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## Examining of the Smartphone Cyberloafing in the Class: Relationship with the Attitude towards Learning and Prevention of Cyberloafing

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### Abstract

The purpose of the present study is to determine the relationship between students' smartphone cyberloafing and their attitudes towards learning and also to reveal their opinions about what teachers can do to prevent smartphone cyberloafing. Within the scope of the study, data was collected from 676 students at the education faculty at Firat University in Elazığ. In the study, a mixed research pattern was used. The correlation analysis was used to determine the relationship between smartphone cyberloafing and attitudes towards learning. Descriptive analysis and content analysis were used to analyze of views of participants. As a result of the study, it was seen that the smartphone cyberloafing in the class does not have any significant relationship with the nature of learning, but it has negative relations with openness to learning and expectations about learning and positive relations with concerns about learning. It was observed that while attitude towards learning has no significant relationship with browsing-related cyberloafing and interactive cyberloafing, there is a significant and negative relationship between attitude towards learning and entertainment cyberloafing. Also, the benefit or harm of learning usage smartphones varies according to the purpose of usage, and the entertainment cyberloafing in the courses is more harmful than other types of cyberloafing.

### Introduction

It is an undeniable fact that together with the developments in information technologies and internet usage, these technologies take up more and more space in our lives. According to the data in Statista, which publishes researches on the use of the internet and mobile technologies in the world, it is observed that there is a continuous increase in computer/internet access and usage. Especially internet usage rate, which was 24% worldwide in 2009, increased to 56% as of 2019 (Statista, 2019). The increasing rate of internet usage causes the use of the internet in business or school environments where individuals are located. However, it is not very realistic to say that this usage is for business or educational purposes constantly.

According to the data published by Statista (2020), it is seen that 66.77% (5.17 billion) of the world population is using mobile phones, and this number is constantly increasing. Also, while the number of people using

smartphones, which facilitates internet access, was 2.5 billion as of 2016, this number increased to 3.5 billion (45.12%) in 2020, and it is expected to increase to 3.8 billion by the end of 2021. Information on the usage of smartphones by years is as in Figure 1.

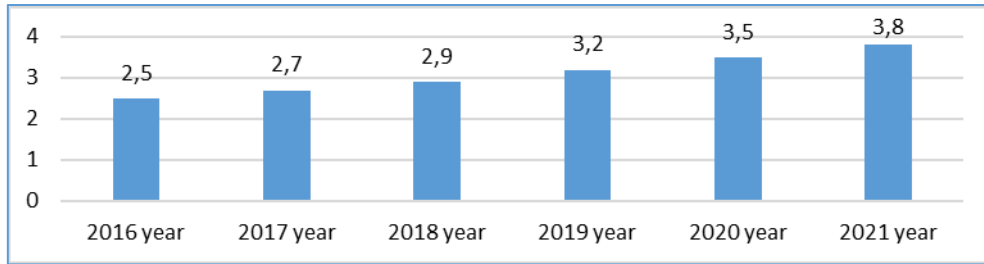


Figure 1. Smartphone Usage by Years from Statista (2020)

It is seen in Figure 1 the number of individuals using smartphones has increased by approximately 40% in the five years. Both the increase in internet use and the developments in smartphone technologies have led to the emergence of new concepts and their usage in daily life. Among these concepts, nomophobia is the fear of being without a smartphone. In other words, it is the fear of not being able to communicate and break with the smartphone. The increase in the usage of smartphones and the existence of this fear in approximately half of the young adults causes the tendency of the young population, especially the students, to use smartphones during the course (Yıldırım, Sumuer, Adnan, & Yıldırım, 2016).

Nomophobia and technological developments have caused excessive usage of the internet and the emergence of internet addiction. Internet addiction is about people spending most of their time online. Goldberg (1996) defined internet addiction as inappropriate internet usage, which leads to a clinically significant disruption or distress. It can be said that it is one of the essential factors for internet addiction as smartphones provide internet access in the desired environment.

Internet addicts spending their time dealing with content that is not related to their work or using the internet for other purposes has led to the emergence of the concepts of “cyberslacking” and “cyberloafing” (Yağcı & Yücel, 2016). Blanchard and Henle (2008) defined cyberloafing as non-work-related e-mail and internet usage in the workplace. Blau, Yang, and Ward-Cook (2006) examined cyberloafing in three dimensions. According to them, the dimensions of cyberloafing are website/internet surfing activities (browsing-related cyberloafing), non-work-related e-mail activities (non-work-related e-mail cyberloafing), and interactive virtual logging (interactive cyberloafing) activities. Martin, Brock, Buckley, and Ketchen (2010), on the other hand, pointed out that cyberloafing is the most common way for employees to waste a great deal of their time at work. Considering specifically for schools, students' usage of the unrelated internet during the course is defined as cyberloafing (Kalaycı, 2010).

Due to the intense usage of phones and the internet, it is expected that students use social media, shop, watch videos, listen to music, etc., activities with their smartphones. Kalaycı (2010) stated that university students frequently demonstrate behaviors such as e-mail control, reading news, visiting social networks and virtual

communities, and downloading files. It is undeniable that smartphones provide practical benefits in many areas of life with their widespread usage. However, some harmful aspects of smartphones also occur in inappropriate places such as cinema or class, in situations that endanger human life such as driving or in long-term usage (Walsh, White, & Young, 2007). Research results (König & Caner de la Guardia, 2014; Liberman, Seidman, McKenna, & Buffardi, 2011) indicated that such uses, which are also referred to as cyberloafing, significantly decrease efficiency and performance, turned attention to this concept and caused more studies on this subject (Sheikh, Atashgah, & Adibzadegan, 2015).

Since cyberloafing in the class is done through smartphones, in some studies in education, the concept of cyberloafing has also started to be defined as smartphone cyberloafing. In the literature, studies examining the relationships between cyberloafing and various demographic variables (Arabacı, 2017; Ahmad & Omar, 2017; Baturay & Toker, 2015), burnout (Aghaz & Sheikh, 2016), cognitive involvement (Hayıt & Dönmez, 2016), and academic motivation (Özcan, Gökçearsılan, & Yüksel, 2017) are found. Besides, there are also studies examining the relationships among smartphone idleness and virtual media loneliness (Korucu & Kara, 2019), out-of-course internet usage behaviors, and motivation (Çok & Kutlu, 2018).

It was concluded that students tend to show cyberloafing behaviors in cases such as not being motivated in the course, getting bored with the course, not being interested in the course, and having anxiety about success in the course (Ergün & Altun, 2012). For this reason, students' attitudes towards the course may cause them to deal with extra-curricular subjects in the class. According to Gao, Yan, Zhao, Pan, and Mo (2014), given the fact that smartphones become the most common technology used in schools and that the most active user mass is especially students, some strategies should be developed and used to ensure effective use of smartphones at school rather than completely preventing them from being used. Samuel (2017) stated that there is uncertainty as to whether the negative relationship between smartphone usage and educational performance reflects a causal relationship, but despite that, using mobile phones in primary and secondary schools has been banned in France in September 2018. Besides, the researcher stated that the reason for this ban is that students play games at break times and spend their time with smartphones, which is seen as a problem for education. Baert et al. (2020) reported that excessive smartphone use is related to lower exam scores and causes lower scores. Also, discussions have been held in Denmark, Sweden, and the United Kingdom after the recent announcement of the mobile phone ban for French school students on this subject, which is taken very seriously. Besides, it has been argued that the usage of mobile phones in schools and universities should be taken seriously by policymakers (Selwyn, 2019).

It is thought that the smartphone cyberloafing behaviors exhibited by students in the class environment may be related to their attitudes towards learning based on their academic performance. Attitude towards learning is an essential factor in the internal and external motivations of the students in the learning process and all the academic performances they perform (Şen, 2013). Being a successful student starts with developing a positive attitude towards learning. Developing students' attitudes towards learning has become one of the most important goals of the educational curriculum of many countries due to its significant impact on student achievement (Mullis, Martin, Goh, & Cotter, 2016). Attitude towards learning affects students' performance and learning

products (Aktürk, 2012; Winberg & Hedman, 2007). For this reason, it can be said that individuals with positive learning attitudes are more comfortable while learning, remember more easily, focus better and absorb the information learn.

Adıgüzel (2014) stated that positive attitudes towards school and learning increase students' knowledge acquisition, skill development, and motivation. Therefore, students' attitudes towards learning may affect their learning skills and desire. While positive attitudes towards learning are expected to encourage higher participation in the learning process (Marton & Saljo, 1997), it is thought that individuals with negative attitudes will not be able to continue education, and will not develop an effective teaching process even if they continue. It can be said that especially the positive attitudes that teacher candidates will develop regarding learning will produce beneficial results for future generations. To create a positive attitude towards learning can be possible by understanding the nature of learning, knowing their expectations about learning, being open to learning, and getting rid of concern not to learn.

### **The Importance of Research**

According to Pierce, Stacey, and Barkatsas (2007), students' feelings, interests, and thoughts about learning a subject affect their possible behavior. Positive attitudes cause students to display positive behaviors related to the course (Kara, 2010) and are expected to affect their behavior during the course. Especially smartphone applications have many facilities such as education, awareness of the environment, health, entertainment, fast access to information, interaction with others via social networks and transportation.

In addition to these facilities, students also benefit from smartphones in courses because it provides practicality in accessing information. However, as mentioned earlier, smartphones negatively affect students' academic performance and attention to the course. It is also among the possible behaviors that students with a negative attitude towards learning are interested in extra-curricular activities with their smartphones in the class environment. For educators to understand the impact of mobile technologies on student learning, the use of technology as a smartphone in schools should be investigated (Hodge, Robertson, & Sargisson, 2017). In this context, the investigation of the relationship between students' attitudes towards learning and their cyberloafing is thought to be important in improving the quality of education and creating effective educational environments.

This study aims to examine the relationship between education faculty students' smartphone cyberloafing levels and their attitudes towards learning. And reveal their opinions about what they can do to prevent this type of cyberloafing. Answers to the following questions were sought to achieve this goal:

- 1- Is there a relationship between students' smartphone cyberloafing levels and their attitudes towards learning?
- 2- What are the students' opinions about the teachers' ability to prevent the usage of smartphones in the courses?

## Method

### Research Design

In the current study, a mixed research pattern was used. In mixed-pattern studies, both quantitative and qualitative data are collected (Leech & Onwuegbuzie, 2007), and the collected data is combined and interpreted by the researcher (Creswell, 2014). The mixed research pattern can be started with one of the quantitative or qualitative methods and continues the other method (Creswell, 2012). In this study, quantitative data were analyzed to determine the relationships between students' smartphone cyberloafing levels and their attitudes towards learning. Later, the resulting relationships were examined with qualitative data. Besides, students' opinions about the prevention of smartphone cyberloafing in the courses were determined with the qualitative data collected.

### Study Group

The study population is 1898 students in the six departments of Firat University Faculty of Education in Elazig province in the 2019-2020 academic year. There are Computer Education and Instructional Technologies (CEIT) Department, Educational Sciences Department, Fine Arts Education Department, Mathematics and Science Education Department, Social Sciences and Turkish Education Department, Basic Education Department, and Foreign Language Education Departments in the Faculty. Since the students in the CEIT department may have to use technology and the internet in the courses, the opinions of the students in this department were not received during the data collection process. Considering the mentioned criteria, the study sample was calculated as 492 for 99% confidence and 5% acceptable error level from this population. The quantitative data of the study were collected from 676 students (99% confidence and 3.98% adequate error level) selected by the simple random sampling method. One of the crucial advantages of the simple random sampling method is that every individual in the population has the opportunity to be selected equally for the sample (Kuş, 2009). The demographic characteristics of the students are as in Table 1.

Table 1. Demographic Characteristics of the Students in the Sample

Characteristics	f	%	
Gender	Female	431	63.76
	Male	245	36.24
Department	Turkish Education	156	23.08
	English Education	101	14.94
	Class Education	84	12.43
	Art Education	75	11.09
	Science Education	127	18.79
	Guidance and Psychological Consulting	133	19.67
Grade Level	1st-grade	259	38.31
	2nd-grade	156	23.08
	3rd-grade	132	19.53
	4th-grade	129	19.08

As shown in Table 1, 431 (63.8%) of the students are female and 245 (36.2%) are male. 156 (23.08%) of the students study in Turkish Education, 101 (14.94%) in English Education, 84 (12.43%) in Class Education, 75 (11.09%) in Art Education, 127 (18.79%) in Science Education, and 133 (19.67%) in GPC Department. 259 (38.31%) of the respondents are 1st-grade students, 156 (23.08%) are 2nd-grade students, 132 (19.53%) are 3rd-grade students, and 129 (19.08%) are 4th-grade students. Also, the average age of the students was calculated as 20.3.

### Data Collection Tools

In this study, a data collection form consisting of three parts was prepared by the aim of the study. In the first part of the form, questions are asked about the demographic characteristics of the students. In the second part, the Smartphone Cyberloafing Scale in Class (SPCSC) Scale and the Scale of Attitudes toward Learning are included. In the last part, the researchers prepared two open-ended questions to get opinions about the relationship between smartphone cyberloafing in courses and attitudes towards learning and what teachers can do to prevent smartphone usage in courses. Information about the scales and open-ended questions in the data collection form is presented below.

*Smartphone Cyberloafing Scale in Class (SPCSC):* The six-point Likert scale developed by Blau et al. (2006) was adapted to the Turkish language and culture by Polat (2018). The scale consists of three dimensions and 16 items: browsing-related cyberloafing, interactive cyberloafing, and entertainment cyberloafing. Blau et al. (2006) calculated the internal consistency coefficient for the browsing-related cyberloafing dimension as .78, for the non-work-related email dimension as .91, and the interactive cyberloafing dimension as .69. Polat (2018) calculated the internal consistency coefficient of the scale as .88. In the current study, the internal consistency coefficient for the whole scale was .94, .91 for the browsing-related cyberloafing dimension, .90 for the interactive cyberloafing dimension, and .73 for the entertainment cyberloafing dimension.

*The Scale of Attitude towards Learning:* The five-point Likert-type scale developed by Kara (2010) consists of four dimensions and 40 items: the nature of learning, expectations about learning, openness to learning, and concerns about learning. 11 items in the scale contain negative expressions, and these items are reversed. Kara (2010) calculated the internal consistency coefficient as .73 for the whole scale, .77 for the nature of learning dimension, .72 for expectations about learning dimension, .78 for openness to learning dimension, and .81 for concerns about learning dimension. In the current study, it was observed that the internal consistency coefficient was .75 for the whole scale, .71 for the nature of learning dimension, .88 for the expectations about learning dimension, .86 for the openness to learning dimension, and .85 for the concerns about learning dimension.

In the third part of the form prepared by researchers to collect qualitative data, two open-ended questions were used:

- *What do you think about the relationship between smartphone use in courses and attitude towards learning? I want you to think of yourself as a teacher.*
- *What kind of precautions would you take to prevent the use of smartphones in the courses?*

## Data Analysis

MS Excel 2016 and SPSS 22 programs were used for the analysis of quantitative data. Frequency and percentage calculations were made in the analysis of the demographic characteristics of the participants. Before analyzing the quantitative data, the mean and standard deviations of the scale dimensions were calculated, and the kurtosis and skewness coefficients were examined. Calculations regarding the scales and their dimensions are as shown in Table 2.

Table 2. Descriptive Analysis and Normality Distributions of the Data

Scales/Dimensions	N	Mean	sd	Skewness	Kurtosis
Cyberloafing	676	2.40	1.17	0.78	-0.15
Browsing-related cyberloafing	676	2.62	1.31	0.63	-0.55
Interactive cyberloafing	676	2.32	1.32	0.94	-0.01
Entertainment cyberloafing	676	2.07	1.22	1.17	0.64
Attitude towards learning	676	3.66	0.34	-0.63	0.47
Nature of learning	676	4.18	0.63	-0.81	0.58
Expectations about learning	676	4.33	0.69	-1.25	1.15
Openness to learning	676	4.20	0.71	-0.74	-0.67
Concerns about learning	676	2.45	0.73	-0.05	-0.76

In Table 2, it can be seen that the kurtosis and skewness coefficients vary between -1.25 and +1.17. These values within the range of  $\pm 1.5$  are acceptable for normality (Tabachnick & Fidell, 2013). The Pearson correlation coefficient ( $r$ ) used in the analysis of the relations between the scales and their dimensions is evaluated as a high-level relationship between absolute value .70 and 1.00, a medium level relationship between .70 and .30, and a low-level relationship less than .30 (Büyüköztürk, 2012).

Before starting the analysis of qualitative data, students answering open-ended questions were identified. Later, the views of 50 students who answered both open-ended questions were converted into electronic forms. Finally, these forms were coded among themselves from S1 to S50.

To interpret the results of the correlation analysis, descriptive analysis was applied to the views on the question “*What do you think about the relationship between smartphone use in courses and attitude towards learning?*”. The data are classified, summarized, and interpreted according to the previously determined framework and themes in the descriptive analysis. Descriptive analysis is more superficial than content analysis and is mainly used in studies where the conceptual structure of the research has been determined beforehand. The data are classified, summarized, and interpreted according to the previously determined framework and themes in the descriptive analysis. The stages of descriptive analysis are creating a framework for descriptive analysis, processing data according to the thematic framework, defining results, and interpreting the results (Yıldırım & Şimşek, 2006).



Firstly, themes were created for descriptive analysis. Themes are formed within the framework of the dimensions of the scales. In this context, four themes (nature of learning, expectations about learning, openness to learning, and concerns about learning) were identified for attitude towards learning and three themes (interactive cyberloafing, entertainment cyberloafing, and browsing-related cyberloafing) for smartphone cyberloafing in class. As a result of the correlation analysis, opinions containing the themes explaining the relationship between the dimensions were presented in a way to describe the comments made by the participants.

During the beginning of the descriptive analysis, the researchers were given a copy of each electronic form, and researchers were asked to analyze these. Each researcher made the analysis separately according to the determined themes. For example, the researchers coded the S20 coded student's opinion as "*A smartphone is a good tool to research and receive news from the internet. However, especially social media distracts me a lot. People can find out what they wonder or want to know with their smartphones. (S20; browsing-related cyberloafing; interactive cyberloafing)*". Then, the codings made by the researchers were compared, and their reliability rate was determined.

Content analysis was applied to the views on the question "*I want you to think of yourself as a teacher. What kind of precautions would you take to prevent the use of smartphones in the courses?*". The principal purpose of content analysis is to reach concepts and relationships that can explain the collected data. For this purpose, similar data are gathered within the framework of particular concepts and themes, organized, and interpreted in a way that the reader can understand (Yıldırım & Şimşek, 2006). First, the opinions of the students who answered this question were divided into meaningful sections and coded from G1 to G57. Later, categories were created from these codings, and the results were interpreted. Remarkable opinions of the participants were presented by their essence.

During the content analysis process, student opinions were examined one by one by each researcher and analyzed. Suggestions offered by students were individually coded, and similar ones were then combined under categories. For example, the opinion of the student who was coded as S38 was coded and categorized as "*At the beginning of the course, I would pick up the phones (G43) or I would keep the course short and would not bore the students (G11) (S38; picking up the phones before the course; making the course more fun, interesting, and fluent)*". Subsequently, themes for similar categories were identified. Then, the analyses made by the researchers were compared, and the reliability rate was determined.

In the descriptive and content analysis process, one more researcher was consulted. To reveal the reliability of the analysis, Miles and Huberman's (1994) reliability formula " $\text{Reliability} = \frac{\text{Consensus}}{\text{Consensus} + \text{Disagreement}}$ " was used. The fact that this value is above 90% shows that the analyzes are reliable (Miles & Huberman, 1994). As a result of the calculations, the reliability rate of descriptive analysis was  $142 / (142 + 6) \times 100 = 95\%$ , and the reliability rate of the content analysis was  $114 / (114 + 11) = 91\%$ .

## Results

### Results Related to the Relationship between Students' Smartphone Cyberloafing and Their Attitudes towards Learning

To find the answer to the first research question of the study, firstly, the relationship between smartphone cyberloafing levels and attitudes towards learning was checked. Then the ideas of the students about these relationships were analyzed, and some of the ideas were presented. Correlation analysis results showing the relationship between the students' smartphone cyberloafing at class level and their attitude towards learning are given in Table 3.

Table 3. Relationship between Smartphone Cyberloafing in Class and Attitudes towards Learning

Scale/Dimensions	BRC	IC	EC	SPC	NL	EAL	OL	CAL	ATL
BRC. Browsing-related cyberloafing	-								
IC. Interactive cyberloafing	.71**	-							
EC. Entertainment cyberloafing	.67**	.69**	-						
SPC. Cyberloafing	.92**	.91**	.82**	-					
NL. Nature of learning	.03	-.04	-.12**	-.02	-				
EAL. Expectations about learning	-.10**	-.10**	-.22**	-.14**	.51**	-			
OL. Openness to learning	-.28**	-.27**	-.39**	-.33**	.40**	.70**	-		
CAL. Concerns about learning	.27**	.24**	.27**	.29**	-.14**	-.38**	-.61**	-	
ATL. Attitude Towards Learning	-.01	-.05	-.18**	-.06	.69**	.76**	.59**	.13**	-

\*\* $p < .01$

In the correlation matrix in Table 3, while smartphone cyberloafing has no significant relationship with the nature of learning, it has a negative and weak relationship with expectations about learning ( $r = -.14$ ;  $p < .01$ ), negative and moderate significant relationships with openness to learning ( $r = -.33$ ;  $p < .01$ ), and positive and weakly significant relationships with concerns about learning ( $r = .29$ ;  $p < .05$ ). According to this finding, students who do not expect to learn or are closed to learning are more inclined to make smartphone cyberloafing. Also, students tend to make more smartphone cyberloafing as their concerns about learning decrease. In other words, students who have high expectations about learning, are open to learning, or have common concerns about learning are less prone to make smartphone cyberloafing. Students also stated that the benefit or harm of learning to use a smartphone varies according to the purpose of use. Some of the student views on the relationship between smartphone cyberloafing and the dimensions of the attitude towards learning are as follows:

*“Depends on use. It is useful if the smartphone is used in courses in good faith, but it is also harmful if it is used for listening to music, watching videos, and spending time on the internet. So the person who wants to learn should not be an idiot”* (S3; nature of learning; browsing-related cyberloafing, entertainment cyberloafing).

*“Smartphones have both harmful and useful aspects. Accessing information is now very easy and incredible. We instantly learn what we want. We are getting more informed. We can study the topics that*

*we do not understand in the course by phone. We can solve questions. Everything ends in the mind. For what purpose we use, we tend towards that direction”* (S5; expectations about learning, nature of learning, openness to learning; browsing-related cyberloafing).

*“If we want to learn, if we want to improve ourselves, if there is a positive attitude or concern, smartphones are the sea. There is no trouble accessing information, and there is no waste of time. New information can be reached easily. This positively affects the attitude of learning information”* (S43; openness to learning, concerns about learning, expectations about learning; browsing-related cyberloafing).

Examining the relationship between attitude towards learning and the dimensions of smartphone cyberloafing in class, while there is no significant relationship between attitude towards learning and browsing-related cyberloafing and interactive cyberloafing, there is a negative and weakly significant relationship between attitude towards learning and entertainment cyberloafing ( $r = -.18; p < .01$ ). In other words, as students' positive attitudes towards learning increase, their tendency towards entertainment cyberloafing decreases. However, this does not affect the students' level of exhibiting other cyberloafing.

According to the opinions expressed by the students, entertainment cyberloafing in the class is more harmful than other types of cyberloafing. However, interactive cyberloafing, such as social media or communication used in the class, distracts the students' attention. Some of the students' views on the relationship between smartphone cyberloafing and the attitude towards learning are as follows:

*“I can say that I learned addiction to smartphones. I fill my free time with my smartphone even if I don't have free time. This negatively affects my education life and success. If I did not have a smartphone or used more consciously, I would read a book and study. I would be more interested in myself. I would improve myself more. I would appreciate my time and try to learn more. I would attend events to add something to myself; I would improve culturally”* (S18; nature of learning, openness to learning, expectations about learning, concerns about learning; entertainment cyberloafing).

*“Smartphones are a great boon at hand. Because it is possible to reach the information we want to learn instantly, but most of us use smartphones for social media and gaming purposes. So I think there is a varying link between phones and wanting to learn”* (S22; openness to learning; browsing-related cyberloafing, entertainment cyberloafing, interactive cyberloafing).

There is no relation between the nature of learning and browsing-related cyberloafing ( $r = .03; p > .05$ ) and interactive cyberloafing ( $r = -.04; p > .05$ ). However, there is a negative, weak, and significant relationship between the nature of learning and entertainment cyberloafing ( $r = -.12; p < .01$ ). According to the opposite relationship between entertainment cyberloafing and the nature of learning, as entertainment cyberloafing increases, the nature of learning tends to be negatively affected, also, as students' expectations about learning and their openness to learning decrease their tendency to make entertainment cyberloafing increases. In other words, as students' expectations about learning and their openness to learning increase, their tendency to make entertainment cyberloafing in the class decreases. Some of the student views on the relationship between the nature of learning and smartphone cyberloafing in class are as follows:

*“Using a smartphone affects learning negatively. I think I learn later than my friends. This sometimes*

*causes me to play games without showing the teacher in the courses. Especially in some applied or group works, I also watch movies or series trailers on my phone. In this case, I cannot either train or perform the duties given by the instructor.”* (S9; nature of learning; entertainment cyberloafing).

*“When misused, phones negatively affect learning and disturb my concentration in the course”* (S33, S35). *“Smartphones delay learning because they can slow the process of focusing and pull people's perceptions in another direction”* (S19). *“When used unconscious, it causes distraction. It affects learning negatively. This brings failure in courses”* (S36).

There are weak, negative and significant relationships between expectations about learning and browsing-related cyberloafing ( $r = -.10$ ;  $p < .01$ ), interactive cyberloafing ( $r = -.10$ ;  $p < .01$ ), and entertainment cyberloafing ( $r = -.22$ ;  $p < .01$ ). As students' expectations about learning increase, their tendency to make browsing-related, interactive, and entertainment cyberloafing decrease. Some of the expressions explaining the relationship between students' use of smartphones in class and expectations about learning are as follows:

*“Useful information is obtained if we use it to investigate what we wonder or about the topic covered. But students are generally more interested in things like messaging and sharing than learning”* (S8; expectations about learning; browsing-related cyberloafing; interactive cyberloafing).

*“Facilitates learning and increases success if smartphones are used to research topics related to the course”* (S32; S37; S38; S39; S41; S44; S45; S47; expectations about learning, nature of learning; browsing-related cyberloafing).

*“It is not harmful when used consciously. But when I do not understand the subject in the course, or if I do not like the instructor, I enter social media or websites and sometimes play games. This allows me to get away from the course thoroughly. I also know there is wrong behavior, but I send messages to my friends and try to distract them. I also know that this will cause both me and my friends to fail”* (S30; browsing-related cyberloafing, interactive cyberloafing, entertainment cyberloafing; expectations about learning).

There is a weak, negative and significant relationship between openness to learning and browsing-related cyberloafing ( $r = -.28$ ;  $p < .01$ ) and interactive cyberloafing ( $r = -.27$ ;  $p < .01$ ). There are moderate, negative, and significant relationships between openness to learning and entertainment cyberloafing ( $r = -.39$ ;  $p < .01$ ). As students' level of openness to learning decreases, their tendency to make browsing-related, interactive, and entertainment cyberloafing increases. Or as students make browsing-related, interactive, and entertainment cyberloafing, their level of openness to learning decreases. Some of the student views on the relationship between openness to learning and smartphone cyberloafing in class are as follows:

*“It is useful for reinforcing the learned knowledge or acquiring new information. Supporting information with different materials makes it more permanent and internalized. Accessing information using the internet is important in this regard”* (S26; nature of learning, openness to learning; browsing-related cyberloafing).

*“...As there is something I do not understand in the course, I immediately search the internet. I already use the phone only when I need it ...”* (S13; openness to learning; browsing-related cyberloafing).

*“Smartphones benefit in terms of learning when used properly. For example, we have a study group that*

*we set up with certain friends in the class. I ask questions instantly, even during the course. She/he writes the answer as soon as she/he finds the opportunity available. Or I search from the web pages. I immediately share the information I found with my friends. I especially like the difficult questions asked in the group. But this situation can sometimes cause my distraction”* (S21; openness to learning; browsing-related cyberloafing, interactive cyberloafing).

There are positive, weak and significant relationships between students' concerns about learning and browsing-related cyberloafing ( $r = .27$ ;  $p < .01$ ), interactive cyberloafing ( $r = .24$ ;  $p < .01$ ), and entertainment cyberloafing ( $r = .27$ ;  $p < .01$ ). According to these relationships, as students' concerns about learning increase, browsing-related, interactive, and entertainment cyberloafing levels increase. As students' concerns about learning decreases, cyberloafing in class levels decreases. Some of the views explaining the relationship between students' concerns about learning and smartphone cyberloafing in class are as follows:

*“Today, we can access all the information by phone. As such, we may need a phone to find out. But when we search on the phone, we can only access the information we want. But we do not know if the information is correct. However, if it is searched from sources such as books and magazines instead of the internet, we will reach the information we want, and we will acquire new and correct information and improve ourselves”* (S23; concerns about learning, expectations about learning, openness to learning; browsing-related cyberloafing).

*“The use of telephones is beneficial as well as the disadvantages. It can distract us. However, not being able to learn the subject told makes me nervous. So I research the topics I do not understand in the course as I have the opportunity”* (S11; concerns about learning; browsing-related cyberloafing).

*“I need to ask my friends when I don't understand the subject of the course. Or if there is a note I missed, I would ask my friends immediately during the course. Of course, I use my phone for this”* (S28; concerns about learning; interactive cyberloafing).

Finally, in Table 3, it is seen that although there is an inverse relationship between students' smartphone cyberloafing levels and attitudes towards learning, it is seen that this relation is not significant ( $r = -.06$ ;  $p > .05$ ). The result is because the students' smartphone cyberloafing in the course and attitudes towards learning are not associated with each other. Still, the dimensions of smartphone cyberloafing in the class are positively related to the nature of learning, expectations about learning, and openness to learning while inversely associated with the dimensions of concerns about learning. Some of the students' views on the relationship between smartphone cyberloafing and attitudes towards learning are as follows:

*“The attitude towards learning and using a smartphone is inversely related. If success is desired, smartphones should not be. Because if the student wants to learn, he should not use smartphones in the course”* (S2).

*“A smartphone should be used. I don't think it will affect success”* (S10).

*“The relationship between phone use and learning can be either positive or negative. So phones can be distracting in class, but can also be used for course-related topics”* (S14; entertainment cyberloafing; browsing-related cyberloafing).

**Results of What Teachers Can Do to Prevent Smartphone Use in Class**

For the second research question of the study, the students were asked the question, “I want you to think of yourself as a teacher. What kind of precautions would you take to prevent the use of smartphones in the courses?” As a result of the analysis of the students' opinions who answered this question, opinions were gathered under three different themes: “increasing attendance” (29/60), “preventing access to the phone” (21/60), and “applying the penalty” (9/60). The results regarding the categories and codes under these themes are shown in Table 4.

Table 4. Results of Preventing Smartphone Cyberloafing in Class

Themes	Categories	Participant codes	f
Increasing attendance	Increasing interest in the course	S24, S28, S29, S33, S35	5
	Ensuring the active participation of the student	S4, S32, S35, S36, S41	5
	Making the course more fun, interesting, and fluent	S10, S12, S17, S20, S27, S34, S38	7
	Making the course remarkable	S25, S30, S48	3
	Using different materials, methods, and techniques in courses	S11,S14, S19, S24, S36, S49	6
	Effective interaction with students	S7, S43, S49	3
Preventing access to the phone	Collecting phones before course	S3, S6, S9, S12, S15, S18, S21, S22, S31, S38, S40, S42, S45, S46	14
	Phone box application	S8, S15, S16, S44, S50	5
	Muting or removing phones	S6, S7	2
Applying the penalty	Violence or punishment	S1, S2,S13, S39	4
	Stimulating and raising awareness	S23, S26, S47	3
	Banning phone use	S44, S49	2
	Giving permission	S5	1

As can be seen in Table 4, students stated that to prevent smartphone cyberloafing in the class, it is necessary to increase the students' attendance to the course, to prevent access to the phone, and to apply a penalty to students. Students stated that the course should be more fun, engaging and fluent (7/29), different materials, methods, and techniques should be used in the courses (6/29), the active participation of the students should be ensured (5/29), the interest in the course should be increased (5/29), the course should be made attractive (3/29), and effective interaction should be established with the students (3/29) in order to increase participation in the course. Some of the students stated that to prevent students from accessing smartphones, it is necessary to collect telephones before the course (14/21), to collect the phones with the phone box application (5/21), and to ensure that the phones are muted or removed (2/21). Some of the students suggested that students doing smartphone cyberloafing in the class should be subjected to violence or punishment (4/9), warn the students or explaining the drawbacks of using smartphones in classes (3/9), and strictly prohibit the use of phones (2/9). Some of the participants' views on the themes are as follows:

*“As a teacher candidate, I tell my course in a fun and immersive way. Thus, students show interest in the course and are not interested in their phones. I may not be able to influence every student, so as a rule of class, I collect phones before I start the course”* (S12; making the course more fun, interesting, and fluent; collecting phones before course).

*“It is unethical for someone who is a student to give you mind. Besides, none of us, as students, are in favor of phone restriction in my humble opinion; I try to prevent students by saying that if they use unnecessary phones in the course, they will be reflected in their grades negatively. All other attitudes can damage the student's heart and dignity”* (S26; stimulating and raising awareness).

*“I impose sanctions on students”* (S39; violence or punishment).

*“I prohibit the use of telephones. I teach subjects in the course with methods that will attract students' attention. I constantly roam in class”* (S49; using different materials, methods, and techniques in courses; effective interaction with students, banning phone use).

As seen in Table 4, only one student stated that the use of smartphones should be allowed in the courses and presented the following opinion:

*“If I were a lecturer at the university, I would not prevent using telephones. Because university students are adult individuals. Students know when to use the phone. So they should know. Blocking things can force them to do more. The important thing is not to disrupt the course and use it when necessary”* (S5; giving permission).

## **Discussion**

In the study, it was aimed to examine the views of the students of the education faculty about the relationship between students' smartphone cyberloafing and their attitudes towards learning, and what teachers may do to prevent this type of cyberloafing in the courses. According to the first finding of the first question of the study, smartphone cyberloafing made in the courses does not have any significant relationship with the nature of learning, but a negative relationship with expectations about learning and openness to learning and a positive relationship with concerns about learning. Besides, the benefit or harm of learning usage smartphones varies according to the purpose of usage. In Ott, Magnusson, Weilenmann, and Segerstad's (2018) study, the students state that the usage of mobile phones at school may have potential benefits as well as potential disadvantages. Ragan, Jennings, Massey, and Doolittle (2014) suggested that students instead of waiting to be assisted by the teacher, use technology to access additional information. Ott et al. (2018) stated that students develop their infrastructures for learning, in which the omnipresence of the smartphone enables new learning practices. Teachers may enable students to use their smartphones for learning, by raising students' expectations about learning and reducing their concern about learning. Otherwise, students may use them unrelated to the course.

According to the results obtained from the relationships between the dimensions of the smartphone cyberloafing and the dimensions of the attitude towards learning, there is no relationship between the nature of learning and browsing-related cyberloafing and interactive cyberloafing, but there is a negative and significant relationship between the nature of learning and entertainment cyberloafing. Like learning, the learning process is an essential

element and this process differs from person to person. Learning occurs through the experiences that individuals interact consciously or unconsciously, and with learning, cognitive, affective, and behavioral changes occur in individuals (Keleş & Çepni, 2006). It can be said that students who understand the nature of learning and act accordingly will use their phones less frequently for activities such as playing games, watching videos, listening to music. For example, Rau, Gao, and Wu (2008) found that smartphone instant messaging helped to link students and instructors in the instruction process effectively and increased students' extrinsic motivation without causing higher pressure significantly.

Another finding of the study is expectations about learning have negative and significant relationships with browsing-related cyberloafing, interactive cyberloafing, and entertainment cyberloafing. Learning is that an individual may be doing what she/he does not know and cannot do as a result of a particular activity or effort (Kara, 2010). For this reason, it can be said that the attitude towards learning is affected by the individual's wishes and expectations. The greatest expectation of the student with a positive attitude towards learning can be expressed as achieving the academic success they want and passing their courses. For this reason, students tend to use smartphones in courses to find an immediate answer to questions that they do not understand, which is directed by the teacher, or when they don't have expectations about learning, they can deal more with their smartphones in courses uninterestedly. According to Baert et al. (2020), smartphone use in the OECD region has increased massively during the past decade. Its potential adverse effect on educational performance may have a significant societal impact. Li, Lepp, and Barkley (2015) found a negative relationship between smartphone use and university students' average grades. The results of empirical studies analyzed by Amez and Baert (2019) also supported a negative association between students' frequency of smartphone use and their academic success.

In the study by Dweek and Leggett (1988), students' wishes and expectations meaningful increased their motivation for learning. In the study by Özcan et al. (2017), there was no significant relationship between cyberloafing and the academic motivation of university students. Çok and Kutlu (2018), on the other hand, found that cyberloafing in education and training environments did not affect the level of academic motivation, but only there was a positive and significant relationship between the news cyberloafing sub-dimension of cyberloafing and academic motivation. In the study, it was also revealed that cyberloafing was negatively related to students' success levels. In a study (Karaođlan-Yılmaz, Yılmaz, Öztürk, Sezer, & Karademir, 2015), with the increase of telephone technology and internet prevalence and the formation of internet networks in education and training environments, the tendencies towards students' cyberloafing behavior in the course increased. Also, it was revealed that increased cyberloafing behaviors create obstacles in students' motivation and performance related to learning, distract their attention in the course, and this situation is an obstacle to success. It can be said that as students' expectations about learning increase, their level of displaying cyberloafing behaviors decreases.

According to another finding, there is a negative and significant relationship between openness to learning and browsing-related cyberloafing, interactive cyberloafing, and entertainment cyberloafing. One of the most important reasons for the increasing usage of the internet recently is the ability to access the internet easily and



at any time with the help of a smartphone. For this reason, people generally prefer activities that they can easily access and implement to use their spare time (Bayraktutan, 2005). It is also possible for students to use their smartphones when they are bored in courses. This can be stated as one reason that openness to learning is inversely associated with all types of cyberloafing and especially inversely related to the highest level of entertainment cyberloafing. Ott et al. (2018) also stated that smartphones could be a highly effective research resource in courses and uncomfortable and distracting technology.

Another finding of this study is there are positive and significant relationships between students' concern about learning and browsing-related cyberloafing, interactive cyberloafing, and entertainment cyberloafing. Many personal and environmental reasons affect learning. However, the concern level is one of the essential personal reasons affecting learning. Concern has a positive effect on students learning as well as a negative effect (Yetgin, 2017). For this reason, it is an expected situation for students who are concerned about learning to make smartphone cyberloafing in courses. Gökçearslan, Uluyol, and Şahin (2018) concluded that stress increased the level of smartphone addiction and cyberloafing. It can be said that students who have a sufficient level of concern about learning will exhibit less smartphone cyberloafing with high motivation, but that high concern level will result in avoiding learning and display more of their smartphone cyberloafing.

According to another finding of the study, the attitude towards learning has a negative and significant relationship with entertainment cyberloafing, while there is no significant relationship between attitude towards learning both browsing-related cyberloafing and interactive cyberloafing. According to the views of the students, the entertainment cyberloafing performed in the courses is more harmful than the other types of cyberloafing. However, interactive cyberloafing such as social media or communication used in the courses distracts the students' attention in the courses. Barkley and Lepp (2013) and Lepp et al. (2013) concluded that students saw their smartphones as a source of entertainment, not as a means of working. It is stated that smartphone usage may enhance students' activities by letting them continuously search for study-related information and by facilitating teamwork (Chen & Yan, 2016; Hawi & Samaha (2016). Çok and Kutlu (2018) stated that technology and the internet are frequently used in educational environments and that some teachers allow students to gather information, create groups and forums, review blogs and discussion lists, and do research using the internet in the courses, but these learning activities should not be characterized as cyberloafing. Also, the researchers stated that while the learning activity was carried out in the course, the frequency of students' cyberloafing behaviors and what problems they caused in the educational environments should be investigated. Because, according to Phillips and Reddie (2007), cyberloafing causes inefficient usage of time and inability to fulfill duties. It was revealed that in some studies (Lan & Sie, 2010; Ott et al., 2018), although smartphones were used as an effective teaching and learning tool, in some studies, the smartphone was a distracting factor in the learning environment (Ott et al., 2018; Ragan et al., 2014), affected academic performance negatively, enabled various tricks and cheats in exams or lessons, and caused students to show various psychological discomfort symptoms (Gao et al., 2014).

According to the results of the second research question, some students stated that it is necessary to increase students' attendance in the course to prevent smartphone cyberloafing. They stated that to increase the

attendance to the course, it is necessary to make the course more enjoyable, interesting, and fluent, to use different materials, methods, and techniques in the courses, to ensure the active participation of the student, to increase the interest in the course, to make the course attractive and to interact effectively with the students. Some students stated that they should prevent students from accessing smartphones in the courses and that it was necessary to collect the phones before the course; to gather up the phones in the box, and to ensure that the phones were muted or removed. Some of the students stated that violence or punishment should be applied to students who make smartphone cyberloafing in the courses, they should be warned, they should be told about the disadvantages of using smartphones, and they should be strictly prohibited in courses.

Although some schools and teachers allow students to use their smartphones in schools, smartphones are a controversial technology. Hodge et al. (2017) found that mobile devices in the class lowered students' critical thinking while exposing students to greater levels of distraction. Ott et al. (2018) concluded that there is no universal solution to prevent smartphones in the course. They also stated that it is not appropriate to ban smartphones entirely in the class, but specific rules can limit them. For example, some of the teachers occasionally collect mobile phones at the beginning of the course and keep them in a particular container. Also, researchers stated that teaching students the appropriate usage ways is a better way than banning them. Hence, students and parents should be informed usage of new phone technologies. Samuel (2017) stated that the reasons for the punishments given at school are the usage of smartphones in the courses and the practices such as phone boxes or collection bags are on-site administration practices.

Gao et al. (2014) stated that most parent-teacher conferences, awareness-raising training, and smartphone calls were made in the class to prevent the use of smartphones. It was also noted that punishment procedures were applied in schools, students reported violations themselves, and advanced equipment was used to detect cell phone signals. Teachers stated that in order to prevent the use of smartphones in lessons, it is necessary to increase the number of pay phones on the school campus, to use specially developed smartphones instead of standard smartphones, to sign agreements between families and schools and to develop various strategies to strengthen smartphone usage policies. Baert et al. (2020) also argued that policymakers should invest in various campaigns to inform and raise awareness of teachers and parents about smartphone usage, at least in schools.

Cyberloafing behaviors in education can negatively affect various behaviors from student learning to teacher motivation and decrease the quality of education (Karademir-Coşkun, & Gökçearsan, 2019). Therefore, preventing smartphone cyberloafing in courses may be an essential factor to improve the quality of education. In addition to preventing students from focusing on class activities, a high level of smartphone use poses various problems in and out of the class (Choi, Lee, & Ha, 2012; Kwon, Kim, Cho, & Yang, 2013). Preventing unrelated usage of the smartphone in the class can help students focus more on the course. Besides, it can be seen as necessary to avoid the use of the phone in the courses and prevent the problems that may arise in and out of the class. However, Şenel, Günaydın, Sarıtaş, and Çiğdem (2019) stated that considering the advantages of using the internet in education, prevent students from limiting internet access or banning the usage of mobile applications will not be an effective solution. For this reason, it cannot be said that it is an effective method to collect or hang up the phones before the course to prevent smartphone cyberloafing. Education aims to prepare

students for real life. Therefore, it can be said that smartphones in real life should also be included in school life. However, to prevent out-of-class usage of smartphones, it can be said that rather than preventing phones from entering the class, teachers should teach the course interactively, motivate students to participate, and keep students active in the class.

## **Conclusions and Recommendations**

Students' expectations about learning and their openness to learning restrain them from using their smartphones out of the course subjects. This result proves that it is essential for teachers to create expectations about learning in students. Ensuring that students understand the nature of learning, know how to learn, and enjoy learning will hinder them from engaging in other extra-curricular activities and using their smartphones out of the course subjects. Students who are open to learning and have expectations about that may use their smartphones to do research and learn about the course. Students who have no expectations about learning and have concerns about this will turn to extra-curricular activities and use smartphones at any opportunity they have. Designing student-centered and compelling courses and including students in course activities will prevent them from using their smartphones for extra-curricular subjects. The first process to be corrected and developed about cyberloafing in the course is the class management process, and the competencies are the class management competencies. Studies were determined that teachers' class management competencies affect students' academic achievement, performance, motivation, and participation in the course. Therefore, policymakers, school administrators, and teachers are required to perform various tasks.

To prevent students' smartphone cyberloafing in the courses: (1) seminars and training related to class management that may improve teachers' competencies may be organized. (2) Teachers can be given practical training on effective and current teaching methods and techniques. (3) Raising and informing training can be provided for teachers, parents, and students. (4) Usage of signal-cutting devices to cut telephone signals can be provided in school buildings. To prevent cyberloafing by the school administration: (1) phones that students can use at the time of their needs can be adjusted. (2) Telephone cabinets for students of each class can be adjusted. (3) Smartphone usage throughout the school may be prohibited or various penalties or sanctions may be applied.

The essential task of preventing the usage of smartphones in courses falls to the teachers. Therefore, (1) teachers may create online or offline groups that enable students to use smartphones as course material. (2) Effective teaching methods and techniques can be used to increase students' attention and motivation to prevent the usage of smartphones unrelated to the course. (3) In courses in which smartphones should not be used, teachers can keep the phones in the phone box or locker they have created in the class. (4) Various penalties and sanctions may be applied in the class. And (5) they can be provided with awareness-raising and informative meetings for students using smartphones in cooperation with the guidance teachers.

There are some studies about the relationship between smartphone cyberloafing and academic performance in the courses. However, there is no study on the prevention of this cyberloafing in the literature. For this reason, it is hoped that the study will be a reference for other studies about cyberloafing in the class\courses. Furthermore,

revealing why students make smartphone cyberloafing can give policymakers, school administrators, and teachers important ideas to prevent it. The fact that the sample consisted only of the students in the education faculty at Firat University is the limitation of this study. It is recommended to repeat the study with different samples to increase the generalizability. Besides, qualitative studies on how smartphone cyberloafing in the courses affects teachers will enable the subject to be viewed from a different perspective.

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