square-degree of freedom was 1.95 (indicating a perfect fit), RMSEA value was .07, SRMR value was .06 and NFI value was 0.94 (indicating a good fit). According to the findings reported by Yılmaz (2017), this scale demonstrated adequate internal consistency, with acceptable levels of content validity and internal reliability. In the context of the present study, the scale's reliability was subjected to re-examination, resulting in the calculation of the Cronbach's Alpha coefficient, which yielded a value of .85.

Study Process Questionnaire (SPQ)

The Study Process Questionnaire (SPQ) was utilized to ascertain the students' approaches to studying. The SPQ was developed by Biggs, Kember, and Leung (2001). The scale was adapted to Turkish by Yılmaz and Orhan (2011). The adaptation study yielded a two-factor scale, comprising an in-depth approach (ten items) and a superficial approach (ten items). The scale employed in this study is a five-point Likert-type scale. The confirmatory factor analysis indicated that the goodness of fit index values (x^2/df=2.19; GFI=0.91; AGFI=0.89; CFI=0.87; RMR=0.08; SRMR=0.062; RMSEA=0.057) were above acceptable levels. It has been documented that these values were deemed acceptable for the construct validity of the scale. The internal consistency (Cronbach's alpha) coefficients for the sub-dimensions of the scale were determined as 0.79 for in-depth approach and 0.73 for surface approach (Yılmaz & Orhan, 2011). The scale ranges from a minimum of twenty to a maximum of one hundred points. In the present study, the reliability of the SPQ was re-evaluated, and the Cronbach's Alpha coefficient was calculated as .72.

Data Collection and Analysis

The collection of data was preceded by the procurement of ethical clearance from the Afyon Kocatepe University Ethics Committee on 20/11/2024, with the approval number 317612. Subsequently, authorization to execute the study in educational institutions was obtained from the Istanbul Provincial Directorate of National Education, bearing the reference number E-59090411-20-92739114. Subsequently, the data were collected at two public secondary schools. Prior to the administration of the tools, the school's administrative authorities were contacted, and appointments were arranged. The data obtained from a total of 304 middle school students were subjected to analysis. The data were subsequently transferred to a digital environment and prepared for analysis.

In the course of the data analysis, the initial step entailed confirming whether the data manifested a normal distribution. The normality of the data distribution was verified through the implementation of the Kolmogorov-Smirnov test. According to this test, if $p > .05$, the data are considered to be normally distributed (Can, 2013). To test this hypothesis, parametric tests (Chi-square) were performed. However, the data did not exhibit a normal distribution, which is a common occurrence in many fields of study (Büyüköztürk, 2012; Can, 2013). Consequently, non-parametric tests (Mann-Whitney U-test, Kruskal-Wallis) were performed. Furthermore, percentage, frequency, and arithmetic mean calculations were performed on the data.

Findings

This section presents the results and discussion of the findings.

Table 1. Results of the Mann-Whitney U test on the problematic use of mobile phones by gender

Gender	N	Rank average	Rank total	U	P	r
Female	149	166,21	24766,00	9057,00	,003	.17
Male	152	136,09	20685,00			
Total	301					

As illustrated in Table 1, the results of the Mann-Whitney U test were examined to ascertain whether problematic mobile phone use varies based on gender. The findings indicate a statistically significant discrepancy between female and male students with regard to problematic mobile phone use (U= 9057,00, P<.05). The mean rank of the groups indicates that problematic mobile phone use is more prevalent among female students (166.21 >

136.09). This finding suggests that gender is an effective factor in the problematic use of mobile phones, and that female students exhibit a higher propensity for problematic mobile phone use. Besides, the effect size (r = .17) indicates that, while the difference is statistically significant, it represents a small effect.

Table 2. Results of the chi-square test on the correlation between gender and the reasons for the frequent use of mobile phones

Reasons for using mobile phones	Gender		Total	X²	df	p	Significant difference
	1- female	2-Male					
1-Communication	33	46	79	24.72	3	0.00	---
2-Playing games	18	44	62				2-1
3-Listening to music	23	7	30				1-2
4-Social media	66	47	113				1-2
5-Taking photographs	6	7	13	---	---	---	---
6-Studying	3	2	5				

The results of the chi-square test are presented in Table 2. As the options of studying and taking photographs were of lower frequency, they were eliminated from the analysis. Their frequencies are still included in Table 2 to facilitate interpretation of the results. The results presented in Table 2 indicate that the majority of participants utilized mobile phones for social media activities (113). The remaining prevalent reasons are reported by the participants as follows: communication (79) and playing games (62). Mobile phones were used less frequently for academic purposes, with a mean frequency of 5, and for photography, with a mean frequency of 13. The utilization of mobile phones has been observed to encompass both academic pursuits, as evidenced by five instances, and photographic documentation, with thirteen documented occurrences. A comparison of female and male students reveals discrepancies in their utilization of mobile phones for communication and recreational purposes, particularly with regard to gaming activities. In this regard, male students reported using mobile phones for such purposes with greater frequency. Female students used their mobile phones more frequently for social media and listening to music purposes.

As previously indicated, the findings of the chi-square test demonstrate a statistically significant discrepancy between female and male students with regard to the purposes of

mobile phone utilization (p < 0.05). This difference is seen in the categories of playing games (p = 0.000), listening to music (p = 0.003) and social media (p = 0.020). Consequently, female students exhibit a higher frequency of mobile phone usage than their male counterparts for social media browsing and music listening. Conversely, male students exhibited a greater proclivity for mobile gaming than their female counterparts. The study also found no significant difference between female and male students in terms of mobile phone usage for communication (p = 0.151).

Table 3. Results of the Kruskal-Wallis test on the problematic use of mobile phones by grade level

Grade level	N	Rank average	df	χ^2	P	Significant average	η^2
Grade 6	53	110,67	2	13,836	,001	7-6	.04
Grade 7	114	158,89				8-6	
Grade 8	134	160,24					

As illustrated in Table 3, the results of the Kruskal-Wallis test were used to ascertain the correlation between problematic mobile phone use and grade level. The findings of the study suggest the presence of a statistically significant correlation between problematic mobile phone use and grade levels. Specifically, seventh and eighth grade students demonstrated a significantly higher prevalence of problematic mobile phone use compared to sixth grade students. The effect size was calculated as η^2 = .04, indicating a small effect. A non-significant discrepancy was observed between the seventh and eighth grade students with regard to problematic mobile phone usage.

Table 4. Results of the Kruskal-Wallis test on the problematic use of mobile phones in terms of reasons for mobile phone use

Reason for use	N	Rank average	df	χ^2	p	Significant difference	η^2
1) communication	79	133,37	5	13,641	,018	4-1	
2) playing games	62	159,84				2-6	
3) listening to music	30	133,18				4-6	.03
4) social media	112	166,83					
5) taking photographs	13	153,42					
6) studying	5	65,90					
Total	301						

As illustrated in Table 4, the results of the Kruskal-Wallis test are presented. The findings of the study suggest a robust correlation between problematic mobile phone use and the underlying motivations for mobile phone usage. A subsequent investigation

revealed significant variations among participants in terms of mobile phone utilization for gaming, social media, and academic pursuits. The disparities observed are consistent with the propensity of individuals who utilize mobile phones for gaming and social media applications. Furthermore, a substantial discrepancy emerges between the utilization of mobile phones for social media and for communication, with a predilection toward the latter. The effect size was calculated as $\eta^2 = .03$, indicating a small effect.

Table 5. Results of the Mann-Whitney U test on the problematic use of mobile phones by ownership

Owning a mobile phone	N	Rank average	Rank total	U	p	r
Yes	281	153,90	43245,00	1996,00	,030	.013
No	20	110,30	2206,00			
Total	301					

Table 5 presents the results of the Mann-Whitney U test. A statistically significant discrepancy has been identified between problematic mobile phone usage and ownership (U= 1996.00, P<.05). Specifically, students who possess a mobile phone exhibit higher levels of problematic use compared to those who do not have a mobile phone. (153,90>110,30). The calculated effect size (r = .13) suggests that this difference corresponds to a small effect.

Table 6. Results of the Kruskal-Wallis test on the problematic use of mobile phones by the duration of daily internet use

Duration of internet use	N	Rank average	df	χ2	p	Significant difference	η²
1) Less than 1 hour per day	35	102,16	3	50,340	,000	3-1	
2) 1-2 hours per day	77	111,20				4-1	0.16
3) 2-3 hours per day	97	159,64				3-2	
4) 4 or more hours per day	92	193,78				4-2	
Total	301					4-3	

Table 6 presents the results of the Kruskal-Wallis test. A statistically significant correlation has been identified between daily internet use and problematic mobile phone use. In more precise terms, elevated levels of daily internet usage have been demonstrated to correspond with heightened levels of problematic mobile phone use. Conversely, a statistically significant discrepancy was not observed between individuals who utilize the internet for less than one hour per day and those who engage in internet usage for one to two hours per day with regard to problematic mobile phone use. A closer look at the other groups (3-1, 4-1, 3-2, 4-2, 4-3) reveals significant differences. The effect size was calculated as

$\eta^2 = .16$, indicating a large effect. A positive correlation has been demonstrated between the increased frequency of internet usage and problematic mobile phone use.

Table 7. Results of the Kruskal-Wallis test on the problematic use of mobile phones by students' approach to studying

Approach to Studying	N	Rank average	df	χ^2	p	significant difference	η^2
1) In-depth	142	130,87	2	15,483	,000	2-1	
2) Surface	138	171,79					.05
3) Mixed	21	150,52					
Total	301						

Table 7 presents the results of the Kruskal-Wallis test. The findings indicate a statistically significant correlation between students' approach to studying and their problematic use of mobile phones. Specifically, students who adopt a surface approach to studying exhibit a significantly more problematic use of mobile phones than those who adopt an in-depth approach to studying. The effect size was calculated as $\eta^2 = .05$, indicating a small effect.

Discussion, Conclusion and Limitations

This study examines secondary school students' approaches to studying in terms of problematic mobile phone use. The present study explores the impact of various factors on problematic mobile phone use, including the purpose of mobile phone use, daily internet use, gender, grade level, and possession of a mobile phone. The findings indicate that the purpose of mobile phone use, daily internet use, gender, grade level, and possession of a mobile phone have significant differences in terms of problematic mobile phone use. Moreover, a substantial relationship has been identified between problematic mobile phone use and the study approaches employed by the participants.

The present study indicates that gender significantly influences students' problematic mobile phone usage. A comparison of female and male students' scores reveals that females exhibit higher levels of problematic mobile phone use. This finding aligns with several studies in the existing literature. For instance, Roser et al. (2016) found that the frequency of the problematic use of mobile phones is significantly higher among Swiss female adolescents in contrast to Swiss male adolescents. Fischer-Grote et al. (2019) conducted a comprehensive review of 38 studies on the use of mobile phones by adolescents and concluded that female adolescents tend to be at greater risk of smartphone addiction. In their 2023 study, Olson et

al. examined the prevalence of smartphone addiction across 195 countries and their respective subdivisions. Their findings revealed that female participants exhibited significantly higher addiction scores compared to their male counterparts. Rękas and Burzyńska (2024) report that female participants exhibited higher scores of smartphone addiction in contrast to male participants, and that more than half of the female participants neglected their activities at home and at school due to the frequent use of mobile phones.

One potential explanation for this disparity is that girls may utilize mobile phones more extensively for entertainment and socializing purposes compared to boys. A study of Turkish students revealed that adolescents utilize mobile phones for a variety of activities, including internet surfing, music listening, phone calls, text messaging, photography and video recording, and gaming. Research has demonstrated that female adolescents utilize Instagram more frequently than their male counterparts. Moreover, they employ mobile phones to a greater extent for activities such as music listening, text messaging, and photography and video recording (Doğaner, 2017). According to the findings of a study, there is a higher correlation between the preference for specific mobile phone videos and the loss of control symptom among women with mobile phone addiction compared to men with the same condition (Wei et al., 2023). A further rationale for the elevated prevalence of problematic mobile phone use among female demographics may be attributed to diminished levels of self-control. A study revealed that individuals with low self-control exhibited a higher prevalence of mobile phone addiction, as indicated by their phone use history. In contrast, individuals with medium or high self-control demonstrated stability or a decline in mobile phone addiction over time (Jiang & Zhao, 2017). A further rationale for the elevated utilization of mobile phones among female demographics is the fear of missing out (FOMO). Taş (2022) reports that female high school students exhibit significantly higher FOMO scores compared to their male counterparts, and that heightened FOMO is associated with increased problematic use of mobile phones.

Studies have shown that female adolescents may use mobile phones in a more problematic way than their male counterparts. This discrepancy can be attributed, at least in part, to concerns about social media interactions. In a study conducted by Doğaner (2017) on a sample of 1274 high school students, it was reported that girls exhibited higher levels of interaction anxiety compared to boys. Additionally, this anxiety was found to be positively associated with problematic mobile phone use. A study of 1089 university students in

Mexico revealed that female students reported spending more time using mobile phones for messaging and social media, while male students reported using their phones more frequently while in the bathroom and while driving (Roque-Hernández et al., 2024).

A further rationale for the elevated use of mobile phones among female adolescents relative to their male counterparts pertains to the emotional disparities that characteristically distinguish the two genders. A body of research indicates a correlation between problematic mobile phone use and specific psychological factors, with these factors exerting differential effects on girls and boys (Yoo, 2024). Pawłowska and Potembska's (2011) study determined that girls utilize mobile phones with significantly greater frequency than boys to satisfy their need for acceptance and closeness, to establish and maintain social relationships, and to express their feelings. Furthermore, it has been documented that female individuals exhibit more pronounced symptoms of dependency on voice calls and text messages in comparison to their male counterparts. Indeed, the findings of this study indicate that female students utilize mobile phones to a greater extent for social media interactions and music listening than their male counterparts. In contrast, male students exhibit a significantly higher propensity to engage in gaming activities on their mobile devices.

While the majority of the extant literature indicates that girls exhibit a more problematic use of mobile phones, there are also studies that suggest that boys use mobile phones in a more problematic manner (Yılmaz, 2017). Contrary to this, other studies have reported that gender does not have any significant effect on problematic mobile phone use (Demirhan et al., 2016). Despite the existence of studies conducted on participants from various countries, disparate age levels, and different cultures that report differential findings, the present findings indicate that, in general, girls use their mobile phones more problematically than boys. Furthermore, these findings suggest that social bonding and emotional needs are influential in this regard, and that girls are at greater risk for having smartphone addiction.

Research in extant literature has also demonstrated that the gender of the participants significantly impacts the purposes for which mobile phones are used. That is to say, the purpose of utilizing mobile phones varies depending on gender (Shabur & Jahan, 2024). The present findings indicate that female students use their mobile phones more often for activities such as social media and listening to music than male students. Conversely, male students exhibited a higher frequency of mobile phone gaming than their female

counterparts. The increased frequency with which female students utilize mobile phones for activities such as social media and music listening may be associated with their motivation to establish social interaction, share experiences with friends, strengthen social ties, and derive enjoyment. It has been demonstrated that male students utilize mobile phones to a greater extent than female students for the purpose of engaging in recreational activities, such as playing games. These findings are consistent with the results of previous studies. As Pawłowska and Potembska (2011) asserts, female students exhibit a greater proclivity for mobile phone usage compared to their male counterparts. This heightened engagement with mobile technology is driven by their aspiration to fortify social connections, articulate their emotional sentiments, and disseminate their personal experiences. Additionally, it has been documented that females allocate a greater proportion of their time to messaging and social media browsing (Roque-Hernández et al., 2024). Naveed and Rauf (2024) reached the following conclusions: female users of social media exhibit higher usage than their male counterparts, and male users demonstrate a higher tendency towards social isolation and aggression. Özdemir's (2018) study posits that male students exhibit a proclivity for utilizing mobile phones with a heightened frequency for gaming purposes. This inclination is further characterized by a pronounced predilection for action and adventure-themed games. Moreover, the study uncovers a significant disparity in expenditure, with male students demonstrating a higher propensity to allocate financial resources toward enhancing their gaming proficiency, particularly in the pursuit of attaining higher levels of play.

The predominant purposes of mobile phone utilization are social media (113), communication (79), and gaming (62). Mobile phones are used less frequently for studying (5) and taking photographs (13). Consequently, mobile phones have emerged as a prominent medium for social interaction, communication, and entertainment. However, their application in educational settings remains comparatively restricted. A similar set of results is reported in a study conducted by Yılmaz (2017) on secondary school students. Specifically, it has been determined that students utilize mobile phones predominantly for activities such as making calls, accessing information, listening to music, messaging, and playing games. The utilization of mobile phones for socialization and entertainment purposes, excluding educational activities, has the potential to adversely impact students' learning outcomes. A subsequent analysis yielded the finding that, while a negligible proportion of students employ social media for educational purposes, the majority utilize it for entertainment

purposes, such as viewing humorous videos. Consequently, individuals experience challenges in maintaining concentration and effective time management (P & Kumar, 2024). Research has demonstrated a positive correlation between the duration of smartphone usage and the risk of developing smartphone addiction. Furthermore, studies have shown that excessive social media use can have a detrimental impact on academic performance (Zul Hilmi et al., 2024).

A subsequent investigation into the relationship between grade level and problematic mobile phone use in the current study revealed a positive correlation, indicating that as grade level increases, problematic use of mobile phones also increases. Specifically, seventh and eighth grade students demonstrated a substantially higher prevalence of problematic mobile phone use compared to sixth grade students. This phenomenon may be attributed to an increase in the need for social connection, identity exploration, and communication among some students during the transition to adolescence. During this period, students may experience a range of physiological and psychological changes that render them more susceptible to certain risks, including addiction, an increased desire to be online, and the sharing of personal photographs and videos. These risks often stem from excessive mobile phone use. Furthermore, as students progress through increasingly higher grade levels and age groups, they encounter an increasing number of opportunities to engage in behaviors that are less constrained by external expectations. These factors have the potential to contribute to an escalation in problematic mobile phone use among students. This perspective is further substantiated by extant findings in the field. A study of a sample of secondary students revealed a marked increase in problematic mobile phone use among students moving from sixth to eighth grade. The potential explanations for these disparities include the proliferation of mobile phone use, the rapid advancement and dissemination of technology, and the opportunities afforded by the family (Yılmaz, 2017). A notable finding from a study conducted on a sample of students aged 11-13 is that the prevalence of problematic mobile phone use, characterized by excessive text messaging, among female students increases with their age. The study's findings reveal that 13.5% of sixth grade students, 16.4% of seventh grade students, and 19.5% of eighth grade students exhibit problematic mobile phone use (Gallimberti et al., 2016). A substantial body of research has indicated that the problematic use of mobile phones is influenced by age (see De-Sola et al., 2017; Lu et al., 2024; Mascia et al., 2022). An analysis of problematic mobile phone use has

been conducted among members of Generation X, Y, and Z. The study found that Generation Z, defined as individuals aged 18 to 26, exhibited the highest levels of problematic mobile phone use compared to other groups across all subscales (Mascia et al., 2022).

Upon examination of the problematic use of mobile phones among the participants in relation to the purposes of mobile phone use, various correlations appear. The current study's findings indicate that individuals who utilize mobile phones primarily for social media exhibit the most problematic use patterns, with a subsequent tendency observed among mobile gamers. The group with the highest frequency of mobile phone utilization for academic purposes exhibited the lowest scores on the problematic use of mobile phones scale. The present study has demonstrated that the utilization of mobile phones for social media and gaming purposes is associated with a heightened propensity for problematic use, in contrast to the use of mobile phones for academic pursuits. Once more, it is evident that the social media group exhibits a heightened propensity for problematic mobile phone usage in comparison to the group that utilizes mobile phones solely for communication purposes. In light of the aforementioned findings, it can be posited that factors such as the allure of social media and mobile games, their addictive characteristics, and the challenges in regulating the duration of mobile phone usage may contribute to problematic mobile phone use. Secondary school students may not yet possess the necessary maturity to exercise self-control, and their problematic mobile use may have increased due to increased time spent on gaming and social media activities.

Excessive use of mobile games has been reported to negatively affect students' academic performance, physical health, and mental health (Feng, 2022). The present findings are consistent with this conclusion. In a study by Yanık and Özçiçek (2021), social media and gaming were found to be positive determinants of smartphone addiction and to increase it. The study also found a strong negative relationship between self-control and smartphone addiction, suggesting that people with high self-control may be less likely to become addicted to smartphones. Another study found that individuals with higher levels of problematic smartphone use tend to have lower levels of self-control and higher levels of social media fatigue. Self-control has been shown to mediate the relationship between problematic smartphone use and social media fatigue. Self-control reduces the direct effects of smartphone use on social media fatigue (Świątek et al., 2023). Many other studies report

that frequent social media use (Arnavut et al., 2018) and frequent mobile gaming (De Sola et al., 2019) increase problematic mobile phone use.

An additional finding of the study is that the possession of a mobile phone exerts a considerable influence on the problematic use of mobile phones. Specifically, students with their own phones use them more problematically. They can easily access their phones and spend more time on them. This can lead to more problematic use of mobile phones. Conversely, students who use others' phones as needed exhibit less problematic phone use. They have limited opportunities to use these devices, so they spend less time on dizzying digital activities (playing games, connecting to social media, etc.). Based on this, it can be concluded that parental control is an important factor in reducing problematic mobile phone use among students.

Another discovery of the investigation signifies that regular utilization of the web is considerably associated with the problematic use of cell phones. Significant differences were found between groups based on their daily internet use, except between those who used the internet for less than an hour per day and those who used it for one to two hours per day. Therefore, it can be concluded that individuals who use the internet for extended periods daily exhibit higher rates of problematic mobile phone use. As was mentioned above in the study, it was found that mobile phones are used by students for social media and gaming purposes. Frequent social media and gaming use can lead to addiction. Since these activities require an internet connection, they can also lead to internet addiction due to excessive use. Therefore, smartphone and internet addiction contribute to each other in a cyclical way. It is becoming clearer that the longer one uses the internet, the more likely they are to develop problematic mobile phone use. In fact, the present study indicates that the more frequently and for longer periods of time students use the internet, the more likely they are to become addicted to it (Wu & Pu, 2017). Another study reports that social media use is strongly related to smartphone addiction and tends to exacerbate it. Consequently, it can be concluded that increased daily internet use creates a habit loop among students, thereby exacerbating problematic mobile phone use.

The current inquiry further emphasizes the links between the problematic use of mobile phones and the methods of students in regard to studying. Specifically, students who take a superficial approach to studying use their phones more problematically than those who take an in-depth approach. This can be explained by the fact that students with a

superficial approach have difficulty gathering and maintaining attention, as well as managing their time, and tend to turn to short-term pleasures. Students with a superficial approach to studying are more vulnerable to distractions. Houghton (2004) argues that these students generally receive information passively, prioritize memorization, and focus on non-academic subjects. They do not attach much importance to establishing relationships between new information and previous knowledge; they just attempt to pass the class rather than being interested in the subjects. They also tend to mismanage their time and view subject content as material to be learned for exams (as cited in Özonur & Kamışlı, 2019). In other words, students with a superficial study approach may perceive the use of mobile phones as an escape or distraction. This makes their use of mobile phones more problematic. Conversely, students who adopt an in-depth study approach tend to search for meaning rather than memorize. They actively interact with learning content and establish connections between different topics and relationships between new and old information. They are determined during study and manage their time well. These students are also more successful at concentrating on course materials (Houghton, 2004; cited in Özonur & Kamışlı, 2019). Learners with an in-depth approach are more resistant to distractions, more successful in time management, and more active in their learning. They can be said to use their mobile phones more purposefully than learners with a surface approach. Studies focusing on this topic conclude that problematic mobile phone use reduces students' commitment to an in-depth approach, which involves fully understanding the learned content. Instead, it pushes students toward a more superficial learning approach. Higher levels of problematic mobile phone use are associated with less in-depth learning and more superficial learning (Rozgonjuk et al., 2018). This negatively affects students' academic achievement. In fact, students who adopt a superficial approach to learning tend to have lower academic success (Özonur & Kamışlı, 2019).

This study divulges a plethora of findings concerning the problematic use of mobile phones by students. The effects of various factors, such as gender, grade level, daily internet use, purpose of phone use, ownership of a phone, and study approach, on problematic phone use were examined in detail. The results revealed significant differences in problematic mobile phone use due to these factors. Female students were found to use mobile phones more problematically than male students. Female students were also found to be more prone to problematic use due to their more intensive use of mobile phones for

activities such as social media and listening to music. Male students, on the other hand, are more likely to use their phones for gaming. Grade level and increased daily internet use duration also affect problematic mobile phone use. This can be explained by their desire to socialize, be independent, communicate more, and experience fear of missing out (FOMO). Having a mobile phone was also found to be a significant factor that increases problematic use. The lack of parental control and easy access are thought to increase problematic mobile phone use among these students. Another interesting finding of the study is the significant relationship between students' approaches to studying and their problematic use of mobile phones. It has been demonstrated that students who engage in superficial study tend to utilize mobile phones in a more problematic manner. Conversely, students who take an in-depth approach to studying exhibit less problematic mobile phone use. It is reasonable to conclude that this is due to time management, self-control, motivation, and focus issues that students with a superficial study approach have. Notifications from various applications on mobile phones can also be distracting, especially during study time, and make it difficult for these students to focus.

In conclusion, parents, teachers, educators, and policymakers have significant roles to play in reducing student cell phone use. Parents must be aware of how they use mobile phones and serve as role models for their children. They can also use devices to monitor their children's phone usage. This solution reduces the problematic use of mobile phones and addresses the effects of ownership and excessive use. Teachers should control access to mobile phones for non-educational activities in the classroom and raise students' awareness about time management, self-control, and the harms of excessive phone use. Since students who adopt a superficial approach to studying use mobile phones more problematically, it is even more important for teachers to develop strategies and methods that encourage students to engage in more meaningful learning experiences. Policy makers and academics may initiate activities such as establishing commissions and providing budget support to prepare and offer interactive learning activities that encourage the use of mobile phones for educational purposes. Additionally, academics conducting studies on problematic mobile phone use could examine students' habits in relation to their parents' mobile phone usage and collect data on problematic use through various applications. This approach is important for obtaining objective data on problematic mobile phone use and for revealing similarities and differences in how parents and students use mobile phones. Additionally, since some

reasons for problematic phone use are psychological, studies can address self-control, depression, self-perception, and student-parent relationships. However, this study is limited to data obtained from only two public secondary schools in Istanbul, Türkiye. Since reasons for problematic mobile phone use are sensitive to cultural differences, conducting studies on samples from different groups would significantly contribute to the generalizability of the results.

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