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**Abstract**

The purpose of this research is to examine the pedagogical formation students' views on the use of mobile devices and mobile communication applications for educational purposes. The universe of the study consists of all students who studies pedagogical formation at Education Faculty of Near East University in 2015-2016 academic year. The sample includes 391 students. The data were collected using "*Educational Mobile Communication Applications Usage Scale*" which was developed by Özçınar, Ekizoğlu & Kanbul. The study was conducted using relative screening model and employed Mann-Whitney U, t- test and Kruskal-Wallis test in determining the scores obtained by students from the entire scale and its sub-dimensions according to their age groups, mobile deice usage and employment of mobile communication applications in classes. In the end of the study, it was found out that students wanted to use mobile devices and mobile communication applications in classes, that their favorite application in daily life was WhatsApp application and that they chose "*I agree*" option in the entire scale and its sub-dimensions

**Resumen**

El propósito de esta investigación es examinar la opinión pedagógica de los estudiantes sobre el uso de dispositivos móviles y aplicaciones de comunicación móvil con fines educativos. El universo del estudio está formado por todos los estudiantes que estudian formación pedagógica en la Facultad de Educación de la Universidad del Cercano Oriente en el año académico 2015-2016. La muestra incluye 391 alumnos. Los datos se recopilaron utilizando la "*Escala de uso de aplicaciones de comunicación móvil educativa*", que fue desarrollado por Özçınar, Ekizoğlu & Kanbul. El estudio se realizó utilizando un modelo de detección relativo y empleó la prueba U de Mann-Whitney y la prueba de Kruskal-Wallis para determinar los puntajes obtenidos por los estudiantes de toda la escala y sus subdimensiones según sus grupos de edad, uso de dispositivos móviles y empleo. de aplicaciones de comunicación móvil en las clases. Al final del estudio, se descubrió que los estudiantes querían usar dispositivos móviles y aplicaciones de comunicación móvil en las clases, que su aplicación favorita en la vida diaria era la aplicación WhatsApp y que eligieron la opción "*Estoy de acuerdo*" en toda la escala y sus subdimensiones

## 1. Introduction

With the developing technology in the 21st-century societies are in need of individuals who can keep up with these developments, who can actively participate in this process and who can configure and adapt to these changes (Tezer, Ozden & Elci, 2016; Cinar, 2017; García Laborda, 2017). The American National Council for Accreditation for Teacher Education (NCATE, 2017), states that one standard that needs to be taken into consideration while training teacher candidates is to raise teachers who will be able to help support all students' learning and learning taking place in schools. Fojtik (2017), also stated that use of mobile devices in education has increased in the world and there is a growing interest in the use of mobile devices for educational purposes.

The demand for teachers in Northern Cyprus is met by the Teacher Training Academy (AOA, 2017) and from faculties of education in universities. Students receiving a pedagogical formation education will get their qualification after completing this programme (Ozcan & Bicen, 2016). It is expected that they include Information and Communication Technologies (ICT) in their classes in line with their students' needs (Baglama, Yikmis & Demirok, 2017). ICT is the most important force affecting the rapid change in education (Prevalla, 2016; Uzunboylu & Karagozlu, 2017; Birkollu, Yucesoy, Baglama & Kanbul, 2017).

The Pedagogical Formation Programme opened at Near East University is getting most of its applicants from Turkey. And this arises the necessity of mobile devices and mobile communication apps which can be used free of time and place constraints, whenever and wherever desired but also which are appropriate to students' learning styles and strategies (Ozdamli & Tavukcu, 2016; Soykan & Ozdamli, 2016; Amor IAB., 2017; García Esteban & García Laborda, 2016). Nowadays, online communication is seen as the fastest growing and most rapidly spreading type of communication. The speed of development and the capacity of online communication has substantially affected communication in education. Educators who want to provide their students with a high-quality, well-supported, technologically rich environment are using mobile devices with improved accessibility and increasing apps (Uzunboylu, Hursen, Özütürk & Demirok, (2015), in education (Shunye 2014; Uzunboylu & Kocakoyun, 2017). Nowadays, instant messaging means have the features to move communication between people to a virtual environment.

Mobile communication apps are a means of electronic communication which enable instant messaging as text or voice messages between two or more users in real-time via electronic devices. There are expressions such as "*Instant Messaging (IM)*", "*Mobile Messaging*", "*Mobile IM*", "*Mobile Chat*", "*Messaging Apps*", "*Mobile Messenger Apps*" and "*Mobile Communication Apps*" in the literature. In this study, the expression "*Mobile Communication Apps*" was preferred as it covers all of the other expressions. Mobile communication apps which are compatible with many platforms and a variety of devices are used all over the world by millions of people because they enable real-time voice calls, face-to-face, and written communication free of charge (Bagriyanik, & Karahoca 2016; Statista, 2017; García Laborda, Magal Royo, Litzler, & Giménez López, 2014).
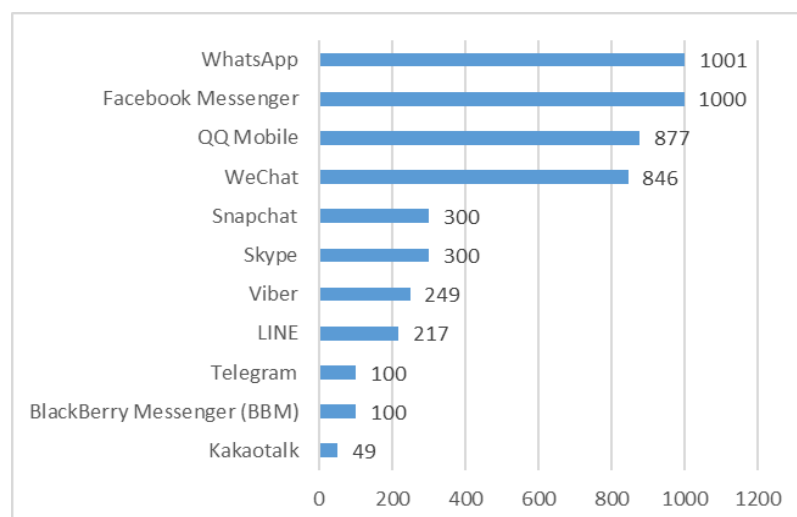
**Figure 1.** Most popular mobile messaging apps worldwide as of January 2017, based on number of monthly active users (in millions)

As it can be seen from figure 1 the worldwide most commonly used mobile communication app: WhatsApp shares the first place with the Facebook Messenger application.

The WhatsApp application which is the most commonly preferred mobile communication app contains many characteristics which would enable it to be used in lessons (WhatsApp, 2017; Karel, 2015; Yazıcı, 2015; Bere, 2013; Teten & Allen, 2005; Uygarer, Uzunboylu & Ozdamli, 2016; Ozcan & Bicen, 2016).

- Multimedia materials such as messages, photographs, videos and voice memos can be shared with up to 256 people in real-time by creating a group. Thus, it supports cooperative learning.
- Groups can be created for different courses and group name can be assigned. Hence, instead of having to call each person separately, various topics and tasks can be discussed with many people.
- It enables conversations to be automatically downloaded and reviewed later.
- When the mobile device is turned off or out of range, messages are automatically saved enabling communication when offline.
- As it is compatible with many platforms (Windows, Linux, OS X, Window Phone, Android, iOS and Web) and ICT devices (PC, Laptop, Tablet, Smart Phone) it has a high accessibility for students.
- It enables cross-platform interaction. To enable a continuous data transfer among platforms it uses various Internet technologies like 3G-4G/EDGE, Internet data, Wi-Fi. And this enables more students to continually be online.
- It enables teachers or students to receive immediate information on decisions on subjects such as course coordination, meeting arrangements, change of lecture times and cancellation of lectures.
- By providing unlimited messages, it enables queries to be asked rapidly and prompt response. Thus, it can enhance communication between teachers and students.
- Status information enables real-time information on the availability of the receiver and whether they have seen the message.
- As it is free of charge it reduces communication expenses for both teachers and students.
- Because it uses a phone number and contacts users do not need to memorise usernames and passwords.
- It has effective security setting properties like blocking a user, visibility settings or muting a group.
- Especially the WhatsApp application has an end-to-end encryption technology. When sent items are end-to-end encrypted, sent messages and calls are protected.

- It enables visually enhanced online interaction with voice and video calling properties.
- With its e-mail and file sharing applications, it enables sending documents such as PDFs, documents, e-tables and slideshows up to 100 MB without effort and these properties are continuously being updated.

Review of studies on mobile communication apps using WhatsApp: Bere (2012) in his study titled "*Using mobile instant messaging to leverage learner participation and transform pedagogy at a South African University of Technology*" conducted at a university in South Africa, students stated that they were able to communicate with their teachers and classmates easier and that this was a more fun environment. Plana and friends (2013) in their study "*Improving learners, reading skills through instant short messages: A sample study using WhatsApp*" conducted on students in Spain, determined that student motivation towards the target language increased and they were more willing to read in the target language. Similarly, Yaman (2016) in his study on the impact of using the WhatsApp application on course achievement in teaching Arabic as a foreign language in Turkey came to the conclusion that, WhatsApp was useful in language teaching in reading, writing, listening and speaking and especially while teaching vocabulary and sentences. However, Amry (2014) in his study "*The impact of WhatsApp mobile social learning on the achievement and attitudes of female students compared with face-to-face learning in the classroom*" compared the in-class face-to-face teaching model with the WhatsApp application. As a result, it was observed that the use of WhatsApp was effective.

It is necessary that studies on the usage of mobile communication apps are emphasised and mobile communication app use in educational environments is varied according to the results obtained. Consequently, the problem statement of the study can be expressed as; what are pedagogical formation students' views on using mobile devices and mobile communication apps for educational purposes? The sub-problem statements related to this main problem statement are as follows;

1. What is the distribution of pedagogical formation students' according to their identifying features?
2. What is the distribution of pedagogical formation students' according to their purposes for using mobile devices in their daily lives?
3. What is the distribution of pedagogical formation students' according to their purposes for using mobile communication apps in their daily lives?
4. Is there a significant statistical difference according to pedagogical formation students' overall and sub-dimension scale scores?
5. Is there a significant difference in the comparison of pedagogical formation students' overall and the sub-dimension scale scores according to mobile device usage duration?

Is there a significant difference in the comparison of pedagogical formation students' overall and the sub-dimension scale scores according to their mobile communication app use in courses?

## 2. Materials and method

In this section, the model of the study, population and sampling, data collection tools, data collection and analysis will be discussed.

### 2.1. Research method

This is a quantitative study designed by using a Survey Model which is one of the comparative investigation model. Survey Model is a research approach which aims to describe a past or present situation as it existed or exists Büyüköztürk (2014). Comparative investigation models are research models which aim to determine the existence of difference and the degree difference between two or more variables (Gall & Borg, 1999).

## 2.2. Research sampling

The sampling of the study consisted of 391 students studying pedagogical formation at the Faculty of Education at Near East University during the 2016-2017 academic year. 64,71% of the participants included in the sample of this research were female and 35,29% of them were male. 38,62% of the participants were 25 or under, 29,41% were between 26 and 29 years of age and 31,97% were 30 or above. 7,93% of the participants had been using a mobile device for 2 or fewer years, 9,72% of them for 3 to 4 years, 7,67% of them for 5 to 6 years, 11,00% of them for 6 to 7 years, 23,27% of them for 8 to 9 years and 40,41% of the participants had been using a mobile device for 10 years or more. When participants' daily mobile device usage was examined it was identified that 5,63% used a mobile device for less than 1 hour, 36,57% used a mobile device 1 to 3 hours, 30,95% 4 to 6 hours and 26,85% used a mobile device more than 6 hours per day. 69,05% of the participants stated that they used mobile communication apps in their courses. Out of the participants who used mobile communication apps in their courses, 77,78% expressed they used mobile communication apps for communication purposes, 37,78% said they used them to ask their teachers questions and 64,81% stated that they used mobile communication apps to ask their classmates course related questions.

## 2.3. Data collection instruments

The data for this study was obtained using the "*Mobile Communication Apps for Educational Purposes Scale*" developed by Özçınar, Ekizoğlu & Kanbul (2016). The scale has 33 items, and a 5-point Likert-type scale rating. The ranges are; "*I strongly agree*", "*I agree*", "*I am undecided*", "*I disagree*" and "*I strongly disagree*". The study has 4 dimensions which are: "*Mobile Communication Apps*", "*Use for Educational Purposes*", "*Instant Communication*" and "*Instant Access to Information*".

## 2.4. Data analysis

Data was collected online via a web-based survey management system called LimeSurvey (2017). The data obtained was analysed using SPSS 16.0 for Windows software. During the data analysis process; frequency (f), percentage (%), average (X) and standard deviation (SD) values were used as descriptive statistics. In order to determine which hypothesis tests would be used in the study, the dataset normal distribution consistency was examined with the Kolmogorov-Smirnov test and according to this test result, it was established that the dataset was not in consistency with a normal distribution. Hence, in the study, non-parametric hypothesis tests were used. In the comparison of the participants' scores received from the scale overall and from each sub-dimension depending on their mobile device usage and their usage of mobile communication apps in courses, the Mann-Whitney U test was used if the independent variable tick marks were two, and the Kruskal-Wallis test was used if it was more than two.

## 3. Results

The study findings which support the objective and problem of the study, are explained in the related tables and figures.
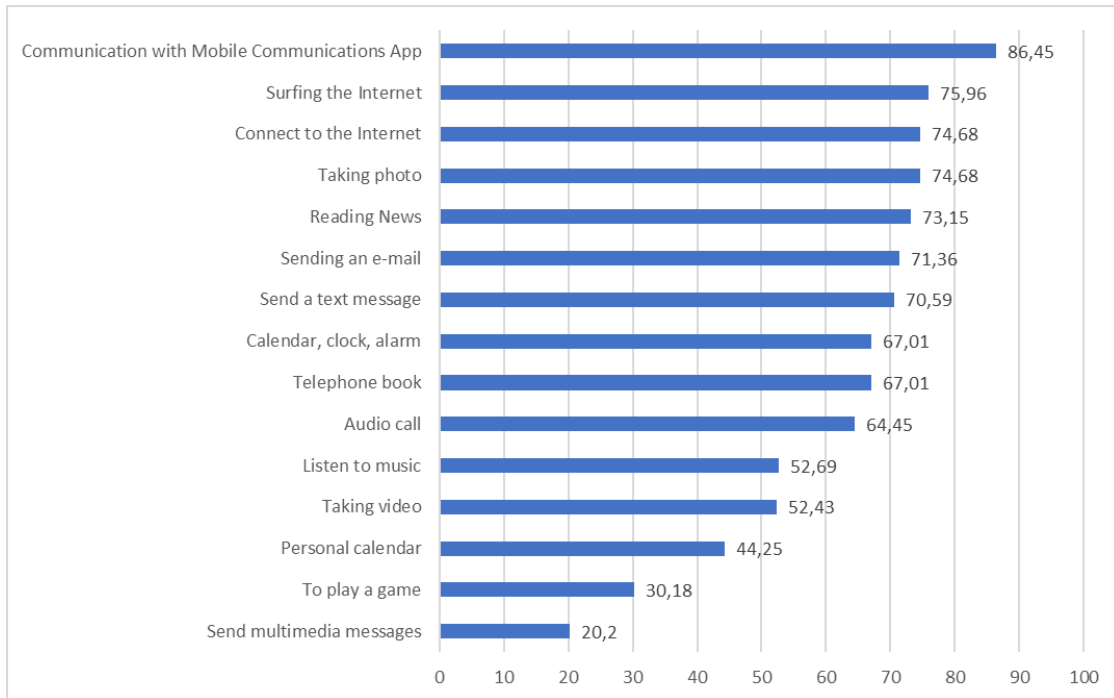
**Figure 2.** Distribution of participants according to purposes for using mobile devices in daily lives

Figure 2, illustrates the distribution of participants' purposes for using mobile devices in their daily lives. Participants have stated that 86,45% use mobile communication apps for communication, 75,96% use their mobile device to surf the Net, 74,68% to take photographs, 73,15% to read the news, 71,36% to send e-mails, 70,59% to send short messages, 67,01% use the calendar, clock and alarm applications on their mobile device 64,45% use it for voice calls, 52,69% use it to listen to music, 52,43% to record videos, 44,25% use it as a personal planner, 30,18% use it to play games and 20,20% use their mobile device to send multi-media messages.
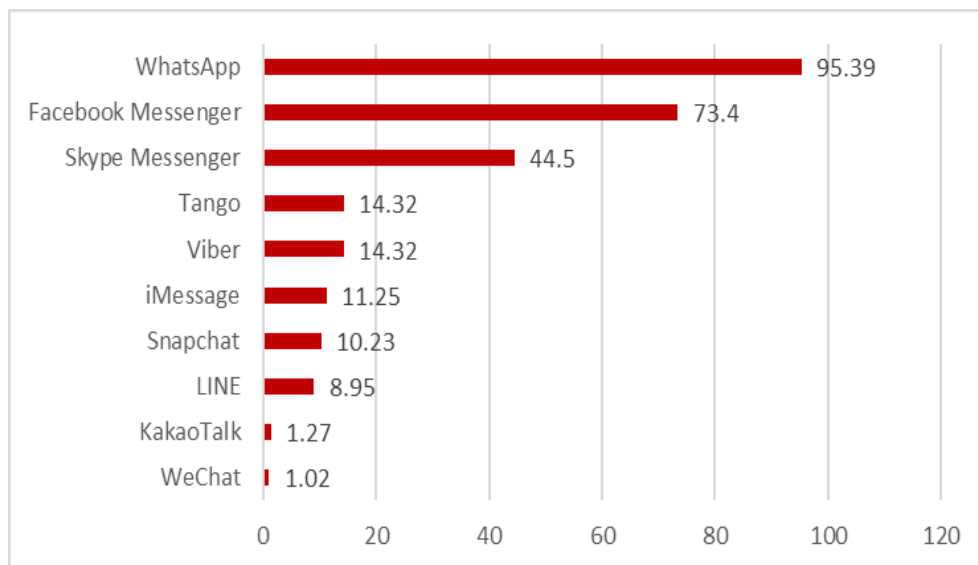


**Figure 3.** Distribution of participants according to purposes for using mobile communication apps in daily lives

Figure 3, demonstrates the distribution of participants' purposes for using mobile communication apps in their daily lives. 95,3% of the participants stated that they used WhatsApp, 73,4% Facebook Messenger, 44,5% Skype Messenger, 14,32% Tango, 14.32% Viber, 11,25% I Message, 10,23% Snapchat, 6,95% Line, 1,27% Kakao Talk and 1,02% of the participants stated that they used WeChat.

**Table 1.**
Descriptive Statistics of Overall and Sub-dimension Scale Scores

| Sub-dimensions | n | Total Scores | | | | Item Scores | |
|---|---|---|---|---|---|---|---|
| | | $\bar{x}$ | s | Min | Max | $\bar{x}$ | s |
| Mobile Communication Apps | 389 | 22,39 | 4,01 | 6 | 30 | 3,73 | 0,67 |
| Use for Educational Purposes | 390 | 16,29 | 3,41 | 4 | 20 | 4,07 | 0,85 |
| Instant Communication | 387 | 48,02 | 9,27 | 12 | 60 | 4,00 | 0,77 |
| Instant Access to Information | 391 | 45,73 | 8,97 | 11 | 55 | 4,16 | 0,82 |
| Overall Scale | 385 | 132,42 | 24,31 | 33 | 165 | 4,01 | 0,74 |

Students participating in the study generally replied as "*I agree" scale wide to statements in the "mobile communication apps*", "*use for educational purposes*", "*instant communication*" and "*instant access to information*" sub-dimensions, as seen in table 1.

**Table 2.**
Comparison of mobile device usage duration overall and sub-dimension scale scores

| Sub-dimensions | Mobile Device Usage Duration | n | Median | Mean Rank | $X^2$ | p | Difference |
|---|---|---|---|---|---|---|---|
| Mobile Communication Apps | 2 years or less | 31 | 3,83 | 201,08 | 3,37 | 0,64 | |
| | between 3-4 years | 37 | 3,67 | 157,97 | | | |
| | between 5-6 years | 30 | 3,83 | 166,08 | | | |
| | between 6-7 years | 43 | 3,83 | 163,87 | | | |
| | between 8-9 years | 91 | 3,83 | 168,61 | | | |
| | 10 years or more | 157 | 3,83 | 183,80 | | | |
| Use for Educational Purposes | 2 years or less | 31 | 4,00 | 178,85 | 13,58 | 0,02* | 1-6 |
| | between 3-4 years | 37 | 4,00 | 165,97 | | | 2-6 |
| | between 5-6 years | 30 | 4,00 | 152,80 | | | 3-6 |
| | between 6-7 years | 43 | 4,00 | 162,90 | | | 4-6 |
| | between 8-9 years | 91 | 4,25 | 186,08 | | | |
| | 10 years or more | 158 | 4,25 | 168,53 | | | |
| Instant Communication | 2 years or less | 31 | 4,00 | 168,27 | 11,38 | 0,04* | 1-6 |
| | between 3-4 years | 37 | 4,00 | 174,70 | | | 2-6 |
| | between 5-6 years | 30 | 4,00 | 161,28 | | | 3-6 |
| | between 6-7 years | 43 | 4,00 | 184,95 | | | 4-6 |
| | between 8-9 years | 90 | 4,13 | 171,49 | | | |
| | 10 years or more | 156 | 4,08 | 174,21 | | | |
| Instant Access to Information | 2 years or less | 31 | 4,09 | 167,08 | 18,91 | 0,00* | 1-6 |
| | between 3-4 years | 38 | 4,00 | 169,58 | | | 2-6 |
| | between 5-6 years | 30 | 4,05 | 185,25 | | | 3-6 |
| | between 6-7 years | 43 | 4,00 | 200,28 | | | 4-6 |
| | between 8-9 years | 91 | 4,36 | 205,51 | | | |
| | 10 years or more | 158 | 4,36 | 208,49 | | | |
| Overall Scale | 2 years or less | 31 | 4,00 | 201,71 | 13,76 | 0,02* | 1-6 |
| | between 3-4 years | 36 | 3,94 | 206,54 | | | 2-6 |
| | between 5-6 years | 30 | 3,88 | 215,66 | | | 3-6 |
| | between 6-7 years | 43 | 3,94 | 209,96 | | | 4-6 |
| | between 8-9 years | 90 | 4,21 | 217,41 | | | |
| | 10 years or more | 155 | 4,18 | 212,45 | | | |

It was determined that there was not a significant statistical difference (p>0,05) in participant scores obtained from the scale's the sub-dimension "*mobile communication apps*" according to their mobile device usage duration, as seen in table 2. It was observed that there was a significant statistical difference (p<0,05) in participant score averages from overall scores and from the scale's the sub-dimensions "*use for educational purposes*", "*instant communication*" and "*instant access to information*" according to their mobile device usage duration. Participants who had been mobile device users for 10 or more years obtained higher scores from this sub-dimension compared to participants who had been mobile device users for 2 years or less, 3 to 4 years, 5 to 6 and 6 to 7 years.

**Table 3.**
Comparison of mobile communication app use in courses overall and sub-dimension scale scores

| Sub-dimensions | Using Mobile Devices in Courses | n | Median | Mean Rank | Sum of Rank | U | p |
|---|---|---|---|---|---|---|---|
| Mobile Communication Apps | User | 269 | 3,83 | 205,23 | 55208,00 | 13387,00 | 0,01* |
| | Non-user | 120 | 3,67 | 213,02 | 57515,50 | | |
| Use for Educational Purposes | User | 270 | 4,25 | 210,05 | 56083,00 | 11469,50 | 0,00* |
| | Non-user | 120 | 4,00 | 213,11 | 57538,50 | | |
| Instant Communication | User | 267 | 4,08 | 210,17 | 55906,00 | 11735,00 | 0,00* |
| | Non-user | 120 | 3,92 | 172,06 | 20647,00 | | |
| Instant Access to Information | User | 270 | 4,36 | 156,08 | 18729,50 | 11716,50 | 0,00* |
| | Non-user | 121 | 4,00 | 158,29 | 18995,00 | | |
| Overall Scale | User | 266 | 4,21 | 157,83 | 19097,50 | 11259,00 | 0,00* |
| | Non-user | 119 | 3,94 | 154,61 | 18399,00 | | |

As shown in table 3 it was discovered that there was a significant statistical difference (p<0,05) in participant overall and sub-dimension scores obtained from "*mobile communication apps*", "*use for educational purposes*", "*instant communication*" and "*instant access to information*" according to their mobile communication app use in courses. Participants who use mobile communication apps in their courses obtained significantly higher scores than participants who did not use mobile communication apps in their courses.

## 4. Discussion and conclusion

The aim of this study was to explore pedagogical formation students' views on using mobile devices and mobile communication apps for educational purposes. Findings were discussed democratically including author interpretations and were explained in the light of the main ideas generated from these discussions.

It was determined that out of the study participants 40,41% of them had been using mobile devices in their daily lives for 10 years or more. It was determined that the main usage of mobile devices were for using mobile communication apps, the Internet, reading the news, taking photographs, and sending messages. Moreover, participants stated that out of the mobile communication apps that they used WhatsApp application the most (95,3) and Facebook Messenger (73,4) followed this in second place.

Similarly, in his study Yazıcı (2015) revealed that out of 129 students who used smartphones nearly all, 97,6% participants used the Whats app application, and Facebook Messenger followed in the second top place with 65,8% usage. It was established that 126 participants, used the Whats app application for a variety of purposes, and was regarded as a "*simple communication*" by 88%. Because the application is free of charge, with a 77,7% rate the "*free messaging*" feature came second. "*Sharing photographs*" came third with the rating of 76,9%, with 59,5% "*group communication"* and 55,5% for "*chatting and fun*" took the fourth and fifth place. The "*giving and receiving information*" feature was chosen by 44,4% of users.

In a similar study conducted in Northern Cyprus, the similarities and differences between different generations was analyzed by analysing 118 participants' use of the Internet and social network in their daily lives; the frequency and the purpose of using them the Internet and social networks, the type of social media and free communication network used, degree of visibility on social media, degree of showing reaction to feeds and incidents, following the news, and use of technology. The conclusion was drawn that out of 118 people 67% used face book as a primary social media network, and 11% used WhatsApp as a primary means of communication free of charge. For 6.8% of the participants, Viber was a primary means of communication free of charge.

Ozturk, Ozturk and Ozen (2016) in his study conducted with 519 vocational high school students aimed to reveal their social network usage habits and to determine their views on using social networks in daily life and in education. It was observed that out of most participants had a Facebook account. The second and third most popular mobile communication apps were determined as Twitter and Whats app. According to 206 participants' replies to the query "*For what purposes do you use social networks?*"; sharing photographs (75,24%), finding old friends (73,79%) and making new friends (61,17%) were the top three.

It was found that participants used mobile communication apps in their courses (69,05%) and they used these apps mainly for asking questions to the teacher (37,78%) and to get in contact with their friends and to ask questions about the course (64,81%).

It was observed that participants expressed positive views as "*I agree*" on the overall of the scale and on the sub-dimensions "*mobile communication apps*", "*use for educational purposes*", "*instant communication*", and "*instant access to information*". It was concluded that participants used mobile devices and mobile communication apps in their daily lives and would like to use them for educational purposes, and believed that this would increase their communication with the teacher and other students.

Similarly, Zafar Shayan (2015) in his study stated that all students used Whats app to communicate. Moreover, it was stated that at Erciyes University most classes Whats app groups to communicate. A student from the Japanese Language and Literature Department said: "*At school, we have a Whats app group to communicate. We can receive information about the lessons, the homework and the subject headings, we can inform our teacher if we are going to be late or if we have health problems*". Another student taking the interview at the Faculty of Medicine expressed; "*At school, most of our group communication takes place using WhatsApp but we also use Facebook groups.*" In addition, it was found that students also used other mobile communication apps like Tango, Viber, Skype, Facebook Messenger, Insta Message etc. for academic activities and that some students used Skype to video call classmates and complete group work.

Student willingness to use mobile devices and mobile communication apps in courses led Ozturk, Ozturk & Ozen (2016) conducted a study on 84 academic staff members' positioned at various faculties of education to explore their level awareness of Web2.0 tools and their academic purposes and frequency of usage in terms of several variables. As a result of the study it was found that a number of academic staff members were aware of Facebook and mobile communication apps, yet only 33,7% used mobile communication apps to communicate with students.

Participants who used mobile devices expressed more positive views in the scale overall and in all of the sub-dimensions compared to participants who did not use mobile devices. It was found that participants who used mobile devices made use of the facilities they provided and had a more positive view. In general, it can be stated that students use mobile communication apps in their daily lives and in their courses and showed a desire to use them more effectively and that especially the WhatsApp application was commonly used among students for communication.

Below are some suggestions on study topics for further research which are believed to be a contribution to the literature:

- Courses in which mobile communication apps are used effectively and integrated into learning environments should be planned and scientific studies could be conducted.
- Information on teacher views on using mobile communication apps for educational purposes should be obtained and drawbacks of using these applications, if any, could be revealed.
- Content analysis studies could be conducted on studies about mobile communication app usage.

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