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An Investigation of the Cyberloafing and Nomophobia Levels of University Students

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Abstract

The main objective of this study was to investigate the level of cyberloafing and nomophobia among university students. The study also aimed to assess the level of cyberloafing and nomophobia among university students in relation to various variables. Data were collected using demographic information form, a cyberloafing scale and a nomophobia questionnaire. The study was conducted with 302 students studying in a state university in the Southeast Anatolia region of Turkey during the fall semester of the 2021-2022 academic year. Descriptive statistics, one-way test ANOVA, independent samples t-test, Pearson's correlation coefficient and Kruskal-Wallis test were used to analyse the data. The analysis revealed that the students' cyberloafing level was low and nomophobia level was moderate. Based on the statistical analyses, significant differences were found between students' level of nomophobia according to gender and daily phone usage. However, no statistically significant difference was found between students' age and their level of nomophobia. No significant difference was also found between gender, age, daily phone usage and level of cyberloafing. Moreover, there is a significant relationship between cyberloafing and nomophobia behaviour of the students.

Introduction

Recently, information and communication technologies, which accelerate the access of individuals and society to information and diversify communication opportunities, have greatly changed social life and the field of education. Mobile technologies, which are now widely used with the development of their functions, are also communication tools that bring about these changes. According to the research company Statista (2021), there are 7.1 billion mobile users worldwide. In the same report, it is estimated that the number of mobile users will increase to 7.26 billion in 2022 (Statista, 2021). However, it can be said that the excessive or unconscious use of these technological tools, which have become an indispensable part of our lives, causes various social, physical and psychological problems in our daily lives. Moreover, these tools, which are easily accessible and used by people of all ages, cause some problems in the field of education. The negative aspects of such tools are that the technologies cause undesirable situations such as addiction, restlessness, depression, idleness, bullying and loneliness. Cyberloafing and nomophobia are also behaviors that distract students from the lesson and often have a negative impact on the learning environment. With the increase of technological tools and internet access in

schools, students are enabled to engage in such negative behaviors in the educational environment. In the literature, it has been found that when students are bored outside of school or in the classroom, they play games on their mobile phones, spend time on social networks, chat, or take a break to tweet while doing homework (Gezgin, Arslantaş & Şumuer, 2018; Lepp et al., 2015; Seçkin & Kerse, 2017; Şenel et al., 2019). It can be said that such behaviors worry students, reduce their attention to instruction, make it difficult to achieve planned goals in the classroom, and negatively affect their academic performance (Alan, 2019; Gezgin & Çakır, 2016; Şenel et al., 2019). Therefore, the use of the Internet and mobile devices in the classroom has become a topic of discussion in the context of learning processes in recent years. In this context, it is necessary to investigate such negative behaviors as well as the positive effects of technology in educational environments in order to design a more qualified educational environment.

One of the most important problems in educational environments is the fear of staying away from technological tools. It can be said that with the increasing use of technology, there are also some undesirable effects such as restlessness or addiction. With the increasing use of technological tools, the effects of which we feel in all fields, nomophobia among users has increased with Industry 4.0. Derived from the words No Mobile Phobia, nomophobia can be briefly expressed as the fear of being without a mobile phone (not being able to be online and inability to communicate) (Kaplan & Gezgin, 2016; King et al., 2014; Sarioğlu, 2018). Nomophobia, which is spreading worldwide, is also referred to as a pathological fear of being away from technology (Bragazzi & Del Puente, 2014). This concept, which limits social interaction, has symptoms such as carrying a cell phone on a regular basis, checking the phone frequently, always carrying a charger or carrying more than one device, and not even leaving the smartphone next to them while sleeping (Bragazzi & Del Puente, 2014; Dixit et al., 2010). Today, with the increase of smartphones, it can be said that nomophobia has increased, which cannot be ignored, especially among young people (Dixit et al., 2010; Kaplan & Gezgin, 2016; King et al., 2013; Sharma et al., 2015). Nomophobia, now referred to as the phobia of modernity, not only alters our daily routines, but also negatively affects students' school life and academic success (Adnan & Gezgin, 2016; Dixit et al., 2010; Spitzer, 2015).

Nomophobia is the fear and anxiety a person feels when they have a problem accessing mobile devices or cannot communicate through mobile devices. Due to this fear, difficulties arise in the person's adaptation to their daily work (Adnan & Gezgin, 2016; Yıldırım & Correia, 2015). Therefore, it can be observed that individuals who experience nomophobia tend to stay away from places where the use of the device is prohibited (Bragazzi & Del Puente, 2014). Nomophobia is the result of the development of new technologies that allow people to communicate virtually (Öz & Tortop). Nomophobia, a problem of today's virtual and digital society and a serious threat especially for the young generation, is a disorder caused by the disappearance of contact with the computer as well as the mobile phone. These disorders cause many physical and psychological problems, especially obesity, anxiety, panic, depression and irritability (Adnan & Gezgin, 2016; Aşık, 2018; Broughton, 2015; Pavithara et al., 2015).

One of the negative behaviors observed in virtual environments that has come to the forefront in recent years is cyberloafing. Cyberloafing is a form of behavior that represents an escape into the online world and tells of

escaping the obligations of the offline environment. The concept of cyberloafing is also referred to as cyberslacking or cyber deviance in the literature (Akgün, 2020). This concept, which entered the literature in the 2000s, can be expressed as the use of the Internet outside of business purposes during working hours (Keklik et al., 2015; Yazgan & Yıldırım, 2020). Cyberloafing is the use of the Internet by workers for personal purposes in a way that reduces their work efficiency (Blanchard & Henle, 2008; Lim, 2002). Cyberloafing is the use of the Internet, mobile phone, or laptop for reasons other than educational purposes (Kalaycı, 2010; Knight, 2017). Cyberloafing can be referred to as one of the barriers to the successful integration of technology in education (Karaođlan Yılmaz et al., 2015).

Cyberloafing behaviors can be examined under two dimensions. Minor (unimportant) cyberloafing behaviors include actions such as sending personal emails, using social networks, shopping online, and visiting news, sports, or financial websites during work or task time. In contrast, serious cyberloafing behaviors that are considered more important include using websites that can harm the organization's system, such as online gambling, reading blogs, downloading music, or browsing porn sites (Alan, 2019; Blanchard & Henle, 2008; Kerse, Soyalm & Karabey, 2016; Weatherbee, 2010).

Bağrıçak Yılmaz (2017) generally defines the causes of cyberloafing under three factors. These are personal, work-related, and external factors. Personal factors include reasons such as personal interest, curiosity, concentration problems, or distraction. Behaviors such as boredom, fatigue, and procrastination belong to work-related factors. External factors, on the other hand, include factors such as notifications from the phone or computer, advertising, and the volume of the phone.

Cyberloafing behaviors are often considered inappropriate and potentially harmful activities for businesses. However, in various studies, these behaviors have also been shown to have positive aspects, even if they are short-lived (Alan, 2019; Şenel et al., 2019). Cyberloafing can be a facilitator in managing an increasingly complex business and personal life. Cyberloafing can contribute to continuous learning. Cyberloafing can promote subliminal problem solving and can be used as a break from the daily work routine. At the same time, cyberloafing can serve as an office toy that reduces work stress and stimulates creativity (Anandarajan & Simmers, 2005; Lim, 2002; Lim & Chen, 2012; Oravec, 2002).

Recently, the widespread use of the Internet and mobile technologies in educational environments has led to an increase in cyberloafing behavior. It can be said that cyberloafing occurs mainly on smartphones and in almost every type of course (Polat, 2018). As a result of cyberloafing behavior observed in these environments, there is a decrease in academic performance, difficulty in classroom management, decrease in educational productivity, decrease in motivation, and loss of attention (Arabacı, 2017; Yazgan & Yıldırım, 2020). In such an environment, it also becomes difficult for the course to achieve its planned goals (Şenel et al., 2019).

The Purpose of the Research

Recently, it has been observed that the Internet and mobile devices are frequently used, especially by young

people. However, it can be said that these intensively used and abused means of communication negatively affect the habits, behavior and emotions of users. Cyberloafing and nomophobia are negative behaviors that we have encountered frequently in recent years and are practiced by many people and pose a serious threat. These behaviors directly affect the academic performance and attention mechanisms of individuals. The literature states that identifying these behaviors and determining the variables that influence them will help educators and institutions prevent them (Akgün, 2020). It is believed that there is a need to study the prevalence of cyberloafing and nomophobia, especially among the younger generation, in order to gain an understanding of this problem. In this regard, the current study aimed to investigate the extent of cyberloafing and nomophobia among college students in relation to various variables. It is believed that the findings obtained from the study will form the basis for various studies and contribute positively to the field.

In this context, the questions to be answered in the study can be listed as follows:

1. What is the distribution of participants' phone use status?
2. What is the level of nomophobia of the participants?
3. What is the level of cyberloafing of the participants?
4. Do participants' nomophobia and cyberloafing differ by gender, age, or daily phone use time?
5. Is there a significant relationship between participants' cyberloafing and their nomophobic behavior?

Method

This section presents information about the research model, participants, data collection instruments, and data analysis.

Research Model

A survey model was used in this study. This model aims to identify the characteristics of a large group of participants without interfering with the environment (Büyüköztürk et al., 2014; Creswell, 2012). In this study, the survey model was used because it aimed to determine the participants' level of cyberloafing and nomophobia.

Participants

The participants in the study are undergraduate students studying at a state university in the Southeast Anatolia region of Turkey. The participants, who were randomly selected among the students of the university, were reached through a convenient sampling method. The data were collected through an online survey. The process of data collection took two weeks. The research was conducted with 302 participants in the fall semester of the academic year 2021 - 2022. Table 1 presents the gender and age of the participants, as well as the distribution and percentage of their families' monthly income.

Looking at Table 1, it is clear that more than half of the university students who participated in the study were female (62.25%). It is also observed that the participants of the study were unevenly distributed by age. It was

found that participants were generally aged between 19 and 21 years (75.83%). However, in terms of family income, it was found that more than half of the participants had income equal to the minimum wage (51.99%). It was also found that most of the families had middle income. On the other hand, it is noted that 15.56% of the families have an income of 5001 TL or more.

Table 1. Demographic Information about the Participants

Variables	Category	f	%
Gender	Female	188	62.25
	Male	114	37.75
Age	≤18	31	10.26
	≥19, ≤21	229	75.83
	≥22	42	13.91
Monthly income of the family	≤3000TL	157	51.99
	≥3001, ≤4000TL	56	18.54
	≥4001, ≤5000TL	42	13.91
	≥5001 TL	47	15.56
Total		302	100

Data Collection Instruments

Consistent with the purpose of the study, participants were administered a demographic information form, a cyberloafing scale, and a nomophobia questionnaire. Information on the data collection instruments is presented in detail below.

Demographic Information Form

The researchers created a demographic form to collect information about the socio-demographic background of the participants. This form provides information about the gender and age of the participants as well as the distribution of monthly family income and its percentages. In addition, this form includes information about the participants' status in phone use.

Cyberloafing Scale

The cyberloafing scale was developed by Blau, Yang, and Ward-Cook (2006). The Turkish adaptation of the scale was done by Polat (2018). The scale consists of three sub-factors and 16 items. The factors are "browsing-related cyberloafing", "interactive cyberloafing" and "non-work-related e-mail cyberloafing". The scale is a 6-item likert type. The items are rated from "Never (1)" to "Always (6)". The internal consistency coefficient Cronbach's alpha calculated for the entire scale was determined to be 0.88. The value calculated in this study is 0.84. It can be concluded that the scale is valid and reliable.

The Nomophobia Questionnaire

The Nomophobia Scale was developed by Yildirim and Correia in 2015. The Turkish adaptation of the scale was prepared by Yildirim, Sumuer, Adnan, and Yildirim in 2016. The scale consists of four dimensions and a total of 20 items. The dimensions are not being able to communicate (6 items), losing connectedness (6 items), giving up convenience (5 items) and not being able to access information (4 items). The scale is a 7-item likert type. The items are scored from "strongly disagree (1)" to "strongly agree (7)". The internal consistency coefficient Cronbach's alpha calculated for the total scale developed by Yildirim and Correia (2015) was reported as 0.95. The value calculated in this study is 0.89. The scores of the nomophobia scale range from 20 to 140. A score of 20 on the scale indicates the absence of nomophobia, a score between 20 and 60 indicates a mild level of nomophobia, a score between 60 and 100 indicates a moderate level of nomophobia, and a score between 100 and 140 indicates severe nomophobia (Yildirim & Correia, 2015; Yildirim et al., 2016).

Data Analysis

During the analysis of the data, first of all, homogeneity and normality assumptions were checked according to the total score of the scales used in the study. In the analysis process, descriptive statistics such as percentage (%), frequency (f), mean (\bar{X}) and standard deviation (SD) were used. However, independent samples t-test, One Way-ANOVA, Tukey HSD test, Mann-Whitney U-test, Pearson correlation coefficient and Kruskal Wallis tests were used depending on the variables. IBM SPSS Statistics v20.0 (Statistical Package for the Social Sciences) and MS-Excel 2010 programs were used in data analysis. Level of significance was set at $p < .05$.

Results

The results of the research are presented in subsections in the order of the research objectives. In this context, the results on the status of participants' phone use were presented first. Then, the participants' nomophobia and cyberloafing levels were examined. Finally, the participants' nomophobia and cyberloafing scores were compared using different variables.

Phone Usage Status of the Participants

The study first examined the participants' daily phone usage. Then, it aimed to determine the results, including the status of participants using the phone before sleeping and after waking up, as well as the reasons for using the phone during class. The findings obtained in the study are shown in Table 2. Majority (65.89%) of the university students who participated in the study used their phones more than 3 hours per day (see Table 2). Moreover, it shows that the majority (81.79%) of the students spend time on their phones before sleeping. Again, 71.85% of the students reported that they check their phone as soon as they wake up.

On the other hand, students were also asked about the purpose of phone use during class. In this question, students could select several options. According to this question, almost half (48.01%) of the students do not use their

phone during class. However, some of the students use their phones to research about the course while others use their phones out of boredom.

Table 2. Descriptive Analysis of Participants' Phone Use

Variables	Category	f	%
Daily phone usage time	<1h	14	4.64
	$\geq 1, \leq 2$ h	89	29.47
	$\geq 3, \leq 5$ h	152	50.33
	≥ 6 h	47	15.56
Spending time with a phone before sleeping	Yes	247	81.79
	No	55	18.21
Checking phone as soon as wake up	Yes	217	71.85
	No	85	28.15
The purpose to use the phone during class	Research about the lesson	12	3.67
	Boredom	35	10.70
	Messaging with friends	13	3.98
	Playing games	57	17.43
	Read news from internet	8	2.45
	Request to social networks	11	3.36
	Do not use phone during class	157	48.01
	Others	34	10.40

Nomophobia Level of Participants

The descriptive data on the participants' level of nomophobia is presented in Table 3. Looking at Table 3 is examined, it is clear that the mean scores of the dimensions of the nomophobia scale are as follows: "not being able to access information" ($\bar{X}=16.69$), "losing connectedness" ($\bar{X}=19.34$), "not being able to communicate" ($\bar{X}=21.95$), and "giving up convenience" ($\bar{X}=21.79$). It was also found that the mean score of nomophobia scale was ($\bar{X}=79.78$). Accordingly, it can be said that the university students who participated in the study have moderate levels ($\bar{X}/m=3.99$) of nomophobia.

Table 3. Distribution of Data on Participants' Nomophobia Scale and its Dimensions

Dimensions	m	\bar{X}	\bar{X}/m	sd
Not being able to access information	4	16.69	4.17	6.456
Losing connectedness	6	19.34	3.22	8.038
Not being able to communicate	6	21.95	3.66	8.845
Giving up convenience	5	21.79	4.36	7.774
Total	20	79.78	3.99	26.538

m: item number

Cyberloafing Levels of Participants

The study also assessed the cyberloafing level of the participants. The data related to this are given in Table 4. In Table 4, it can be seen that the mean scores of the dimensions of cyberloafing scale are "browsing-related cyberloafing" (\bar{X} =13.87), "non-work-related e-mail cyberloafing" (\bar{X} =5.81) and "interactive cyberloafing" (\bar{X} =13.41). Accordingly, it can be said that the cyberloafing level of the participants is low (\bar{X}/m =2.07).

Table 4. Distribution of Data on the Participants' Cyberloafing Scale and its Sub-Factors

Dimensions	m	\bar{X}	\bar{X}/m	SD
browsing-related cyberloafing	6	13.87	2.31	7.961
non-work-related e-mail cyberloafing	3	5.81	1.94	3.313
interactive cyberloafing	7	13.41	1.92	5.885
Total	16	33.09	2.07	14.132

m: item number

Investigation of Participants' Nomophobia and Cyberloafing Levels in terms of Various Variables

In this section, the nomophobia and cyberloafing levels of the students participating in the study were examined according to gender, age and daily phone usage time. The related research findings are presented below.

Investigation of Participants' Nomophobia and Cyberloafing Levels by Gender Variable

An independent samples t-test was conducted to determine if participants' levels on the Nomophobia and Cyberloafing scales differed by gender. The results of this test can be found in Table 5. There is no statistically significant difference between the genders of the participants in the "not being able to access information" sub-dimension of the nomophobia scale and in all sub-dimensions of the cyberloafing scale ($p > .05$).

Table 5. Comparison of the Participants' Nomophobia and Cyberloafing Levels according to Gender (* $p < .05$)

Scale	Dimensions	Gender	N	\bar{X}	SD	df	t	p
Nomophobia	Not being able to access information	Female	188	17.00	6.513	300	1.028	0.305
		Male	114	16.18	6.356			
	Losing connectedness	Female	188	20.28	8.186	300	2.553	0.011*
		Male	114	17.77	7.565			
	Not being able to communicate	Female	188	22.83	8.710	300	2.160	0.032*
		Male	114	20.49	8.916			
	Giving up convenience	Female	188	22.79	7.460	300	2.817	0.005*
		Male	114	20.12	8.032			
	Total	Female	188	82.90	26.690	300	2.572	0.011*
		Male	114	74.56	25.564			

Scale	Dimensions	Gender	N	\bar{X}	SD	df	t	p	
Cyberloafing	browsing-related cyberloafing	Female	188	13.63	8.201	300	-0.649	0.517	
		Male	114	14.27	7.564				
	interactive cyberloafing	Female	188	13.30	6.060	300	-0.382	0.703	
		Male	114	13.58	5.605				
	non-work-related e-mail cyberloafing	Female	188	5.75	3.423	300	-0.381	0.703	
		Male	114	5.90	3.133				
	Total		Female	188	32.68	14.610	300	-0.614	0.540
			Male	114	33.75	13.339			

In contrast, there is a statistically significant difference between the participants in "losing connectedness" [$t(300)=2.553$, $p<.05$], "not being able to communicate" [$t(300)=2.160$, $p<.05$], "giving up convenience" [$t(300)=2.817$, $p<.05$], and the total score of the nomophobia scale [$t(300)=2.572$, $p<.05$] according to gender, and this difference is in favor of female students. Accordingly, it can be said that the level of nomophobia is higher in females ($\bar{X}=82.90$) than males ($\bar{X}=74.56$).

Investigation of Participants' Nomophobia and Cyberloafing Levels by Age Variable

The study also examined whether participants' scores on the Nomophobia and Cyberloafing scales differed by age variable. The Kruskal Wallis test was used for this purpose. The results are presented in Table 6 and Table 7.

Table 6. Comparison of the Participants' Nomophobia Levels according to Gender (* $p<.05$)

Dimensions	Age	N	\bar{X}	SD	Mean Rank	df	X^2	p
Not being able to access information	(1) ≤ 18	31	18.73	7.052	170.63	2	4.084	0.130
	(2) $\geq 19, \leq 21$	229	16.52	6.482	138.07			
	(3) ≥ 22	42	16.25	5.724	133.46			
Losing connectedness	(1) ≤ 18	31	21.50	8.213	162.04	2	7.719	0.021*
	(2) $\geq 19, \leq 21$	229	19.61	8.147	143.21			
	(3) ≥ 22	42	16.17	6.408	108.51			
Not being able to communicate	(1) ≤ 18	31	22.65	9.453	144.60	2	1.405	0.495
	(2) $\geq 19, \leq 21$	229	22.16	8.949	142.46			
	(3) ≥ 22	42	20.17	7.707	125.67			
Giving up convenience	(1) ≤ 18	31	23.46	7.399	158.58	2	4.620	0.099
	(2) $\geq 19, \leq 21$	229	21.89	8.056	142.33			
	(3) ≥ 22	42	19.97	5.892	116.35			
Total	(1) ≤ 18	31	86.35	28.721	159.46	2	5.078	0.079
	(2) $\geq 19, \leq 21$	229	80.18	26.972	142.42			
	(3) ≥ 22	42	72.56	20.674	115.15			

The analysis revealed that the sub-dimensions "not being able to access information" [X^2 (df=2, n=302) = 4.084, $p > .05$], "not being able to communicate" [X^2 (df=2, n=302) = 1.405, $p > .05$], "giving up convenience" [X^2 (df=2, n=302) = 4.620, $p > .05$] of participants' nomophobia scale and total scale score [X^2 (df=2, n=302) = 5.078, $p > .05$] showed no statistically significant difference depending on age. On the other hand, it was found that there was a significant difference according to age in favor of the students "18 years and younger" for the sub-dimension "losing connectedness" sub-dimension [X^2 (df=2, n=302) = 7.719, $p < .05$] of the participants' nomophobia scale.

The study also investigated whether there was a significant difference between participants' cyberloafing level and their age. The results in this regard are presented in Table 7.

Table 7. Comparison of the Participants' Cyberloafing Levels according to Age

Dimensions	Age	N	\bar{X}	SD	Mean Rank	df	X^2	p
Browsing-related cyberloafing	(1) ≤ 18	31	11.23	5.935	115.56			
	(2) $\geq 19, \leq 21$	229	14.10	8.303	141.63	2	3.251	0.197
	(3) ≥ 22	42	14.39	6.842	151.65			
Interactive cyberloafing	(1) ≤ 18	31	12.88	5.778	131.85			
	(2) $\geq 19, \leq 21$	229	13.44	5.999	140.38	2	0.567	0.753
	(3) ≥ 22	42	13.61	5.368	147.47			
Non-work-related e-mail cyberloafing	(1) ≤ 18	31	5.31	2.510	134.10			
	(2) $\geq 19, \leq 21$	229	5.77	3.359	139.17	2	1.168	0.558
	(3) ≥ 22	42	6.42	3.524	153.18			
Total	(1) ≤ 18	31	29.42	12.605	119.02			
	(2) $\geq 19, \leq 21$	229	33.30	14.526	140.78	2	2.880	0.237
	(3) ≥ 22	42	34.42	12.582	154.29			

The analysis revealed no significant difference between the extent of cyberloafing as a function of participants' age [X^2 (df=2, n=302) = 2.880, $p > .05$]. It can be concluded that the participants' level of cyberloafing does not change with age. Moreover, it was found that there was no significant difference in the sub-factors of "browsing-related cyberloafing" [X^2 (df=2, n=302) = 3.251, $p > .05$], "interactive cyberloafing" [X^2 (df=2, n=302) = 0.567, $p > .05$] and "non-work related e-mail cyberloafing" [X^2 (df=2, n=302) = 1.168, $p > .05$] depending on the age of the participants.

Investigation of the Participants' Level of Nomophobia and Cyberloafing as a Function of the Variable of Daily Phone Usage Time

The study used the One Way-ANOVA to determine whether participants' scores on the nomophobia scale differed as a function of the variable of average daily phone usage time. The corresponding analysis results can be found in Table 8.

Table 8. Comparison of Participants' Nomophobia Levels as a function of Daily Phone Usage Time (*p<.05)

Dimensions	Time	N	\bar{X}	SD	df	F	p	Difference
Not being able to access information	(1) <1h	14	15.45	7.313	3-298	6.057	0.001*	4>2
	(2) ≥1, ≤2h	89	14.46	6.148				3>2
	(3) ≥3, ≤5h	152	17.32	6.417				
	(4) ≥6h	47	18.96	5.872				
Losing connectedness	(1) <1h	14	17.64	9.179	3-298	4.302	0.006*	4>2
	(2) ≥1, ≤2h	89	17.46	7.660				
	(3) ≥3, ≤5h	152	19.49	7.872				
	(4) ≥6h	47	22.53	8.091				
Not being able to communicate	(1) <1h	14	21.09	8.972	3-298	2.013	0.112	
	(2) ≥1, ≤2h	89	20.40	8.977				
	(3) ≥3, ≤5h	152	22.13	8.183				
	(4) ≥6h	47	24.30	10.147				
Giving up convenience	(1) <1h	14	22.00	7.416	3-298	1.620	0.185	
	(2) ≥1, ≤2h	89	20.48	7.762				
	(3) ≥3, ≤5h	152	21.94	7.451				
	(4) ≥6h	47	23.57	8.632				
Total	(1) <1h	14	76.18	28.028	3-298	4.202	0.006*	4>2
	(2) ≥1, ≤2h	89	72.79	25.852				
	(3) ≥3, ≤5h	152	80.87	25.344				
	(4) ≥6h	47	89.36	28.228				

The analysis revealed that no significant difference was found between participants' nomophobia levels in the subfactors "not being able to communicate" [F(3–298)=2.013; p>.05] and "giving up convenience" [F(3–298)=1.620; p>.05] as a function of daily phone usage time. On the other hand, a significant difference was found for the subfactors "not being able to access information" [F(3–298)=6.057; p<.05] and "losing connectedness" [F(3–298)=4.302; p<.05]. In addition, a significant difference was found in participants' total scores on the Nomophobia Scale as a function of their daily phone time [F(3-298)=4.202; p <.05]. Scheffe's test was used to determine between which periods of use there were significant differences. Accordingly, a significant difference was found between those who use the phone "1-2 hours", "3-5 hours", and those who use the phone "6 hours or more" on the subfactor of "not being able to access information". This difference is in favor of the participants who use the phone "6 hours or more". In addition, a significant difference was found between those who use the phone "1-2 hours" and those who use it "6 hours or more" on the total scores of the "losing connectedness" subfactor and the nomophobia scale. When analyzed, a significant difference was found in favor of the participants who use the phone "6 hours or more". These results suggest that the nomophobia of the participants who use the phone "6 hours or more" daily is higher than that of the other participants.

Otherwise, the One-Way ANOVA was applied to determine whether participants' total scores on the cyberloafing

scale and sub-factors differed according to average daily phone usage time. The analysis results for this outcome are shown in Table 9.

Table 9. Comparison of Participants' Cyberloafing Levels as a function of Daily Phone Usage Time (*p<.05)

Dimensions	Time	N	\bar{X}	SD	df	F	p
browsing-related cyberloafing	(1) <1h	14	16.09	9.565	3-298	0.416	0.742
	(2) ≥1, ≤2h	89	14.22	8.439			
	(3) ≥3, ≤5h	152	13.59	7.496			
	(4) ≥6h	47	13.57	8.238			
interactive cyberloafing	(1) <1h	14	12.82	4.400	3-298	0.553	0.646
	(2) ≥1, ≤2h	89	13.10	5.535			
	(3) ≥3, ≤5h	152	13.30	5.915			
	(4) ≥6h	47	14.38	6.694			
non-work-related e-mail cyberloafing	(1) <1h	14	6.09	3.673	3-298	0.217	0.885
	(2) ≥1, ≤2h	89	5.90	3.169			
	(3) ≥3, ≤5h	152	5.84	3.432			
	(4) ≥6h	47	5.47	3.189			
Total	(1) <1h	14	35.00	14.967	3-298	0.106	0.956
	(2) ≥1, ≤2h	89	33.22	14.425			
	(3) ≥3, ≤5h	152	32.74	13.529			
	(4) ≥6h	47	33.43	15.567			

The analysis revealed that there was no significant difference between the sub-factors of "browsing-related cyberloafing" [F(3-298)=0.416; p>.05], "interactive cyberloafing" [F(3-298)=0.553; p>.05] and "non-work-related e-mail cyberloafing" [F(3-298)=0.217; p>.05] according to participants daily phone usage time. Similarly, it was found that participants' total scores on the cyberloafing scale showed no statistically significant difference according to daily phone usage time [F(3-298)=0.106; p >.05]. Given this result, it can be concluded that the daily phone usage time of the participants has no influence on the cyberloafing levels.

Investigation of the Relationship between Nomophobia and Cyberloafing Levels of the Participants

Pearson correlation coefficient was used to determine if there is a relationship between nomophobia and cyberloafing levels of university students. The status of the relationship between the variables is presented in Table 10.

Table 10. The Relationship between Participants' Nomophobia and Cyberloafing Levels (*p<.01)

	N	r	p
Nomophobia	302	0.286	0.000*
Cyberloafing			

The study revealed that there was a positive and significant correlation between participants' nomophobia and the level of cyberloafing. Accordingly, there is a low correlation between participants' nomophobia and the level of cyberloafing [$r=0.286$, $p < .01$].

Discussion

This study investigated the level of cyberloafing and nomophobia among students at a state university in the Southeast Anatolia region of Turkey. In addition, the level of students' cyberloafing and nomophobia was assessed using different variables. The phone usage status of the students participating in the study was also examined. As a result of the study, it was found that most of the participants used their phones for 3 hours or more per day. The main reason for this result is that mobile phones are not only used as a means of communication, but also for many other purposes such as surfing the Internet, using social networks, playing games, shopping online, taking photos, and listening to music. Similar to the results of our study, the study of Talan, Korkmaz & Gezer (2016) and Bulduklu & Özer (2016) also concluded that more than half of the participants used their mobile phones for 3 hours or more per day. It can be said that the participants who spend a lot of time using their phones cause some health problems.

It was also found that the majority of the participants spent time on their phones before sleeping. It was also observed that a significant proportion of participants check their phone as soon as they wake up. Similarly, Sarioğlu's (2019) study, more than half of the participants reported checking their phone before sleeping and after waking up. In the study conducted by Sırakaya (2019), it was found that a significant proportion of students checked their mobile phones before sleeping and after waking up and did not turn off their mobile phones even while sleeping. In the research conducted by Turan and İşçitürk (2018), 82.4% of the participants reported that they felt uncomfortable when their phone was discharged. In the study conducted by Kaplan and Gezgin (2016), it was found that individuals who are prone to nomophobia check their phones frequently during the day, do not turn off their phones at night, spend time on their phones before sleeping, carry a charger, and check their phones as soon as they wake up.

The study also found that about half of the participants do not use their phones during class. However, some of the participants use their phones to research about the lesson, while others use their phones during class out of boredom. In the study conducted by Seçkin and Kerse (2017), it was found that students use the internet to research about the topic covered in class. However, in the study conducted by Akgün (2020), it was found that students generally do not use their smartphones for instructional purposes and spend their time inefficiently, which can be a problem for teachers or classmates.

One of the findings of the study is that the participants have moderate nomophobia. Some studies in the literature support this finding (Adnan & Gezgin, 2016; Aşık, 2018; Burucuoğlu, 2017; Gezgin & Adnan, 2016; Gezgin & Çakır, 2016; Gezgin et al, 2018; Kaplan & Gezgin, 2016; Sezer & Atilgan, 2019; Turan & İşçitürk, 2018). For example, in Becit İşçitürk's (2020) study, 79.3% of the participants were found to have moderate and high levels of nomophobia and 20.7% had low levels of nomophobia. However, it can be said that with the increase in

nomophobia, individuals' anxiety and stress increase, sleep disturbances occur, interest in class decreases, and academic success is negatively affected (Gezgin & Çakır, 2016). In a study of medical students in India, it was found that about 73% of the students were nomophobic and 83% experienced panic attacks when they lost their mobile phones (Sharma et al., 2015). In another study, it was found that 42.6% of adolescents exhibited nomophobic behaviour and their greatest fears were fear of not having access to information and not being able to communicate (Yıldırım et al., 2016). In the study conducted by Pavithra, Mathukumar, and Murphy (2015), about 23% of the participants reported that they lose concentration and feel stressed when their mobile phone is not around. In addition the same study found that 39.5% of participants were nomophobic and 27% were at risk for nomophobia. According to Tavalacci et al. (2015), it was found that almost one out of every student who participated in the study exhibited nomophobic behaviour. Erdem, Türen, and Kalkın (2017) found in their study that 47% of transportation sector employees and 54% of undergraduate students were nomophobic. In another study, it was found that the level of nomophobia of the participants was low (Sarioğlu, 2019). However, in some studies, it was found that the level of participants' nomophobia was high (Kocabaş & Sezer Korucu, 2018; Öz & Tortop, 2018).

Another finding of the study is that the cyberloafing level of the participants is generally low. In other words, it can be said that students avoid cyberloafing behaviors. The fact that almost half of the participants in our study do not use their phones during class shows that they are not very prone to cyberloafing behaviors. There are studies in the literature that support our research findings. For example, Yazgan and Yıldırım (2020) concluded that the participants' cyberloafing status was below the scale average. Similarly, Gülnar and Ünsal (2020) found that students' cyberloafing with their smartphones in class was low. Again, Ozdamli and Ercag (2021) concluded that students sometimes engage in virtual idleness with mobile devices during class. On the other hand, some studies found that students' cyberloafing is at a moderate level (Çınar & Cinisli, 2018; Seçkin & Kerse, 2017; Şenel et al., 2019). In another study, it was found that participants' cyberloafing behavior was above average in all dimensions (Tozkoparan & Kuzu, 2019). Spending more time on the Internet, even if one only has a smartphone, increases the level of cyberloafing (Şenel et al., 2019). The increase in cyberloafing can also have many negative effects, such as an increase in stress and anxiety among individuals, a decrease in the desire to work and productivity, and regret and health problems (Bağrıçık Yılmaz, 2017).

The research also examined whether participants' scores on the Nomophobia and Cyberloafing scales differed by gender. The analysis revealed that female participants' nomophobia was significantly higher than that of male participants. Similar to our study, it has been found in many studies in the literature that the tendency of female participants to exhibit nomophobic behavior was higher than that of male participants (Becit İşçitürk, 2020; Burucuoğlu, 2017; Erdem, Türen & Kalkın, 2017; Gezgin & Çakır, 2016; Hoşgör, Tandoğan & Gündüz-Hoşgör, 2017; Sarioğlu, 2019; Turan & İşçitürk, 2018; Yıldırım et al., 2016). Similarly, in their study on the effects of nomophobia, Tavalacci et al. (2015) found that female students were more affected than male students. Many sociocultural and psychological factors may be the reason why females have more nomophobic tendencies than males (Burucuoğlu, 2017). Contrary to our research finding, some studies found that participants' nomophobia level did not differ by gender (Adnan & Gezgin, 2016; Çolak & Yalçınkaya-Önder, 2020; Dixit et al., 2010; Gezgin & Adnan, 2016; Öz & Tortop, 2018; Sezer & Atılğan, 2019). On the other hand, there are also studies that

show that males have more nomophobia than females (Yildiz-Durak, 2019).

On the other hand, no statistically significant difference was found in the participants' cyberloafing levels according to gender. Accordingly, it can be said that university students exhibit similar levels of cyberloafing behavior regardless of gender. Similar to this study, no significant difference in the cyberloafing status of male and female students has been found in the literature (Alan, 2019; Askew et al., 2014; Bağrıaçık Yılmaz, 2017; Çınar & Cinisli, 2018; Doğusoy, Sevinç & Ergün, 2020; Gezgin, Arslantaş & Şumuer, 2018). In a study conducted with university students, it was revealed that female students showed more cyberloafing behaviors with their mobile phones than male students (Knight, 2017). However, in some studies, the cyberloafing levels of male participants were found to be significantly higher than those of female participants (Akgün, 2020; Baturay & Toker, 2015; Keser, Kavuk & Numanoglu, 2016; Korucu & Kara, 2019; Ozdamli & Ercag, 2021; Seçkin & Kerse, 2017; Şenel et al., 2019; Tozkoparan & Kuzu, 2019; Yazgan & Yıldırım, 2020). The reason why male participants in the literature are more prone to cyberloafing is explained by the fact that male are more curious about technology, use many new applications on their smartphones, exhibit flexible compliance behaviors, have a greater preference for entertainment and games, and are more prone to internet and gaming addiction than female (Akgün, 2020; Aljomaa et al., 2016; Seçkin & Kerse, 2017; Yazgan & Yıldırım, 2020).

Upon examination, it was found that participants' nomophobia levels did not differ significantly according to the age variable. However, on the "losing connectedness" sub-dimension, a significant difference was found in favor of students aged 18 years and younger. It was found that there are similar results in the literature and that age has no influence on nomophobic behavior of individuals (Öz & Tortop, 2018; Yıldırım et al., 2015). However, in the study conducted by Sezer and Atilgan (2019), significant differences were found between students' age and their level of nomophobia. Erdem, Türen and Kalkın (2017), on the other hand, found that there was an inverse and significant relationship between age and nomophobia.

As a result of the analysis, it was determined that there was no significant difference between the levels of cyberloafing depending on the age of the participants. Similar to our study, in the literature (Alan, 2019; Askew et al., 2014) also found that there was no significant difference between the participants' level of cyberloafing depending on their age. However, in Seçkin and Kerse's (2017) study, it was concluded that students aged 23 and above were more likely to conduct research on the topic covered in class, while students under 22 were more likely to use social media and chat programs when learning outside of school.

The result of the study is a significant difference between the participants' nomophobia levels depending on the daily hours of phone use. Accordingly, participants who use the phone for 6 hours or more have significantly higher levels of nomophobia than those who use the phone for 1-2 hours. In addition, significant differences were found in the sub-factors of "losing connectedness" and "not being able to access information" as a function of daily phone usage time. Kalaskar (2015) also found that those who spend 5-6 hours on the smartphone are more prone to the effects of nomophobia, such as stress, anxiety, sleep disturbance, loss of interest and motivation for classes. On the other hand, Gezgin et al. (2018) found that there was a significant difference between participants' daily mobile internet use and their nomophobia level. In the study by Kara, Baytemir, and Inceman-Kara (2021),

it was found that there was a significant relationship between the duration of smartphone use and anxiety, loneliness, and nomophobia. The study also found that as the duration of smartphone use increases, people feel lonely and nomophobia may increase in this situation. Similarly, some studies found that there is a positive and significant correlation between the duration of daily smartphone use and nomophobia (Erdem, Türen & Kalkın, 2017; Kocabaş & Sezer Korucu, 2018). Therefore, nomophobia increases when the duration of smartphone use or the frequency of checking increases (Kaplan & Gezgin, 2016; Sarıoğlu, 2019). In contrast to our research finding, some studies have found no significant difference between the duration of students' smartphone use and their nomophobia level (Adnan & Gezgin, 2016; Gezgin & Adnan, 2016; Gezgin & Çakır, 2016).

On the other hand, it was found that participants' cyberloafing levels did not differ statistically significantly according to daily phone usage times. There are studies in the literature that show parallels or contradictions with the results of this study. For example, the study by Doğusoy, Sevinç, and Ergün's (2020) found that those who used the Internet for more than 6 hours had the highest cyberloafing level. Also, Gülnar and Ünsal (2020) concluded that students who used the Internet for 9 hours or more showed more cyberloafing behavior. However, it should not be forgotten that individuals who spend a lot of time on their phones tend to engage in cyberloafing behavior, which may have negative consequences for the educational environment (Akgün, 2020).

Recommendations

The purpose of this study was to investigate the level of cyberloafing and nomophobia among university students. As a result, it was found that the level of nomophobia among the students who participated in the study was moderate and the level of cyberloafing was low. However, considering that cyberloafing and nomophobia are becoming more common, it is advisable to recognize these behaviors in education, social life, or business and take action to prevent these potential risks. To create a more effective teaching and learning environment, it is necessary to raise awareness of cyberloafing and nomophobia.

Future studies could contribute to the literature by focusing on the psychological aspects and solutions to the problem. In addition, one can focus on the factors that influence cyberloafing and nomophobia when including students from different educational levels and different geographical regions. To overcome the use of scale and its limitations, mixed methods or qualitative research can be conducted to explore the data in detail and depth. In order to keep the level of cyberloafing and nomophobia among students at the lowest possible level, descriptive analysis as well as experimental or action research studies can be conducted. In addition, future research can examine situations of cyberloafing and nomophobia in relation to teachers, administrators, or parents.

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