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Are We Online or in Class? Students' Smartphone Usage Habits

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Abstract

Smartphones, which enable us to be online everywhere and every time, are also commonly used by students today. This study aims to reveal undergraduate students' habits of using smartphones. With this purpose, the phone usage track application was installed on students' smartphones, and their 7-day use was recorded with the application and was then analyzed. In addition to that, the students' views on using smartphones during classes were also investigated through open-ended questions. As a result, it was found that they used their smartphones for 4 hours and 50 minutes on average and that they used the same or different applications approximately 380 times a day. The most frequently used smartphone applications were found to be social media and messaging applications. The students were found to use their smartphones the most intensely between 21.00 and 24.00. The majority of the students used their smartphones during classes and their reasons for using the phones for non-educational purposes were more than the reasons for using them for educational purposes. The students stated that they used their smartphones for non-educational purposes such as check the time, make calls, and texting and for educational purposes such as research, take the photo of the blackboard or slides. While the great majority of the students had negative views about using smartphones during classes, some of them also had positive views.

Key words: smartphone, classroom settings, students' habits, usage habits, online in a classroom

Introduction

Smartphones, which is an indispensable part of our daily lives (Bagci, 2019), are not only used to make a phone call or to write text messages now (Ariel, Elishar-Malka, Ayidar, & Levy, 2017) but they also offer users with possibilities from entertainment, shopping, communication and banking transactions to preparing homework (Nayak, 2018; Yıldız, 2018). One of the locations where smartphones are now available in the classroom (Rozgonjuk, Kattago, & Täht, 2018). The statement "students have smartphones" no longer gives amazing or extraordinary information (Jesse, 2015). Students do not break their ties with the outside world even when they enter the classroom, and they keep using their phones both for in-class and out-of-the class activities (Synnott, 2015). However, the framework for the effects of students' use of smartphones in the classroom was not drawn clearly in the literature. According to some research, using smartphones in the classroom can cause students' distraction, discontinuation of learning processes (Pulliam, 2017; Uğur & Koç, 2015) and even lower academic scores (Synnott, 2018). Although there are many studies in the literature regarding the negative effects of problematic smartphone use outside the classroom on academic achievement (Kates, Wu, & Coryn, 2018; Rozgonjuk, Elhai, Ryan, & Scott, 2019; Rozgonjuk, Saal, & Täht, 2018; Samaha & Hawi, 2016), there are no definite results especially in the literature related to receiving lower academic scores; because there are studies in the literature claiming that using smartphones in-class have positive, negative or ineffective on students' academic achievement (Dempsey & Brennan, 2018; Lepp, Barkley, & Karpinski, 2015; Ng, Hassan, Nor, & Malek, 2017)).

Despite insufficient evidence for its contributions to students' learning (O'Bannon, Waters, Lubke, Cady, & Rearden, 2017), smartphones that individuals of any age and almost any economic status possess should be employed for learning purposes (Joyce-Gibbons et al., 2018). Although smartphones entered into our life so much, they have made course contents of educational institutions accessible from anywhere and they have made it possible to access to information in a short time; they are not still used in the classroom for learning at the

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desired level (Kim, Lee, & Rha, 2017). Identifying students' habits of using smartphones and their views on using smartphones in the classroom became important at a time when especially mobile learning is becoming so widespread, when several learning and teaching methods are being used in relation to the use of smartphones (Tossell, Kortum, Shepard, Rahmati, & Zhong, 2015) and when classrooms are so much invaded by smartphones.

Students' Smartphone Usage Habits

Smartphones can be defined as a combination of the internet and mobile phones. Especially young people use smartphones- which make it possible for people to have access to any content at any time and place- to watch videos, to communicate and to search on the internet (Cha & Seo, 2018). Various research on the purposes of using smartphones is available in the literature. Tammy Lin (2019), in a study investigating university students' use of smartphones in Taiwan, stated that students were permanently online and permanently connected- in other words, they were seriously addicted. Cha and Seo (2018) found that students mostly used smartphones for the purposes of the instant messenger. It was pointed out that those phones were also intensely used for searching the web and for listening to music. Jesse (2015) found that the applications that were the most useful to students were the calculator and translation applications and that such applications as social media and weather forecasts were also considered to be useful by students. It was stated by students that the most frequently used applications were social media, instant messenger, and mail applications and that the activities most frequently done were scanning on the web and playing games. The most frequently used social media applications were Facebook, Twitter, and Pinterest, respectively. Alfawareh and Jusoh (2014) investigated students' habits of using smartphones by means of surveys and they found that students used their phones generally for making phone calls, searching on the internet and taking photos. Students also said that they often used their phones to look at the clock and to download software. They also said that they used their phones to have access to social media. Robert and Rees (2014) pointed out that students used their smartphones to send text messages, to access social media (Facebook) and to check their e-mails. Another study investigated students' habits of using smartphones in general and in the classroom and their thoughts about the habits. Accordingly, students said that they used their smartphones when they felt bored or when they needed information. Besides, more than half of the students were found to check their smartphones and send text messages during classes (Emanuel, 2013).

Smartphone Usage in Class

It is apparent that the device apart from computers and tablet PCs students prefer most using in the classroom is their smartphone (Aggor, Tchao, Keelson, & Diawou, 2019). However, it is stated that using smartphones in the classroom and even in school is mostly forbidden (Lellis-Santos & Halpin, 2018). Moreover, some of the teachers were angry with the students for using smartphones in the classroom (Synnott, 2018). Because smartphones can distract students' attention (Anshari, Amunawar, Shahrill, Wicaksono, & Huda, 2017; Lellis-Santos & Halpin, 2018). Despite this, there are also attempts at integrating smartphones into the classroom made by teachers (Anshari et al., 2017). Considering these two contrasting situations, smartphones can be said to be the greatest challenge teachers can encounter in the 21st century (Kuznekoff, Munz, & Titsworth, 2015). On the other hand, Beland and Murphy (2016) found that forbidding smartphones in schools did not cause an increase in students' academic achievement significantly. They stated that schools should not ignore the fact that students have smartphones. In support of this view, a study investigated students' use of mobile devices (tablet PCs, Laptops and smartphones) and it found that students generally used smartphones in classes (Robert & Rees, 2014). Supporting educational innovations, technologies, developments and policies such as "Bring your Own Device" (BYOD) (Joyce-Gibbons et al., 2018; Koroleva, 2016) and on the other hand taking precautions against students' use of such devices can seem to be conflicting. This contradiction can also be seen in the literature. In some studies, it has been stated that smartphones have a great potential in terms of teaching-learning and by creating a learner-centered teaching process support students' learning and motivation when used appropriately in the classroom (Kartal, 2019; Roblyer, 2016). On the other hand, Shrivastaya and Shrivastaya, (2014) found that students had negative perceptions about using smartphones in the classroom. It is stated that students keep using their smartphones in the classroom despite this (Tammy Lin, 2019).

There are some researches to investigate the views of the teachers and students about using the smartphone in the classroom. Investigating teachers' and students' views on using smartphones in the classroom Aldrich (2017) found that both sides views are similar. Smartphones were a good educational instrument and that circumstances had changed and therefore teachers and students should adapt to the new circumstances. Uğur

and Koç (2015), consulting students' views, found that students considered smartphones as disturbing tools in the classroom. They also found that students used smartphones mostly for personal purposes and that very few students used their phones for educational purposes. It was stated that smartphones were used to reach various knowledge through the internet, to take the photo of the board and to make calculations for educational purposes. A similar finding that smartphones cause students' distraction is also obtained by Kim et al. (2019). For this reason, in addition to the fact that smartphones- which are said to be useful in many respects- will be harmful when used extremely should be taken into consideration. It was reported in another study that students said smartphones made their learning more effective although they distracted their attention. In addition to that, it should not be forgotten that students keep using their phones in classes in spite of teachers' warnings (Fernandez, 2018). Anshari et al. (2017) collected data from students through interviews and surveys and they concluded that smartphones helped students to learn, they were easy to carry, they contained visuals and they offered detailed learning experiences and therefore they facilitated students' access to knowledge. It was also stated that smartphones contributed to students' communication with their teachers outside the classroom and to their interaction with their teachers and classmates for their group projects. It is stated that it is difficult to integrate smartphones into the classroom despite all these. Interactive and interesting learning and teaching environments integrated with the subject should be created without distracting students' attention. On the other hand, distraction, low-quality face-to-face interaction and addiction are the other negative sides of phones. In addition, there should be rules for using smartphones in the classroom and that students should obey them to avoid all those negative effects (Anshari et al., 2017).

As seen in the literature, there are studies examining students' smartphone usage cases, but the use of smartphones in the classroom based on real data has not been found. In this respect, it is thought that our study will make an important contribution to the literature. In addition, our study is important in terms of revealing the students' use cases through real data by relating their views about their use in the classroom. In this context, the aim of this study to reveal students' habits of using smartphones and their views on using smartphones in classes. Therefore, the length of time they used their phones and the applications they used were recorded through phone usage track application (PUTA) which was installed on students' phones, and then the data were analysed. Additionally, students' views on using smartphones during classes were also analysed. Thus, answers were sought to the following research questions:

1) How are the smartphone usage habits of students?
    a) How long do students use their smartphones daily?
    b) How many times a day do students use the applications on their smartphones?
    c) How is the distribution of the applications students use the most frequently?
    d) How is the distribution of the periods of time students use their smartphones the most intensively?
2) What is the status of students' in-class smartphone use habits?
    a) What is the duration and rate of students using their smartphones during class hours on weekdays?
    b) For what purposes do students use their smartphones in the classroom?

Method

Research Design

Quantitative and qualitative methods were used together in this study. In order to determine the smartphone usage habits of the students in a more realistic way, daily data collection method via mobile application was used in quantitative part. In this method, users' general behaviours (answering the phone, hanging up the phone, emailing, text messaging, the internet, etc.) are recorded but no information is obtained about the screen and the keys pressed- that is to say, about the content of use. The case study design was chosen for qualitative part. Case studies are used to explain and describe a limited system or phenomenon under investigation by providing in-depth analysis within the framework of questions such as "How", "What" and "Why" (Merriam & Tisdell, 2015; Yin, 2018). The purpose of choosing the case study design was to investigate students' views and thoughts on using the smartphone during classes.

Participants

The participants were chosen on the basis of purposive and volunteer sampling methods. First of all, it has been determined that university students who have classes in a formal education institution on all weekdays should participate in the study. After that, only those who were volunteering were included in the research. 89 students

participated in the study at the beginning- whose demographic data are shown in Table 1. All participants are vocational high school students at a public university in Turkey.

Table 1. Participants

	f	%	Age (M)
Gender			
Female	45	50.6	20.85
Male	44	49.4	20.64
Department			
Public Finance	25	28.1	20.38
Civil Defence and Firefighting	22	24.7	20.09
Human Resource Administration	17	19.1	20.73
Computer Programming	15	16.9	22.23
Public Finance	10	11.2	21.22
Grade			
First	56	62.9	20.45
Second	33	37.1	21.27
Used Operating System			
Android	75	84.3	20.89
IOS	14	15.7	20
Total	89	100	20.75

Table 2. PUTA loaded participants

	f	%	Age (M)
Gender			
Female	19	70.37	20.94
Male	8	29.63	21.50
Department			
Public Finance	8	29.6	21.04
Civil Defence and Firefighting	7	15.9	20.29
Human Resource Administration	5	18.8	21
Computer Programming	4	14.8	23
Public Finance	3	11.1	20.67
Grade			
First	16	59.3	20.75
Second	11	40.7	21.78
Total	27	100	21.12

Table 2 shows the distribution of students whose phones PUTA was installed according to gender, department, grade, and mean age. Data were collected from 27 students shown in Table 2 to find answers to research question 1 and 2a in this study. Qualitative data were collected from 89 students shown in Table 1 to support the research question 2a and to answer research question 2b.

Data Collection Process

Firstly, the students declared in written that they voluntarily participated in in the study. The students who had taken part in the research at the beginning (89 students) were asked to express their views on using smartphones in classes. The views of the students were taken in written through a form consisting of open-ended questions. In the second stage, another written permission was received from students whose phones (Android) PUTA could be installed (75 students). At this stage, it was explained to the students that PUTA to be installed on their smart phones never records personal information, only information about usage behaviour. The application could not be installed on some students' (14 students) phones since it was not compatible with the operating system of the phones (IOS). PUTA- which recorded how much the students used their smartphones a day and what programmes they used daily- was installed on the smartphones of the researchers. The application does not obtain students' personal information, and neither does it send to others. It only records their habits of use. The pop-up notifications of the application were switched off and thus the students did not feel that the application was working. In this way, efforts were made to identify their real levels of use.

Following the installation, the students were asked to use their device normally for a week and then to contact the researchers to obtain the records on their phones and to remove the application from their phones. The data of 48 students could not be obtained due to deleting the application from their phones or the application not saving the data regularly. For this reason, only the data saved in 27 students' phones were collected. At the end of one week, the file saved in the phones by PUTA was taken by the researcher and thus the data collection process was completed. Data were collected in fall semester of academic year 2017-2018. The data collection process was completed in a month. The data collection process is shown in Figure 1.

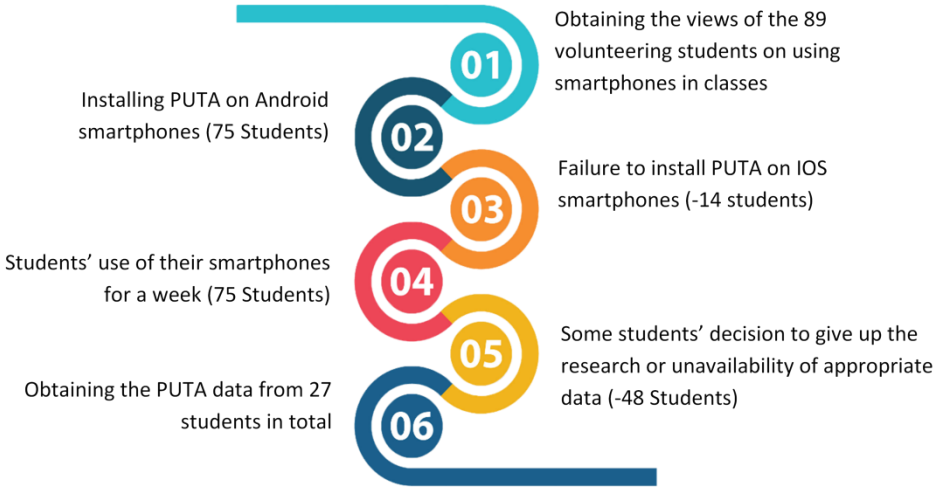

Figure 1. Data collection process

Data Collection Tools

PUTA

The data concerning how long students used their smartphones, which applications the used and how many times a day they used their phones were collected through an Android-based application, PUTA. Whether or not the application saved the records of using smartphones accurately was tested by installing the application on the researchers' smartphones. It was found that the application- which was found to save the records accurately in the researcher's phone- did not save the records regularly in some models of smartphones. Therefore, the records were taken only from those phones in which the application had regular records. The application does not absolutely save users' personal information or private content.

Open-ended Questions

The students' views about using smartphones in classes were obtained through open-ended questions. The open-ended questions were formed by the researchers in accordance with views of the experts in the field. The open-ended questions that the participants were asked to answer within the scope of this study were as in the following:

1) Do you use your smartphone during classes?
2) If so, for what purpose do you use it?
3) If you use it for education, explain how you use it.
4) What convenience does a smartphone offer you?
5) What other thoughts do you have on using smartphones in classes?

Data Analysis

The quantitative and qualitative data collected in the study were analysed independently. Behaviours of use saved by PUTA were analysed. The records taken from students' smartphones were transferred to the Microsoft Excel and the data were analysed by using descriptive statistics methods such as frequencies, percentages and mean. In addition to that, the qualitative data collected through open-ended questions were analysed by using thematic content analysis method. The thematic analysis provides higher level of interpretation of a

phenomenon (Vaismoradi & Snelgrove, 2019). In the first step of thematic analysis, the data are reviewed and recognized. In the second step, codes are created from the data. Themes are created by associating the similar codes, and the created themes are defined and named (Clarke & Braun, 2013; Miles & Huberman, 2013). In this study, the students' responses to the open-ended questions were reviewed and coded firstly and then classified and presented in accordance with the themes.

Results

Students Smartphone Usage Habits

Students Smartphone Daily Usage Time

On examining the means for students' use of smartphones for a week, it was found that they used their smartphones approximately 290.95 minutes a day- that is to say, 4 hours and 50 minutes a day. It was found that they used their smartphones the most on Mondays (5 hours and 49 minutes) and the least on Fridays (4 hours and 5 minutes). The means for the other days is shown in Table 3.

Table 3. Students smartphone daily usage time

Days	Mean (Minutes)	Mean (Hours)
Monday	349.22	5 hours 49 minutes
Tuesday	289.00	4 hours 49 minutes
Wednesday	313.26	5 hours 13 minutes
Thursday	266.22	4 hours 26 minutes
Friday	245.33	4 hours 5 minutes
Saturday	271.70	4 hours 31 minutes
Sunday	301.93	5 hours 2 minutes
Mean	**290.95**	**4 hours 50 minutes**

Students Smartphone Daily Usage Count

Table 4 shows the mean count of daily use of the smartphones by students. Daily usage count should be considered as the number of times students check or use the applications in their phones. The highest number of using the smartphones was on Tuesdays whereas the lowest number of using them was on Saturdays and Sundays. The students checked their smartphones 382 times a day on average. On looking at the averages for the number of times they checked their phones an hour, it was found that they used the smartphones in their phones at least 15 times an hour.

Table 4. Students smartphone applications usage count

Days	Count (day)	Count (per hour in a day)
Monday	374.33	15.60
Tuesday	401.44	16.73
Wednesday	397.15	16.55
Thursday	391.11	16.30
Friday	386.00	16.08
Saturday	358.67	14.94
Sunday	365.93	15.25
Mean	**382.09**	**15.92**

Most Commonly Used Applications by Students and Usage Time

The most frequently application the students had used for 7 days and the length of time they had used them were investigated. Figure 2 shows the distributions of the length of time of the most frequently used applications for a week (in minutes). The students were found to use 38 different applications. The application most frequently used by the students was Instagram. The students used Instagram for approximately 75 minutes a day. The second most frequently used application was WhatsApp while the third most frequently used application was YouTube.

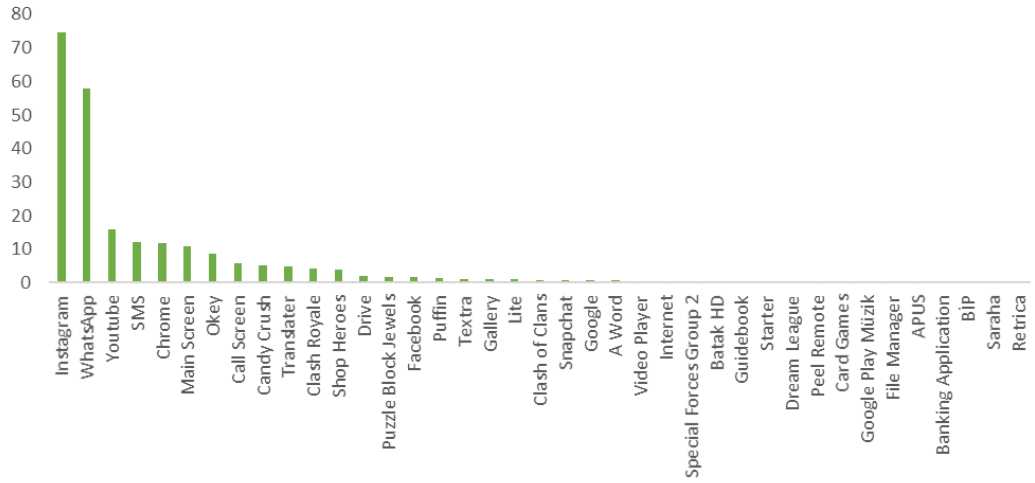

Figure 2. Applications used by the students (Daily mean minutes)

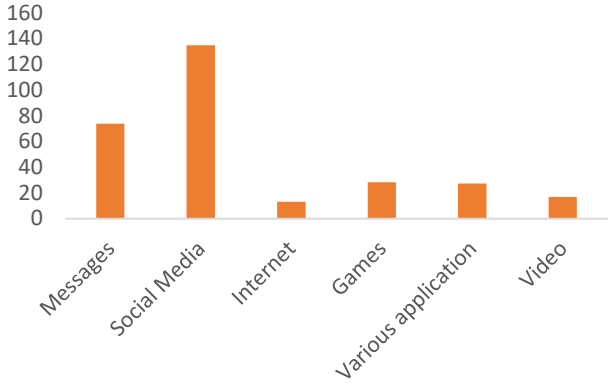

Figure 3. Categories of the applications used by the students (Daily mean minutes)

Figure 3 shows the distribution of the applications according to categories. The classification of the applications used by the students was based on the classification made by Lee, Ahn, Choi, & Choi (2014). An examination of Figure 3 shows that the category of applications the most frequently used by the students is the applications related to social media and that the students use them approximately 80 minutes a day. They were followed by the applications used for texting and video-related contents. Some applications (e.g. Instagram, YouTube, WhatsApp, Facebook) can take place in more than one category (e.g. social media, video, or messages). However, in this study, these types of applications have been classified in only one category according to their primary purpose.

Students' Daily Smartphone Usage

The distribution of periods of time students use their phones the most intensely during the day is shown in Figure 4. Accordingly, it was found that the students used their phones between 21:00 and 00:00 the most intensely. Students use their phones between 1:00 and 12:00- the first half of the day- less than the other half of the day.

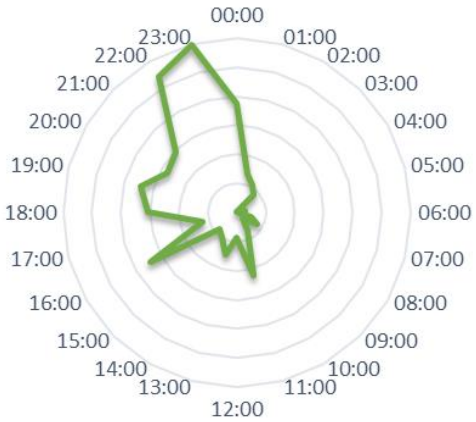

Figure 4. Students' daily smartphone usage

Students' Habits of Using Smartphones in Class

Students' Periods of Using Smartphones During Class Times

Students' length of time of using their smartphones during class hours on weekdays was investigated. Accordingly, how long students used their smartphones between 8:00 and 12:00 and between 13:00 and 17:00 on weekdays when they had classes was examined. Table 5 shows the distribution of lengths of time students used their smartphones on weekdays when they had classes. Accordingly, it was found that students used their smartphones more than an hour and 40 minutes in the period when they had 8-hour classes.

Table 5. Length of time students use their smartphones in class hours

Days	**Mean**
Monday	117.59
Tuesday	106.26
Wednesday	103.89
Thursday	83.26
Friday	91.19
Mean	**100.44**

Figure 5 shows the responses that 89 students had given to the question "Do you use your smartphone during classes?" in support of the data shown in Table 5. Hence, 64% of the students said that they used their smartphones in classes while 36% said that they did not use their smartphones in classes.

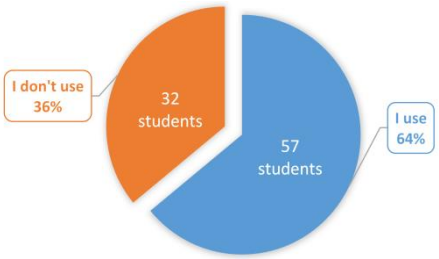

Figure 5. Students' Smartphone Usage in Class

Smartphone Usage Purposes in Class

When the reasons for the students' use of smartphones in classroom were examined, it was found that they used their phones for both educational and non-educational purposes. Students stated that they used the smartphones to check the time (29), calls, or messages (23) for non-educational purposes. Table 7 shows students' other non-educational purposes of using their smartphones in the classroom.

Table 7. Non-educational usage purposes of the students

	f
Check the time	**29**
Check the calls and messages	**23**
Check the social media (Instagram, Twitter & Facebook)	**12**
Spend time (because of getting bored with the lesson)	9
Surf on the Internet	6
Play a game	2
Check the applications	2
Total	**83**

Table 8 shows students' reasons for using their smartphones for educational purposes. It was found in this study that students used their phones specially to discourse-related research (38) or to take the photos of course-related content (15).

Table 8. Educational usage purposes of the students

	f
Do course-related research and get detailed information about a subject on the Internet	**38**
Take the photos of course-related slides or of what is written on the blackboard	**15**
Use as a calculator	**10**
Use it for educational purposes in general	6
Follow the course-related documents	4
Watch the videos of subjects which I do not understand in a course	3
Take notes	2
Swap lecture notes with my classmates	1
Use it as a dictionary	1
Total	**80**

On examining the students' views on the convenience that smartphones offer them during classes, it was found that a considerable number of students (23) indicated smartphones offered convenience in doing research about a subject. They stated that smartphones helped them to reach in a short time and easily the information requested by the teachers. Some of them (11) stated that they had used their phones to take notes or to take the photos of course content, and therefore it offered them great convenience. Students also indicated that they did not have enough time to take notes since their teachers quickly moved on to another subject. Table 9 shows in detail students' views on the convenience that smartphones offer them.

Table 9. Students' views about the advantages of using smartphones in class

	f
Research	
Make it possible to research about a subject during a class	**23**
Help to reach quickly the questions the lecturers ask	**12**
Help to reach more course-related information more easily and faster during a class	4
Make it easier to learn the unknown concepts	3
Make it possible to research about the content and to be comprehensively informed of it	3
Help to comprehend the subjects in a shorter time	1
Taking notes	
Help to take the photos of the blackboard or the presentation and to take notes more quickly	**11**
Make it easier to take notes quickly in general	4
Make it possible to follow a class through electronic content	3
Help to highlight the important points of a slide	1
Make it possible to record video or audio during classes	1
Other	
Offer convenience in distance education	2
Make it easier to check the time	2
Help to get rid of boredom when getting bored in class	1
Total	**69**

The students' views on using smartphones in classes were divided into three categories. The categories and detailed findings are shown in Table 10. The views of the students were classified into three categories; negative views on using smartphones in classes, views supportive of using them in classes, and other views. The students

who held negative views (25) expressed that smartphones hindered them from focusing on a lesson and that they distracted their attention. 19 students directly stated negative views on using smartphones in classes. It was found that the number of students who supported using smartphones was less than the number of students who did not support it. 16 students stated that it was beneficial to use smartphones in classes and that it made courses easier. Some of the students (10) indicated that smartphones could be used in relevant situations in the lessons, otherwise they should not be used. In the category of other views, 3 students stated that it was boring to listen to the lecturer during a class and therefore smartphones should be used.

Table 10. Students' views on smartphones usage in class

	f
Views That don't Support to Use in Class	
Distracts the attention	25
Students should not use smartphones	19
Cause students to neglect classes and to fall behind	3
Causes to distract others' attention	4
Disrupts the flow of a lesson	2
Distracts lecturers' attention	2
Causes waste of time	1
Gives harm to students	1
Views That Support to Use in Class	
Smartphones are beneficial and they make courses easier	16
Smartphones is useful if it is related to the course, otherwise they should not be used	10
Smartphones should be used as they helps with research	5
Smartphones should be used, but access to social media should be blocked	1
Smartphones should be used without disturbing anybody	1
Offer convenience when used beneficially	1
Should be used at the right time without distracting attention	1
Other Views	
Boring to constantly listen to the lecturer, so smartphones should be used	3
Smartphones should be with students so that they can reach their families	1
Lecturers should not take students' smartphones	1
Total	97

Discussion

This paper investigated students' habits of using smartphones in classes and their views on using them in classes. The data concerning their habits of using smartphones were collected through PUTA. Students status of using their smartphones and their views on the use of smartphones in classroom were identified by means of open-ended questions.

It was found that the students used their smartphones 290.95 minutes- 4 hours and 50 minutes- a day. They used their phones the most on Mondays but the least on Fridays. Students' length of time in using their phones was found to increase when compared with the findings obtained by Lin et al (2015) (4 hours and 20 minutes). The increase in the length of time in using smartphones might have stemmed from the fact that smartphones became more and more integrated into our life. A comparison with the findings obtained by Soegoto (2019) demonstrated that the length of time decreased (nearly 6 hours). The reason for the decrease might be that the study conducted by Soegoto (2019) was based on the data coming from a survey rather than the real data. There can be differences between the students' own statements and real data (Lee et al., 2017). It was found that the students used their smartphones 382 times a day on average- that is to say, they used the applications in their phones every four minutes. Lin et al. (2015) found that the number of daily use was 73.1 on average. A comparison of the finding of this study with the one obtained in Lin et al. demonstrated that students' use of their smartphones had increased more than 5 times approximately. The increase is natural due to the fact that smartphones have increasingly become a part of our life (Richardson, Hussain, & Griffiths, 2018) and that we use smartphones almost in everything in daily life (Nayak, 2018). Besides, it is a finding supportive of the results obtained in Office of Communication (OFCOM, 2018). OFCOM (2018) reported that individuals aged 15-24 use their phones more than 4 hours a day. The reason why students use their smartphones the most on Monday might be that it is the first workday of the week. Students might be using their phones more on the first weekday because they cannot adapt to classes and school life following the weekend break. It can be said that the length and number of their use of phones decrease as the weekdays pass by; because it was found that the

length of use and the number of times students used the applications decreased at the weekend when compared to the use on weekdays.

The distribution of the most frequently used application of the students was also found within the scope of this study. Instagram, WhatsApp, and YouTube were the most frequently used applications. When classified the applications into categories, it was found that the students used their smartphones mostly for social media, texting and video watching purposes. This finding confirms partially the findings obtained in Robert and Rees (2014), Cha and Seo (2018) and Tammy Lin (2019); because it should not be forgotten that the social media applications which students said were the most frequently used applications were mingled with instant messaging applications in this study and that they were used for both purposes. Thus, the finding that students use their smartphones most frequently for instant messaging and social media purposes obtained by Cha and Seo (2018), Robert and Rees (2014) and Emanuel (2013) are parallel to the one in this study in this respect. One of the most important reasons for students why they used social media the most frequently might be that they wanted to keep up to date (Vanozzi & Bridgetock, 2013). They thought that they would be informed of the latest status of their friends or of happenings in social media quickly in this way. Ariel et al. (2017) found that the second application used frequently in smartphones was Call Screen (Voice Call). The difference might have stemmed from the fact that the average age in this study (M=21.12) was different from the one in the study (M=25.45) conducted by Ariel et al. (2017) or from the fact that the participants in both studies owned different characteristics.

It was found that the students used their phones the most between 2:00 and 24:00. It was a finding supportive of the one that smartphones were using the most between 19:00 and 24:00 obtained by Localytics (2018). However, it was in contrast to the finding that students used their phones mostly in the afternoon obtained by Lee, Ahn, Nguven, Choi, and Kim (2017). On considering the time frame restrictions made by Lee et al. (2017) in relation to the use of phones, the time frames obtained in this study can be said to being the evening (18:00-22:00) in part and in at night (22:00-07:00) in part. The students might be using their phones more intensely in those periods of time because they are not busy or because they are less busy in those parts of the day. In other words, it can be said that students choose to use their smartphone for longer periods of time when they are not busy or when they get bored.

The students were found to use their smartphones for an hour and 40 minutes between 8:00 and 17:00 at class time. Considering the fact that breaks between classes are 10 minutes and that they communicate with their friends face to face rather than online in those periods, it is clear that the students use their phones for approximately 13 minutes in each class. Kim et al. (2019) also fund that students looked at their phones every 3 or 4 minutes and that it caused their attention to distract. In support of this finding, the majority of the students said that they used their smartphones during classes. 64% of the students said that they used their smartphones during classes. In a similar way, Emanuel (2013) found that more than half of the students used their smartphones in classes. It was a result supporting the result that students were connected to the internet and they used their smartphones during classes- which was obtained by Tammy Lin (2019) and by Aggor et al. (2019). All these indicate that we should face the existence of smartphones- which are said to have no significant effects on academic achievement (Beland & Murphy, 2016). Besides, the fact that students use their phones approximately 13 minutes in each class can also stem from teachers' integrating smartphones into their classes.

On examining the reasons for using smartphones in classes, it was found that non-educational purposes were more than educational purposes. The students were found to use their phones specially to check the time, search, text or to check the messages. Similarly, Uğur and Koç (2015) obtained that the majority of the students used their phones to check the time. On the other hand, it was also found that the students used their phones to take the photo of the blackboard or to make calculations. It was stated that smartphones were also used to make calculations and to research the unknown concepts. This finding supports Fernandez (2018), who found that students mostly used their smartphones to look up unknown words, to research and to take the photo of the blackboard in classes. It is also emphasised that smartphones offer such advantages as contributing to retention in learning since they appeal to more than one sensory organ, and as being easy to carry (Anshari et al., 2017). Uğur and Koç (2015) found that students mostly used their smartphones to text and that a small number of students used them to support their learning. On the other hand, this study found that a great number of students used their smartphones for different educational purposes. Therefore, the findings obtained in this study are conflicting with the result of Uğur and Koç (2015).

The great majority of the students consider smartphones as a factor that distracting their attention in classes. This finding supports the results of Hirsh-Yechezkel et al. (219), Pulliam (2017), and Uğur and Koç (2015); because students themselves also state that using smartphones distracts their attention. The finding that "they

cause our attention to distract"- the first negative thought found in this study- also supports this result. Similarly, Anshari et al. (2017) included distraction in attention and weakening in the quality of communication with students in the list of difficulties that teachers can encounter in integrating smartphones into classrooms. This indicates that the issue of attention is important when there is a desire to integrate smartphones into classrooms. It was found that the majority of students were of the opinion that smartphones should not be used in the classroom. While the majority of the students reported negative views about smartphones, a smaller number of them said that smartphones should be used in classes. This finding is in contrast to Fernandez's (2018) conclusion that most of the students believe that smartphone use makes learning more effective. Because it is seen that the positive opinions regarding the use of smartphones for educational purposes in class are less than the negative opinions. Aldrich (2017) concluded that both students and teachers supported using smartphones for educational purposes but they were against using phones for personal purposes. In this context, it can be said that what is important is the purpose of using smartphones. However, it should not be forgotten that there are certain disadvantages of using smartphones even if they are used for educational purposes. In addition to that, the fact that students used their smartphones every 4 minutes in class even though they said that they were distracted by phones and that they had negative views about using them in classes indicated that they were in a contradiction.

Conclusion

As a result, the views of the students and the findings obtained through PUTA were revealed that the students used their smartphones intensively both in-class and out-of-class. It was determined that the students used instant messaging and social media applications intensively on their smart phones. It was concluded that the students' use of smartphones in the class was mostly for non-educational purposes, but they used them for educational purposes, albeit limited. Although the majority of the students have negative opinions about the use of smartphones in the classroom, there are also students who stated that they can be used for educational purposes in the classroom. In line with these results, it can be said that students will continue to use smartphones in the class. Therefore, teaching environments should be designed considering the positive and negative effects of smart phones. It is thought that this study will provide significant contributions to the literature in terms of analyzing the students' in-class and out-of-class smartphone usage amounts, time intervals, purposes and reasons with a quantitative and qualitative approach with a holistic perspective.

Limitations and Recommendations

The findings obtained in this study are limited to PUTA installed on smartphones. Besides, the findings are limited to students studying at a public university and participating in the study. Another limitation is that some of the applications can be considered as applications of messaging, social media and the Internet. The basic properties of the applications were taken into consideration in classifying them. It was also assumed that the students' weekly course schedule was run normally.

The following recommendations can be made in the line of the findings obtained in this study:

1) The students were observed to use their smartphones intensely during the day. Therefore, precautions can be taken by teachers and administrators to integrate smartphones into classrooms.
2) It was found that students used their smartphones the most between 21:00 and 24:00. Activities that students can do through their smartphones in those periods of time can be planned.
3) Research can be done on how students can use their favorite applications for educational purposes.
4) Model researches for the integration of smartphones in the classroom can be conducted and possible challenges that teachers may encounter can be revealed.
5) The views collected in this study represent the voice of students. Investigating the opinions of the lecturers on this subject and reaching a common opinion can be achieved.
6) The students said that they used their smartphones for non-educational purposes to check the time. Students' checking the time can cause their attention to distract and it can result in their involvement in other applications in their phones. Therefore, if students have watches, their use of smartphones for non-educational purposes can be hindered.
7) It was found that Monday was the day the students used their smartphones the most; because students had problems in adapting to classes on weekdays. Therefore, students can be offered support in adaptation to classes on Mondays.
8) Social media was found to be the type of application the students used the most frequently. Accordingly, a practice can be made to use social media platforms for educational purposes.

9) It should be kept in mind that using smartphones in classes can distract students' attention. Thus, teachers or administrators should highlight the rules about using smartphones in the classroom.
10) The students were also found to use their smartphones in the classroom to check calls and messages. Students can be asked to block the incoming calls and messages during classes. In this way, using for non-educational purposes can be hindered even though they are not used for educational purposes.

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