Examining the Determinants of Iranian Students' Use of Mobile Phones during Lecture Periods

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ABSTRACT

Technologies are affecting student's involvement, motivation, and efficiency in education. Mobile phones as the most popular technological devices have educational capabilities. For example, they can provide students with meaningful learning opportunities through a variety of applications and access to the internet. Using such skills is regarded as an aspect of developing 21st century skills. Despite the numerous helpful features of mobile phones, they are believed to result in distractions, disruptions, cheating and untimely use. However, the students' persistence in using mobile phones during lessons even when forbidden has become a concerning issue. Therefore, the present study was proposed to examine the causes of 130 Iranian students' utilize of mobile phones during the classrooms in the Faculty of Pharmacy at EMU in the Turkish Republic of Northern Cyprus (TRNC). A comparison was made among students' perception with regard to their age, gender, and grades. Students' perception was evaluated using a questionnaire which addressed six factors: boredom, emergency, perceived behavioral control, addiction, social connection, and class-related use. A quantitative research method was used and frequencies, ANOVA and t-test were performed to analyze the data. The results of the study showed that most of the students had a tendency to utilize mobile phones during lessons in order to class-related use. Moreover, whereas no statistically significant differences were found among students' perception with regard to their gender and grade variables, significant differences were found in relation to the age variable. The study had important implications for instructors and practitioners in this field of inquiry.

Keywords: Mobile phones use, performance, university students, classroom

ÖZ

Teknoloji, öğrencilerin eğitime olan katılımlarını, motivasyonlarını ve verimliliklerini etkilemektedir. En popüler teknolojil cihaz olan cep telefonları, eğitime de yarar sağlamaktadır. İnternet bağlantısı ve birçok uygulama olanağı sağlayan bu cihazlar, öğrencilere yararlı öğrenim olanakları sağlayabilmektedirler. Bu unsurları kullanmak 21. yüzyıla özgü yetenekleri geliştirmede bir etken olarak görülmektedirler. Bu sayısız faydanın yanı sıra cep telefonlarının; dikkat dağıtma, karışıklığa itme, hile ve uygun zamanda kullanmama gibi sonuçlar doğuracağı düşünülmektedir. Yasak olmasına rağmen, öğrencilerin sınıflarda cep telefonlarını kullanmalarındaki ısrarı bir sorun haline gelmektedir. Bu yüzden, bu araştırmada Kuzey Kıbrıs Türk Cumhuriyeti'nde bulunan Doğu Akdeniz Üniversitesi (DAÜ) Eczacılık Fakültesi'nde okuyan 130 İranlı öğrenci üzerinde, sınıfta cep telefonu kullanımlarını inceleme yapılmıştır. Öğrencilerin; yaş, cinsiyet ve sınıfları göz önüne alınarak, görüşleri üzerinde bir karşılaştırma yapılmış ve sıkılma, acil durum, algılanan davranışsal kontrol, bağımlılık, sosyal bağ ve dersle ilintili kullanımından oluşan 6 unsuru barındıran bir anket öğrencilerin görüşlerini ölçmek için kullanılmıştır. Nicel araştırma tekniği, (frequency) sıklık tablosu, varyans analizi ve t-testi bilgileri ölçmek için uygulanmıştır. Cinsiyet ve sınıf farklılıkları söz konusuyken öğrencilerin görüşleri arasında statiksel bir fark saptanmamış, fakat yaş etkeninde farklılıklar ortaya çıkmıştır.

Anahtar Kelimeler: Cep telefonları kullanımı, performans, üniversite öğrencileri, sınıf

DEDICATION

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Chapter 1

INTRODUCTION

The term 'education' is frequently confused by 'schooling' and is associated with professions like that of teachers or instructors. This way of looking at education is problematic since education is not limited to teachers helping students to acquire literacy. Education, in fact, is a process whereby the possibility of discovering facts and truth is given to the learners (Elias, 1974). It is also considered as a social process of living rather than preparation for future living so that educators' responsibility is to identify and develop students' potentials (Dewey, 1916).

Information and communication technologies (ICT) have become an essential element rapidly changing human society. The influence of ICT in education can be seen in, but is not limited to, empowering instructors, modifying the educational structure, fostering opportunities which allow more meaningful learning, promoting the quality of education and improving teaching skills. That is why the current systems of teaching and learning are in quest of better teaching and learning technologies (Batson & Bass, 1996).

The apparently large population of people across the world who use these technologies for educational purposes is an evidence for the importance of internet and ICT in the education process. ICT provides immediate access to an extensive range of learning

resources and information, and students do not have to wait until their lecturers transfer them the required content and materials.

The widespread application and popularity of ICT has changed the traditional teaching and learning practices, and many studies have indicated the advantages by integrating these technologies to learning (Pena-Shaff & Nicholls, 2004). Researchers have shown that one of the potentials of incorporating ICT into educational systems is the provision of authentic learning activities in which students can cooperate in order to solve real-world problems (Ogata & Yano, 2004; Wenger, 1997). In other words, ICT can foster situated learning which situates students in a real-world learning scenario which merges both real and digital learning resources.

Digital, wireless, and portable communication devices, students can easily acquire knowledge in the real world. It is also possible to identify and record students' learning behaviors in both the digital environment and the real world context through the use of sensing technology of the students (Hwang, Tsai, & Yang, 2008).

Moreover, it is argued that the new learning scenarios created by digital tools may be too complex for the students and they do not show any learning achievements at the beginning (Chu, Hwang, & Tsai, 2010); however, provision of as well as awareness-raising would foster meta-cognitive strategies which enhance their learning and creativity capabilities (Burleson, 2005; Chu, Hwang, Tsai & Tseng, 2010).

Provision of instant feedback has frequently been reported as an advantage of ICT by motivating students and improving their learning achievement (Johnson, Perry, & Shamir, 2010; Panjaburee, Hwang, Triampo, & Shih, 2010). As a result, it is important

to develop knowledge construction tools including mobile devices, which can offer immediate feedback to students in the process of learning through mobile devices (Narciss & Huth, 2006).

Mobile learning has increasingly gained importance as an educational tool and context because of its popularity and rapid advances made to mobile technologies and wireless communication (Shen et al, 1995). There are different types of mobile devices such as digital audio players, PDAs, and mobile phones that all of which can be used for educational purposes. One of the most important mobile devices is a mobile phone.

Mobile phone, also known as cell phone, is an electronic handheld device which connects to a radio communication network. Recent mobile phones have interfaces which offer researchers a lot of opportunities for doing measurements or developing modern, sensing platforms (Petryayeva & Algar, 2015).

Mobile phones not only used for individual engagement in interesting activities such as net-surfing, playing games, and sharing multi-media materials, but also is regarded as a social outlet (Myers, 2013). However, the use of mobile phones among the students for educational purposes has become a controversial issue among the communication and education scientists. as an example, a number of researchers (e.g., Alsaggaf et al., 2013) have raised the following questions: what effects do mobile phones have on academic performance of students? Should students be allowed to use mobile phones in the classroom? How are mobile phones used by the students? For what reasons do students use mobile phones and what influences it has on their achievement and behavior? Researchers are trying to provide answers to these questions along with many other questions.

1.1 Mobile phone usage during classroom

Doubtlessly, mobile phones utilize have entered practically in every aspect of life in contemporary. It has become such a widespread and popular device during the recent years that almost all college or university students possess this device (Olufadi, 2015). With increasing attention focused on the application of technology, and particularly the causes why students use utilize mobile phones during lectures even in situations where using mobile phones in class is forbidden. Therefore, the motivation students' persistence in using their mobile phones during the classrooms has become a concerning issue which is worth of attention by researchers and education policymakers since several studies (e.g., McCoy, 2013; Baker, Lusk, & Neuhauser, 2012) have pointed to the negative effect using mobile phones in classrooms not only on the course results but also on other facets of students' lives.

In order to scrutinize why students, adhere to technological tools, it is important to reflect on the theories underpinning today's classroom. Student-centeredness as a dominant approach in 21st century classrooms has emerged from the Constructivism theory, which perceives meaningful learning as the product of experiential learning (Smaldino et al., 2005). In this approach, students take responsibility for their own learning process and knowledge construction occurs as a result of building information upon the past experiences (Reiser & Dempsey, 2007). In other words, it is important for students to understand the world so they can associate the new knowledge to the previously built knowledge, and understanding the world, in turn, can be assisted by proper learning activities and a rich learning context (Grabe & Grabe, 2007). As a result, the present study aims to understand the reasons why students utilize mobile phones in class lectures.

1.2 problem statement

There are many reasons why students utilize mobile phones. They use mobile phones, for example, to record audio/video lectures, send/receive text messages, make/receive calls, connect to the internet for searching information, and to use different applications such as reminders, calculators, educational apps, timer, security and safety issues especially in case of emergency and so on. Students may utilize mobile phones during the classrooms either for each of the up-mentioned reasons or for the addictive effect of this device on their focusing on the lecture becomes a challenge as mobile phones distract students' attention and inhibit their concentration on the lecture. In the current study, an attempt is made to detect causes of continuance utilize of mobile phones during classrooms by students in the Faculty of Pharmacy at Eastern Mediterranean University (EMU) located in the Turkish Republic of Northern Cyprus (TRNC).

1.3 Aim of the study

The proposed research is designed to investigate causes of mobile phone use during classes by the Iranian students in the Faculty of Pharmacy at EMU in the Turkish Republic of Northern Cyprus (TRNC), and to understand whether perceptions of the students regarding the factors of boredom, emergency, perceived behavioral control, addiction, social connection, and class-related use are different in terms of age, gender, and grade variables. Indeed, a major contribution of the current study is its attempt to conceptualise the incentive underlying students' utilize of mobile phones in the classrooms by proposing a psychometrically comprehensive scale.

1.4 Research questions

 The purpose of this study is to identify the determinants utilize of mobile phones during the classrooms by Iranian students in the Faculty of Pharmacy students at the

University of EMU concerning six factors, including boredom, emergency, perceived behavioral control, addiction, social connection, and class-related use and to find out the differences that might exist in the perception of these students pertaining to some variables including age, gender, and grade. This study, therefore, seeks answers to the following questions:

1. Is there any significance difference in the reasons of applying mobile phones in the classrooms regarding students' grade?

2. Is there any significance difference in the reasons of applying mobile phones in the classrooms regarding students' age?

3. Is there any significance difference in the reasons of applying mobile phones in the classrooms regarding students' gender?

1.5 Significance of the study

Although initial studies have yielded promising results which the application of mobile devices as effective tools to support teaching and learning (Yordanova, 2007), by indicating that these tools increases students' motivation, engages their engagement in the learning activity, (Rogers et al., 2010), and improves their achievement level (Williams & Bearman, 2008), information about how personal mobile devices can be incorporated as educational tools, and how they are being used for learning purposes inside and outside classrooms is still restricted. The present study is of high significance because it addresses the aforementioned gap in literature. This study, in fact, sheds more light on how the use of mobile phones and their contribution to learning are perceived by the students. Understanding how these perceptions may vary among students at different grades and with different age and genders are also important, that is why they are investigated in the present study. More importantly this study may provide insights into how the presence of mobile phones in university

classrooms may affect the traditional student-teacher dynamic, and how the effective use of these devices may be inhibited. The study would raise researchers and instructors' awareness about the use of mobile phones in general, and its application at the university level in particular, the potentials of mobile for learning both inside and outside the classroom, as well as its debilitating effect on students' learning.

1.6 Limitation

This study has some limitations that should be considered in future investigations. First, data was collected only during 2015-2016 spring semester at EMU, and the study sample was limited only to Iranian students studying in the Faculty of Pharmacy at EMU. Second, this research was administered within a three-week period which was not a sufficient duration for collecting questionnaires as many as possible.

Chapter 2

LITERATURE REVIEW

By the advent of technology and mobile devices, specifically the mobile phone and its widespread use among people, and especially college students on campus, educational environments and classrooms, it is assumed that this technological device has the potential to solve their educational problems. However, this assumption has raised more serious questions, including the following: can cell phones be utilized as an academic teaching device? To what extent are mobile phones accepted as educational tools? What are students' attitudes about mobile phones as educational tools? What should be done to make the best of mobile phones as an educational tool? And, what effect can mobile phones have on academic performance of students?

In general, prior researches have shown that students sustain using mobile phones in the classrooms, also in classrooms where the utilize of digital devices have been forbidden (Imhof et al., 2007; Lenhart et al., 2010). However, the question is that why students utilize mobile phones during classes contempt knowing about its negative impact on their attention (Barry et al., 2015) and their academic performance. Therefore, the present study aims to examine the determinants of students' utilize of their mobile phones in the classrooms.

Developing a profound knowledge of why students keep using mobile phones during lectures has attracted researchers' attention. This is because a lot of researches (e.g., McCoy, 2013; Alsaggaf et al., 2013) have pointed to the negative effect of using

mobile phones in classrooms not only on the course results and but also in other facets of students' lives. Identifying causes of mobile phone use in classroom have the potential to develop learning activities that are compatible with such devices to enhance students', engagement, learning, and general academic performance.

One of the main capabilities of mobile phones is referred to as multitasking. Multitasking is simply performing more than a single thing at a time (Wood et al., 2012). Junco et al. (2012) also conceptualized multitasking as divided attention and non-sequential task switching for ill-defined tasks as they are performed in learning situations (Junco, 2012), Following the same definition, the present study considers mobile phone multitasking while learning both as rapid task switching between off-task mobile phone ~~use~~ usage and learning and as divided attention.

An example of mobile phone multitasking can be studying a research article and at the same time checking emails; nevertheless, if a mobile phone is used for reading a research article in order to learn it, it is considered as mobile learning not as mobile phone multitasking. The review of the current literature is inspired by the popularity of mobile phone multitasking while learning, the challenges as well as the importance of this issue.

The primary merit of mobile phone is that it is not just a device for making phone calls any more. In fact, the recent technological advances have vividly promoted the frequency and types of mobile phone- enhanced activities including searching and finding information from different websites, connecting and subscribing to diverse social networks, sharing multi-media materials and pictures, etc. In simple words, mobile phones have provided easy access to information at any time and any place.

In addition, mobile phone facilitates learning and multitasking but it is not a aboveboard issue to inspect. Performing different tasks simultaneously may result in interference (Wood et al., 2012). For instance, when a student engages in taking notes while listening to a lecture and simultaneously texts a message, his performance is likely to be impaired. On the other hand, it is argued that if the two tasks involved are not related, for example, taking notes of a lecture and viewing a friend's picture interference might not occur and the effect on performance would not be significant. In this line, few studies have addressed the effect of mobile phone multitasking on learning outcome. Most studies carried out so far has mostly relied on self-reported data; however, researchers have started to conduct studies which empirically investigate the impact of mobile phone multitasking on students' learning in real-world classrooms.

Accepting the use of mobile phones in classes is a controversial issue. In this regard, (Jandura & Karnowski, 2015) points to two groups of people, digital immigrants or persons born in front the advent of digital equipment and technology who are behind technology and technology natives or people born after the extensive adoption of technology. Applying the same notions to educational settings, the integration of technology in classes taught by the older generation of teachers appears more challenging that integrating it to classes that are going to be taught by teachers who are new generations of pre-service teachers who themselves are grown up in a digital world. In a rather recent study, Zickuhr (2011) has reported the ownership of different digital devices among the millennial breed with ages between 18 and-34: game console (63%), iPod (74%), tablet (5%), laptop (70%), desktop (57%), and mobile phone (95%), with only 1% of the generation possessing no digital devices. It is worth mentioning that most teachers are the former students who had been banned to use

their digital devices in class, and thus, they will function as gatekeepers to the integration of technology in the classes as teachers (Purcell et al., 2013). So, teachers' perception and experience of using technology has a vital role in the failure or success of mobile phone integration.

The present study investigates the causes why students utilize mobile phones during classrooms and persist using them during lecture periods, even in classrooms where the utilize of electronic devices is forbidden. There is a gap and it has been attempted to solve it via the presence of six factors suggested measurement of device which it could be mentioned as moving to the field of mobile phones. They are boredom, emergency, perceived behavioral control, addiction, social connection, and class-related use.

2.1 Mobile learning

M-learning or mobile learning is referred to as learning through social interactions across a variety of contexts by the help of electronic devices" (Berge et al., 2013). M-learning technologies, among other things, include handheld computers, MP3 players, tablets, notebooks and mobile phones and tablets. Mobility is the core concept of M-learning which maintains the interaction of the learner with portable technologies for educational purposes at their time of convenience (Mehdipour et al., 2013). Mobile tools have become an integral component of informal learning utilized for developing learning aids and materials (Trentin et al., 2013).

2.2 Frameworks for Mobile Learning

It is important to have a sound framework which can put theorizing about mobile learning into practice and successful use. Since 2004, six well-known theories have dealt with this issue. (Zaphiris et al., 2008).

- **Behaviorist** – activities that result in a change in learners' actions.

- **Constructivist** – activities in which the new knowledge is built upon the learner's previous knowledge and schemata

- **Situated** – activities that foster authentic learning in culture and real-life contexts

- **Collaborative** – activities that can be performed in groups through social interaction with other group members.

- **Informal and lifelong** – activities that support learning outside the formal educational context

- **Learning and teaching support** – activities that facilitate the organization of resources and learners to promote learning

It is noteworthy that, although some theorists believe that mobile learning can promote collaborative interactions, others take more behaviorist approaches.

2.3 The Design of Mobile Learning Environments

The field of education has witnessed decades of attempt in order to provide approaches that lead to effective, productive and permanent learning. Mobile learning, which has recently become one of the main foci for educators, is believed to have dramatically influenced the learning process. According to Trifonova & Anna (2003), mobile learning should support and guide students and teachers about when and where the learning situations are necessary. The technologies to be used in mobile learning environment should have the following components as shown in Figure 1 (Dickersen & Browning, 2009):
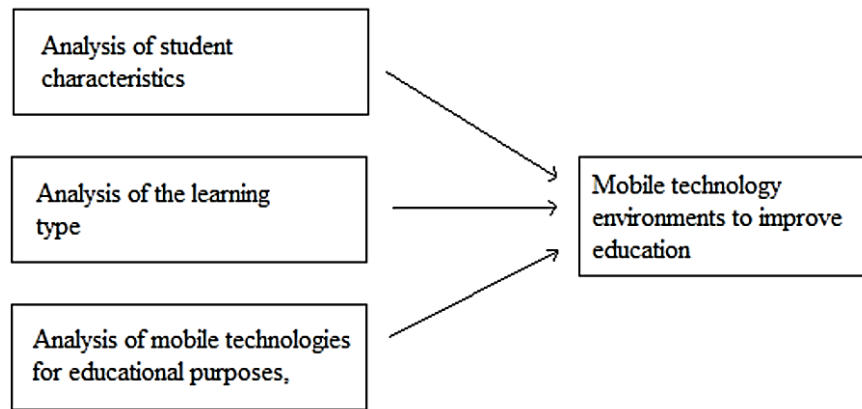
Figure 1: Educational Development Components (Dickersen et al., 2009)

Technology roadmap is another aspect to be studied before making an attempt to use the mobile technologies in education. By using technology roadmap, it is possible to practice and make predictions about the mobile technologies, to provide long-term planning and management, and also to increase the effectiveness and productivity of these devices, which subsequently increases the quality of education. The functions as a bridge to access future targets in mobile learning in terms of service, product, and technology (Uysal et al., 2010). METIL (Mixed Emerging Technology Integration Lab) is specifically one of the developments made in mobile technology that has resulted in the development of various mobile applications such as Microsoft Mobile Learning Project and Mobile Sports Pulse mostly established in the USA. Many mobile learning projects have been put into practice in Europe for teachers' education, pedagogical development, and educational support and research.

2.4 Mobile Learning Environment

Switzer et al. (2005) believe that the environments offered by mobile devices allow learners to collaborate in the creation of the final products and, in this process, negotiate with their peers and share their ideas with them. In fact, through collaborative, contextual, constructionist and constructivist learning environments offered by mobile phones, mobile learning occurs (Patten et al., 2005).

The mobile learning environment is characterized by new roles for both teachers and learners, because the nature of learning activities differs from the traditional activities. New learning environment offered by mobile phones necessitates new roles for the teacher. Contrary to the traditional "top-down" teaching methodologies which assumes teachers as authorities who are responsible for delivering the academic content in an explicit way to the students, Chang-Wells et al., (2005) introduced a bottom-up teaching approach where the teacher functions as a mediator or even co-learner to facilitate learning and knowledge acquisition by the learners. In the context of mobile learning, the teacher is responsible for establishing a learning environment for her/his students. Her/his responsibility is to help and guide learners throughout them. The goal of assisting learners, according to Chang-Wells et al., is to help them to go beyond their current level of ability and become more proficient and more independent learners.

2.5 Mobile Devices

Although mobile devices appear to be recent educational tools, the concept of a mobile educational device dates back to the late 1960s when the idea was adopted by Alan Kay (Najmiet al., 2009). Kay designed Dynabook, a portable device which displayed text and graphics similar to a book. Later on, with the developments in information technologies, wireless communication and mobile devices started to be used in order to support the traditional learning (Wang at al., 2004). Wireless communication techniques help students obtain their required information through techniques that can be taught by teachers and the learning systems. Students can also use their PDAs (Personal Digital Assistant) in order to access to the information they need (Wang et al., 2003).

2.6 Use of Mobile devices in Education

In the 1990s, wireless devices such as PDAs and phones that could support mobile activity were designed as a result of technological advancement. With a decrease in price and high production, soon a large proportion of the population managed to buy personal wireless devices. The most common device of all was the cell phone which is still the most widely-owned device today. After mobile phones were given the capability to connect to the Internet, the number of its users increased dramatically. In fact, in many countries, especially developing countries using mobile phones are the only way of accessing the Internet. As the most pervasiveness devices across the world, mobile phones have become one of the most popular subject of many studies by researchers who investigate their use for educational purposes.

2.7 Samples of Some Educational Apps

There are a large variety of mobile applications that can be found through search engines Mobile applications have extensively contributed to the popularity of smartphones to the extent that it has inspired many companies to develop their own mobile apps (Bomhold, 2013). Apps are also different across various fields. Some instances of Apps in different fields which many of them are used for Educational purposes are listed in what follows:

2.7.1 IDevBooks – Educational Math Apps

This new app is an excellent educational tool appropriated for any schools using mobile devices, and also those parents who desire to teach math concepts to their children.

2.7.2 Duolingo - Classroom Learning Languages Apps

It is a well-known language learning app in the world. It has an attractive interface, short lessons, and it is easy to use. It guides students through different stages of the

learning process, similar to the levels of a video game and, just like a game, the learner can get stuck and lose "lives" if he keeps failing a level.

2.7.3 Google Doc - Social Media Apps in Universities

Google Doc is a form of collaborative document application which enables students to give instant feedback on each other's work, editing and comment functions that can be done in groups without the need to participate in structured seminars. The document can later be sent to the lecturer for further feedback. This App has numerous capabilities reinforced by Google Drive which supports learning by organizing collaborative research activities or project-focused learning activities.

2.8 Advantages of Utilizing Mobile Phones in the Classrooms

Technology in general and mobile phone in particular has been proved to have a positive effect on student learning, engagement, motivation, and productivity (Roblyer & Doering, 2010). The primary advantage attributed to mobile devices are their potential to engage students in the learning with deep understanding (Traxler, 2009). For instance, mobile phone is used to access the Internet or administer online research in a survey of approximately 1100 teachers, Thomas et al. (2014) argued that students access to the Internet was the foremost advantage of utilizing mobile phone in the classrooms.

According to Madden et al. (2013), mobile phones are the primary method of accessing the Internet by one fourth of teens. Similarly, a survey of 2462 National Writing Project (NWP) and Advanced Placement (AP) by Purcell et al. (2013), most teachers reported that students utilize mobile phones to complete research through the Internet. Moreover, the students appeared to use personal mobile phones, to access assignments online, to complete assignments, and submit assignments online, as reported by 73%,

79% and 76% of the teachers, respectively. Mobile phones also make access to online tools such as Dropbox and Web 2.0 tools and mobile apps for classroom use possible.

Students also use their texting, as one of the most frequently-used functions of mobile phones facilitates communication and collaboration among teachers, students, and content through sending/receiving text messages (Thomas et al., 2011). For example, Thomas et al., investigated the effect of teacher-generated text messages on a variety of course-related subjects by surveying high school students who received them. According to the results the students perceived the use of this intervention contributory to both student-teacher and student-content interaction. Texting is also beneficial for improving students' phonological awareness, vocabulary, and reading ability (Plester et al., 2009).

Video and audio recording are one more functional characteristics of mobile phones which contributes to learning. For-instance, student-generated podcasts can improve their language skills including, writing, reading, and listening (Smythe et al., 2010). Teachers can also benefit from podcasts or video casts which are appealing to learners (Smaldino et al., 2005). Other instructional advantages of mobile phones, among other things, include personalized instruction (Steel, 2012), differentiate instruction (Kukulska-Hulme, 2007), and student-centered learning opportunities (Corbeil & Valdes-Corbeil, 2007). Despite the numerous advantages of mobile phone, there are some barriers to their use that needs to be considered.

2.9 Disadvantages of Utilizing of Mobile Phones in The Classrooms

There are some barriers in the use of mobile phones. According to Lenhart, Ling, Campbell, and Purcell (2010), disruption is the foremost problem associated with the

use of mobile phones in the classroom. In a study of two middle schools, Dunleavy et al. (2007) found 1:1 computing as disruptive and troublesome. These findings are in agreement with two more recent studies. In Baker, Lusk, and Neuhauser's (2012) study, the university students perceived the use of mobile phones as disruptive specifically when checking and sending text messages, making calls, and checking email. Likewise, McCoy's (2013) study indicated that 80% of the college students believed that using digital devices would distract their attention and inhibits learning.

Rosen et al., (2011) examined the influence of texting during instruction. The results proved the negative influence of texting on academic performance. A more concerning issue is related to the effect of the texts which refers to the abbreviations and slangs used for texting in digital environments, that students transfer to their more formal academic writing language skills. However, the findings of studies are mixed. For instance, whereas Coe and Oakhill (2011) reported a positive relationship between texting and literacy, Drouin et al. (2012) found a negative relationship between the items.

Further concerns in the use of mobile phones, addresses moral issues such as cyberbullying, cheating, and sexting. A study conducted by Tindell and Bohlander (2012) indicated that students used their mobile phones for cheating. Also, the Pew Internet and American Life Project indicated that 4% of teens used mobile phones to send sexual photos and/or messages (Lenhart et al., 2010), and 15% of them were receivers of such messages. Holfeld and Grabe (2012) addressed cyberbullying which occurs through the use of digital technology. Their findings showed that in 41% of instances the middle school students bullied others.

Besides the barriers mentioned above, there are other barriers that have traditionally been affecting technology integration; these barriers include fear of change, lack of training, personal use, and motivation (Bitner & Bitner, 2002). These shortcomings also prevent teachers from updating the knowledge, pedagogy, and professional by integrating technology which is necessary for successful instruction in the modern era (Ertmer & Orrenbreit-Leftwich, 2010). It is due to these negative uses of mobile phones that many schools have forbidden the use of this device which subsequently discourages emphasizing on positive facets of that, such as increased student motivation and easy access to a wide range of materials.

2.10 The Negative Effect of Mobile Phone Multitasking on Learning

In overall, mobile phone multitasking is disrupting in three specific ways as explained below:

2.10.1 Distraction Sources

Distraction has three major sources, including ring of the mobile phone, social networking, and texting.

2.10.1.1 Ring of Mobile Phone

Several studies have reported ring of the mobile phone as distracting. For instance, the college students in Campbell and Kelley (2006) study considered ringing of mobile phone as irritating in classroom. Campbell and Kelley (2006) argued that this negative perception, taken superficially, is due to the established norms of classroom but, taken deeply, it is due to the distraction it produces and the negative impact it has on learning outcome.

2.10.1.2 Texting

Texting is the second source of distraction. In their study, Harman and Sato (2011) surveyed 118 undergraduates' frequency of texting, their perception about texting in

class, and their relationship with students' GPA. The findings of this study indicated that the high frequency of receiving and sending had a significant negative relationship with their lower GPAs. But the relationship between GPA and feeling of comfort when texting was positive and students with high GPA believed that they were also able to learn outside classroom.

2.10.1.3 Social Networking Sites

In the early 2000's, social networking websites (SNS) became popular. SNS are defined as web-based services through which individuals are able to build a rather public profile within a narrow system, introduces other users with whom they desire to be connected, and navigate other connections within the system. Due to the pervasiveness of social media platforms by university students, Facebook as one of the most popular platforms has been the subject of some studies in order to assess its effect students' academic performance. Social network sites once produced to make an electronic connection between users, have now become an addiction for students (Abdulahi et al., 2014).

2.10.2 Distraction Target

Distraction target as second source of distraction in mobile phone multitasking includes reading and attending.

2.10.2.1 Reading

Some studies have found th3e negative effect of simultaneous instant messaging through mobile phones. For instance, Bowman et al. (2010) reported the negative impact of texting on reading speed only. Other negative factors associated with instant message include: disruption, wasting time during the study, and also increased re-reading during the student's study.

2.10.2.2 Attention

utilizing mobile phones during lessons has been proved as distracting one's attention and having an adverse influence on knowledge recalling and note taking. In a similar vein, Kuznekoff and Titsworth (2013) investigated what influences text messaging and using mobile phones while listening to lectures and text messaging can have on three aspects of attention, including recall of knowledge, note taking, and lecture listening. They undergraduate participated in the study were placed in the low-distraction group with 12 messages or posts being sent to them and the high-distraction group with 24 posts or messages being sent to them during a video lecture. A control group with no distraction was also involved. The results of the tests showed that, in comparison with the two distraction groups, students in the control group scored the highest and recalled more than 62% of the information presented to them. Ophir, Nass, and Wagner (2009) also found that there were systematic differences between chronically light and heavy media multitaskers in their information processing styles.

2.10.3 Distraction Subject

Distraction subject as the third way of mobile phone multitasking distraction includes personality, culture, gender, and Information motives.

2.10.3.1 Personality

People who are able to perform multiple tasks are expected to involve in multitasking behaviors. However, the study administered by Sanbonmatsu et al. (2013) contradictory results. These researchers proposed three motivations and their corresponding personalities that were more likely to predict multitasking behaviors. These motivations maintain that (a) multitasking is rewarding, (b) more exciting, and (c) outcome of failure to overcome distraction. The impulsive, poor executive control and high sensation were the three corresponding personalities, respectively.

2.10.3.2 Gender

Multitasking might also be affected by gender. Foehr (2006), as an example, reported that media multitasking is more common among girls than boys in the classroom. Stoet et al. (2013) conducted two experiments concerning this topic and observed that on two tasks, women outperformed men. Nevertheless, the results of some other studies are opposite. For example, two nationwide online surveys in New Zealand administered by Hallet, Lambert, and Regan (2011, 2012) indicated the higher frequency of sending and reading text messages by males than females while driving.

2.10.3.3 Culture

Regarding the effect of culture on multitasking, Kononova (2013) examined the media multitasking behaviors of young people across three countries: Kuwait, Russia, and US. According to the results, participants from the US and Kuwait reported much higher frequency of media multitasking behaviors than Russian participants (Kononova, 2013). Bowman et al. (2014) explored multitasking while learning of American and Malaysian college students with respect to the degree of media use such as television and computer, the amount of online or printed reading activities, academic distractibility, etc. Three noticeable differences were found between Malaysian and American students, with Malaysian students reporting more instant messaging activities and using media. Moreover, although Malaysian students were engaged in more electronic and non-electronic activities, they majorly did them for non-academic purposes, and entertainment, American students used multitasking while learning to maintain social communication.

2.10.3.4 Information Motives

Another strand of research has focused on identifying motives underlying multitasking. Hwang et al.'s (2014) study was one of the first attempts made to identify

the motives underlying involvement in different types of multitasking including Internet-based, TV-based, and mobile-based multitasking. The result of their online survey exploring the motives for general (i.e., frequency of multitasking), medium specific multitasking behaviors (i.e., internet), and content-specific (i.e., news) among Korean students showed that the frequency of involvement in mobile phone multitasking was likely to be the highest when the motivation was information seeking and exchanging.

In this study, the perception of Iranian students in faculty of pharmacy at EMU about the usage of mobile phones during the classrooms is studied with respect to six factors of class-related use (e.g., to receive or make calls or sending/receiving text messages), social connection (e.g., to chat with friends or family, and to be in touch with family and buddies), Boredom (e.g., students utilizing phones during class when the class is dull), Emergency (e.g., students' need to make an important call to his/her relatives or family), Addiction (e.g., controlling the temptation to connect to social networking sites like Facebook by the students), and Perceived Behavioral Control (e.g., capability of a students to utilize a mobile phone while simultaneously paying attention to the lecture in the classroom.

Chapter 3

METHODOLOGY

The proposed study aims to examine causes of mobile phone use during the classroom by Iranian students in the Faculty of Pharmacy at the Eastern Mediterranean University in the Turkish Republic of Northern Cyprus (TRNC). The eligibility criteria for participation in this study were: (I) owning a mobile phone, (II) acknowledge to utilize it in the time of the classrooms, and (III) studying at the faculty of pharmacy in EMU across this research.

In light of aforementioned indices and to be able to engage more participants, convenience sampling was utilized to select the participants. Moreover, the participants were informed about the selection criteria and those who agreed with it, signed a consent form to confirm their voluntary agreement to participate in the study. Thereafter, the questionnaire was distributed among the participants after a brief explaining on the topic of the survey as well as instruction on how to the questionnaire should be filled. In this chapter, the methodology applied to carry on the survey, as well as the research design, selection method and demographic information about the participants, and data collection and data analysis procedures are explained.

3.1 Research Design

Research design is composed of the plan and procedures for conducting a research in the form of a detailed description of data collection and data analysis procedures. In

other words, it is "the intersection of philosophic assumptions, strategies of inquiry and specific methods" (Creswell, 2009).

The present study has a quantitative research design which is defined as "the systematic empirical investigation of observable phenomena via statistical, mathematical or computational techniques". Quantitative research bridges the gap between empirical observation and mathematical expression of quantitative relationship through the process of measurement which produces numerical data that can be analyzed with the help of statistics (Given, Lisa M., 2008).

This survey-based study investigated the perceptions of Iranian students at EMU about mobile phone use during the classroom concerning six factors (boredom, emergency, perceived behavioral control, addiction, social connection, and class-related use) proposed by Olufadi (2015), and thus, provided quantitative data to be analyzed by descriptive statistics.

Quantitative methods used questionnaires to collect date on students' perceptions. Therefore, questionnaires were employed as the main source of data collection, about students' utilize of mobile phones during the classrooms. They utilize of mobile phones during the classrooms in terms of boredom, emergency, perceived behavioral control, addiction, social connection, and class-related use (Olufadi, 2015).

3.2 Participants

This study was conducted in Faculty of Pharmacy at EMU in Famagusta district of TRNC to examine causes of utilize of mobile phones during the classrooms by Iranian students. The major criterion which led the researcher to choose the participants from this certain department was the high number of Iranian students studying at this

faculty. The total number of Iranian students registered in this faculty in Spring semester 2016 was 500. The participants were selected through convenience sampling technique because of the ease of volunteering or selecting units 130 students took part in this study. This sample comprised 26% of the entire population of Iranian students in the pharmacy department.

Table 1: showing demographic features of students in survey

Students		Frequency	Percentage
Gender	Male Female	59 71	57.3 % 42.7 %
	Total	**130**	**100**
Age	18 – 20 21 – 22 23 +	42 34 54	32.3 % 26.15 % 41.55 %
	Total	**130**	**100**
grade	1 2 3 4 +	38 34 30 28	29.23 % 26.15 % 23.09 % 21.53 %
	Total	**130**	**100**

Table 1 shows gender, age, and grade of the participants. As it can be seen in this table, the sample included 57.3 % (N=59) male and 42.7% (N=71) female students. 32.3% (N=42) of the participants were between 18-20, 26.1 % (N=34) were between 21-22, and 41.55% were between 23-above years of age. Finally, according to year of studies, 29.23% of the students were freshmen, 26.15% were sophomore, 23.09% were junior, and 21.53 % were senior students.

3.3 Instrument

Survey techniques and a questionnaire was used in this research as the major instrument to collect data. The questionnaire was adopted from Olufadi (2015),

consisted of 38 questions, and was in paper format. The questionnaire has two distinct parts. The first part of the student questionnaire involves three questions which aims to elicit demographic information of the participants including age, gender, and grade. The second part of the student questionnaire includes 38 questions scored on a five-point Likert-scale never (1), rarely (2), sometimes (3), usually (4), and Always agree (5), which seeks to obtain information about latent causes which aren't seen obviously.

3.4 Data Collection

This study was conducted in the 2016-2017 academic year, Spring semester at the Faculty of Pharmacy in EMU. After obtaining the university administrators' and coordinators' agreement, a total of 130 student participants volunteered to participate in the study. Since it is unlikely that all students have access to the internet or use internet, e-mail or phone to complete the survey, a paper-based format of the questionnaire was administered.

After providing a brief explanation of the goals of the study and giving instruction on how to complete the questionnaire by the researcher, the students completed the questionnaires in approximately fifteen minutes inside or outside of their classes, but most of them were done it in the university library. In cases were the instructors and professors were willing to cooperate, fifteen minutes of their classroom time quota were allocated to the administration of the questionnaire inside the classroom. The researcher gives students sufficient time to read the questionnaire carefully without any intervention that would affect their responses. The data was gathered over a 3-week period, and a total of 130 questionnaires were collected.

3.5 Data Analysis

To analyze the data obtained from the questionnaire, the data was inserted into the Statistical package for Social sciences (SPSS) to conduct the final analysis process. In this study, descriptive statistics was used and frequencies and percentages of each item was computed. On the other hand, t-test and ANOVA tests were used to examine the hypotheses in this study.

3.6 Reliability and Validity

The total population of students at the Department of Pharmacy in EMU during the Spring semester 2016 was around 500, but the participation rate was approximately 26% including 130 participants. This sample size is sufficient in order to achieve reliability validity and generalizing the result. To assess the reliability of the questionnaire in the context of EMU, the questionnaire was first piloted to twenty students' pharmacy department. The Cronbach's alpha reliability of the 38-item student questionnaire (after reverse-scoring the appropriate items) was 0.87. This is an acceptable value in social sciences (Garson, 2007). These higher alpha values suggest the internal consistency of the questionnaire items.

Chapter 4

FINDINGS AND DISCUSSION

This chapter presents and discusses the findings of the study, or more specifically, the reasons why students are inclined to utilize their mobile phones in class. Data were collected through a survey conducted with Iranian students in the Pharmacy Department at EMU. The study intended to examine the causes of mobile phones usage during the classrooms by these students. The finding of this study shows that whether gender, age and grade on the students has an effect on their mobile phone use in the classroom.

4.1 Causes of Students' Mobile Phones Use During Classroom Regarding the Six Factors

To portray the basic features of the data, and to discuss the findings in more details, data concerning each factor (boredom, emergency, perceived behavioral control, addiction, social connection, and class-related use) was discussed in a separate section.

4.1.1 Perception of Students about the Utilize of Mobile Phones during the Classrooms Regarding Boredom Issue

The factor of boredom included seven questions which sought to explore how often students become motivated to utilize the phone during lecture periods on the basis of few probable reasons. The five possible responses definitely describe how frequently they do any of the activities mentioned in each item. The responses include never (0%), rarely (5%), sometimes (50%), usually (90%), and always (100%). Table 2 shows that

the students utilize mobile phones during the classrooms due to all the statements mentioned in the boredom section. To illustrate, 40.8% of the student usually utilize their phones when they feel bored in a classroom whereas 35.4% of them sometimes utilize the phone in class (Q2). The findings are similar with regard to question reason which maintains that students feel tired because they do not enjoy the professor instructing a specific subject or course.

Table 2: Students' perception of mobile phones use regarding boredom item

Item		Never	Rarely	Sometimes	Usually	Always	Mean	SD
Q1:In a boring class to pass time	F	5	13	31	53	28	3.662	1.05
	P	3.8	10	23.8	40.8	21.5		
Q2:Uninterested in the discussion in class	F	8	34	46	25	17	3.069	1.11
	P	6.2	26.2	35.4	19.2	13.1		
Q3:When I don't like the instructor teaching a particular course/subject	F	15	31	42	30	12	2.946	1.14
	P	11.5	23.8	32.3	23.1	9.2		
Q4:Lack of interest in the course or topic being taught	F	16	31	40	33	10	2.923	1.14
	P	12.3	23.8	30.8	25.4	7.7		
Q5:Uninteresting lecturer to pass time	F	18	31	40	30	11	2.88	1.17
	P	13.8	23.8	30.8	23.1	8.5		
Q29:Uninterested in a question raised by fellow students in the class	F	27	43	39	11	10	2.492	1.14
	P	20.8	33.1	30	8.5	7.7		
Q36: Because of fatigue	F	30	39	33	21	7	2.508	1.17
	P	23.1	30	25.4	16.2	5.4		

"F: Frequency, P: Percentage"

In fact, 32.3% of the students (Q3) usually utilize their phones either because the topic is boarding or the lesson is presented to them in an uninteresting way so they do not pay attention to the subject matter. Similarly, in questions four and five, the highest proportion of responses (40%) went to 'usually'. On the contrary, item always has the lowest percentage with regard to question 4 (7.7%) and question 5 (8.5%). The finding

of descriptive analysis as indicated in Table 2 illustrate that question 1 obtained the maximum mean score (M=3. 66, SD =1.05) whereas the minimum mean score (M=2. 49, SD =1.14) was acquired for question 29.

4.1.2 Perception On the Utilize of Mobile Phones During the Classrooms Regarding Social Connection Issue

Questions related to the social connection issue intended to study students' utilize of mobile phones during the classrooms for social connection purposes. This category had six questions and the result of analysis related to these questions is shown in Table 3. As can be seen, the highest percentage belonged to response rarely (Q6) by 34.6% suggesting that students hardly try to connect with family and friend through mobile phones on the social networking such as Facebook, or try to share a file through storage space programs like Dropbox when they are in class. The distribution of responses to different choices in question 7 was rather equal with the students selecting never by 20.8%, rarely by 26.9%, and 21.5% for both choices sometimes and usually. Of course, oppositely always had the lowest percentage of 9.2% compared to the other choices showing that students generally do not utilize their phones in class to see the current updates on their friends' profiles.

Table 3: Students' perception of mobile phones use regarding social connection item

Item		Never	Rarely	Sometimes	Usually	Always	Mean	SD
Q6: Stay in touch with friends and family	F	19	45	32	17	17	2.754	1.24
	P	14.6	34.6	24.6	13.1	13.1		
Q7: Wanting to know the current update on my friend's profile page on the social networking sites	F	27	35	28	28	12	2.715	1.27
	P	20.8	26.9	21.5	21.5	9.2		
Q8: be entertained	F	26	39	35	18	12	2.623	1.22
	P	20	30	26.9	13.8	9.2		
Q9: To flirt (either with someone in class or outside the class)	F	66	30	23	7	4	1.869	1.08
	P	50.8	23.1	17.7	5.4	3.1		
Q10: Chatting with family or friends	F	18	39	40	17	16	2.800	1.20
	P	13.8	30	30.8	13.1	12.3		
Q35: Need to inform others (e.g., friends) of my present situation	F	20	33	46	17	14	2.785	1.18
	P	15.4	25.4	35.4	13.1	10.8		

"F: Frequency, P: Percentage"

Moreover, in Q8, exactly half of students disagreed that mobile phone can be used in the classroom as an instrument for entertainment (50%) because mobile phones offer numerous services such as TV shows, music and electronic magazines, many of which are distracting and thus have negative effects on students' academic performance especially during the period. In question 9, most of the students (73.9%) had negative attitudes concerning the use of mobile phone to flirt someone in the classroom. The smaller proportion of students who use their phones for this purpose may feel that it is fun to communicate with persons when they feel bored in the class. Finally, in the last question (Q 35) in this part, indicated that 35.4% of the students sometimes used their phones to allow their family members know about their current situation. The finding of descriptive analysis as presented in Table 3 illustrates that the maximum mean score belonged to question 10 (M=2.8, SD =1.20) and the minimum mean score belonged to (M=1.86, SD =1.08) was acquired for question 9.

4.1.3 Perception On the Utilize of Mobile Phones During the Classrooms Regarding Class-Related Use

Class-related use category contained questions that aimed to investigate class-related uses of mobile phones by the students. This category had nine questions and the result of descriptive statistics related to the questions is shown in Table 4. As it can have been seen in Table 4, the students never and rarely (by 17.7% and 23.1%, respectively) used their phones to take notes in class (Q 11). Approximately one-third (30%) of them used their phones in order to record observations or what hears in class (Q31). Concerning question 12 showed that 29.2% of students selected sometimes as higher percent and more than 40% of them selected items usually and always to indicate their agreement that utilize mobile phones during lectures in order to access some lectures or notes. In Q13, 33.1% of the students reported that they usually utilize their phones to get information about classwork, and only 7% of them never used this function.

Table 4: Students' perception of mobile phones use regarding class-related use

Item		Never	Rarely	Sometimes	Usually	Always	Mean	SD
Q11: To take notes	F	23	30	35	27	15	2.854	1.26
	P	17.7	23.1	26.9	20.8	11.5		
Q12: To access lecture slides or notes	F	13	18	38	37	24	3.315	1.21
	P	10	13.8	29.2	28.5	18.5		
Q13: To search or get information about classwork	F	7	24	32	43	24	3.408	1.15
	P	5.4	18.5	24.6	33.1	18.5		
Q14: Use as a calculator	F	5	15	43	46	21	3.485	1.02
	P	3.8	11.5	33.1	35.4	16.2		
Q15: To look up the meaning of a difficult word/concept used during lecture period in the mobile dictionary app of my phone	F	3	12	36	35	44	3.808	1.08
	P	2.3	9.2	27.7	26.9	33.8		
Q30: To text a student about classwork	F	17	34	46	19	14	2.838	1.16
	P	13.1	26.2	35.4	14.6	10.8		
Q31: To record audio or video lectures	F	19	20	28	26	37	3.323	1.41
	P	14.6	15.4	21.5	20	28.5		

Q33: To search the internet for the meaning of difficult words / concept used by the lecturer during lecture periods	F	9	19	38	33	31	3.446	1.20
	P	6.9	14.6	29.2	25.4	23.8		
Q38: To take the photo of images of illustrations on the board	F	5	8	27	37	53	3.962	1.10
	P	3.8	6.2	20.8	28.5	40.8		

"F: Frequency, P: Percentage"

Furthermore, question 14 indicated that 35.4% of students reported usually using phones in the classroom as a calculator for doing some mathematical computations other calculation. In Question 15, 33.8% of the students reported that they always use their phones to search and understand new and difficult concepts of the meaning of unknown words using software like dictionaries. Similarly, almost the same proportion of the students sometimes and usually (27.7% and 16.9%, respectively) used their phones for this purpose suggesting that this is one of the most important usages of mobile applications for classroom-related affairs. Responses to Q30 showed that 35.4% of the students sometimes used their phones to text another student about classwork. 26.2% of the students also selected rarely for this item, but a small proportion reported always (10.8%) using their phones for this aim. The finding of descriptive analysis overall indicates that question 38 obtained the maximum mean score (M=3.96, SD=1.10) whereas the minimum mean score (M=2.83, SD =1.16) belonged to question 30.

4.1.4 Perception of Mobile Phones Utilize During the Classrooms Regarding Emergency Issue

Emergency issue represents questions which seek to investigate the students' use of the mobile phone during class for emergency reasons. The percentage of responses to the six items in this category is represented in Table 5. According to Table 5, in Q16,

almost equal proportion of the students rarely and sometimes used their phones to make

urgent calls with their families by 28.5% and 27.7%, respectively. And 4 respondents

representing 3.1% never. In Q17, the students reported rarely (30%), sometimes

(26.2%), and usually (20%). They need to discuss something important with family

and friends during the class. Following the maximum present is 34.6 which is on the

item sometimes (Q18).

Table 5: Students' Perception of Mobile Phones Use Regarding Emergency Issue

Item		Never	Rarely	Sometimes	Usually	Always	Mean	SD
Q16: Need to do something important e.g., call my family for something urgent	F	4	37	36	31	22	3.231	1.13
	P	3.1	28.5	27.7	23.8	16.9		
Q17: Need to discuss something important with my friends or family	F	13	39	34	26	18	2.977	1.21
	P	10	30	26.2	20	13.8		
Q18: To make or receive an urgent call	F	12	23	45	26	24	3.208	1.21
	P	9.2	17.7	34.6	20	18.5		
Q19: To get someone to do something for me because it can't wait	F	12	40	35	27	16	2.962	1.18
	P	9.2	30.8	26.9	20.8	12.3		
Q20: To send an urgent message	F	5	20	42	33	30	3.485	1.12
	P	3.8	15.4	32.3	25.4	23.1		
Q32: To do something urgent for others e.g., send phone numbers or address	F	9	26	41	31	23	3.254	1.17
	P	6.9	20	31.5	23.8	17.7		

"F: Frequency, P: Percentage"

Concerning question 19, the highest proportion of students (30.8%) reported that they

rarely leave their personal work to others due to lack of patience. Yet, 26.9% and

20.8% of them reported sometimes and usually doing it, respectively. In contrast, the

last question (32) intended to explore how frequently students utilize their mobile

phones to perform something necessary and important for their friends. The frequency

of doing this question for students representing 6.9% never, 26 representing 20%

rarely, 31.5% of students sometimes used their phones to satisfy this need. Also, 23.8% and 17.7% usually and always used their phones for this purpose. The finding of descriptive analysis shown in Table 5 illustrates that whereas question 20 obtained the maximum mean score (M=3.48, SD=1.12), question 19 acquired the minimum mean score (M=2.96, SD =1.18).

4.1.5 Perception of Mobile Phones Utilize During the Classrooms Regarding Additional Issue

The additional issue represents questions that sought to explore why students utilize their mobile phone during class for additional reasons. The percentage of responses to the six items of this category is shown in Table 6. With regard to Q21, a high percentage of students reported that they never (38%) and rarely (32%) lack self-control in using social networks through mobile phone in any circumstances. However, 26.9% of the students yet believe that they sometimes do not have self-control to stop themselves from visiting the social networking sites like Facebook which is very popular among students. Question 22 illustrates the students do not consider themselves as addicted to the use of mobile phone because 32.3% and 23.1% of them scored never and rarely choices respectively. In contrast, usually and always choices had similar percentage of 11.5%. Questioning about the issue raised in this item is of high importance because it is believed that with the advent of mobile communication devices and modern technologies and their frequent usage, students become gradually addicted to these devices but the results indicated that still the majority of students do not feel addicted to these devices.

Table 6: Students' perception on the utilize of mobile phones regarding to addiction

Item		Never	Rarely	Sometimes	Usually	Always	Mean	SD
Q21: Can't control the urge to connect on social networking sites, e.g., Facebook	F	38	32	35	15	10	2.438	1.24
	P	29.2	24.6	26.9	11.5	7.7		
Q22: I am addicted to my mobile phone	F	42	30	28	15	15	2.469	1.35
	P	32.3	23.1	21.5	11.5	11.5		
Q23: Pressure to read or reply new message(s)	F	29	38	34	16	13	2.585	1.24
	P	22.3	29.2	26.2	12.3	10		
Q24: I feel distressed when my phone is not with me	F	32	23	39	16	20	2.762	1.36
	P	24.6	17.7	30	12.3	15.4		
Q25: Pressure to respond to incoming phone calls	F	28	40	33	20	9	2.554	1.19
	P	21.5	30.8	25.4	15.4	6.9		
Q34: To reduce my mental stress	F	36	34	38	17	5	2.392	1.14
	P	27.7	26.2	29.2	13.1	3.8		

"F: Frequency, P: Percentage"

Similarly, as Q23 indicated, more than half of the students (51.5%) opposed to the idea that they should answer to their messages as soon as they receive them but 26.2% of them selected the choice sometimes for this item. Concerning question 24, the highest percentage is 30% reported for usually and 15.4% of the students also selected always option implying that due to addiction to carrying and using a mobile phone, students fell concerned in the absence of it. However, 24.6% of the students reported never experiencing this feeling when their mobile phones is not with them. The findings of descriptive analysis overall indicate that question 24 has the maximum mean score (M=2.76, SD=1.36) and question 34 has the minimum mean score (M=2.39, SD =1.14).

4.1.6 Perception of Mobile Phones Utilize during the Classrooms Regarding Perceived Behavioral Control

Perceived behavioral control contains four questions the aims of which is to investigate the students' mobile phone use during class regarding perceived behavioral control

reasons. The results of this section are represented in Table 7. As can be seen, the maximum percentage of responses to question 26 belonged to rarely by 30% because students reported that they cannot utilize their mobile phones at the same time they are paying attention to the lecture in the classroom. Similarly, 26.9% of the students selected never as a response to this item. Questions 27 showed that more than 50% of the students were in favor of simultaneous use of social networking via mobile phone and listening to a lecture because they believed that it has no effect on their understanding and learning. But it is believed that it is difficult for students to achieve their highest performance because their brain has to focus on two issues simultaneously.

Table 7: Students' perception of mobile phones use regarding perceived behavioral control

Item		Never	Rarely	Sometimes	Usually	Always	Mean	SD
Q26: I believe I have the ability to use my phones yet listen to the lecture in the class	F	35	39	30	22	4	2.392	1.14
	P	26.9	30	23.1	16.9	3.1		
Q27: Visiting the social networking sites during lecture periods does not affect my concentration especially in a boring class	F	40	32	38	16	4	2.323	1.13
	P	30.8	24.6	29.2	12.3	3.1		
Q28: Playing games on my phone during lecture periods does not affect my concentration especially in a boring class	F	63	33	17	12	5	1.946	1.16
	P	48.5	25.4	13.1	9.2	3.8		
Q37:For business-related reasons/purposes	F	39	45	25	15	6	2.262	1.15
	P	30	34.6	19.2	11.5	4.6		

"F: Frequency, P: Percentage"

In the same way, the highest proportion of responses to question 28 related to options never and rarely by 63% and 33%, respectively. These values show that the students seldom utilize their mobile phones in a class to play games as an activity which has negative effects on students' concentration and also by reducing their vision and mental capability. The finding of descriptive analysis generally shows that question 26

obtained the maximum mean score (M=2.39, SD =1.14) whereas question 28 obtained the minimum mean score (M=1.94, SD =1.16).

4.2 Perception of Students About Mobile Phones Utilize in Classrooms

In order to better understand the results of this research, statistical analyses were performed to support findings and check the dissimilarities and relationships between the variables. This study investigated the perceptions of Iranian students at EMU in order to identify the determinants of Iranian students' utilization of mobile phones during the classrooms, according to their gender, age, and grade.

4.2.1 Perception of Students Mobile Phones Utilize in Classrooms According to Gender

As shown in Table 9, males had higher mean scores in factors of boredom, social connection, emergency, addiction, perceived behavioral control factors compared to females who had a higher rating only in the class-related use factor. The results of independent-samples t-test showed that all p-values of the six factors (.512, .387, .290, .459, and .974) were more than the significance level (0.05) and thus, gender differences between male and females regarding the six factors were not significant considering the mean difference (0.08, 0.118, -0.138, 0.116, -0.119, and 0.001 respectively), and intended confidence interval.

Table 8: Students' perceptions of mobile phone use in classroom according to gender

Variables	Group Statistics				T-test		
	Gender	N	Mean	SD	t	df	Sig. (two-tailed)
Boredom	Male	59	2.9758	.6928	.658	128	.512
	Female	71	2.8900	.7765			
Social connection	Male	59	2.6638	.8318	.868	128	.387
	Female	71	2.5376	.8214			
Class-related use	Male	59	3.3051	.7489	-1.063	128	.290
	Female	71	3.4452	.7482			
Emergency	Male	59	3.2486	.9480	.743	128	.459
	Female	71	3.1310	.8549			
Addiction	Male	59	2.4661	.8653	-.792	128	.430
	Female	71	2.5887	.8893			
Perceived behavioral control	Male	59	2.2331	.6677	.033	128	.974
	Female	71	2.2289	.7685			

*Significant at 0.05 level

4.2.2 Perception of Students Mobile Phone Utilize in Classrooms According to Age

The results of One-way ANOVA test investigating Iranian students' use phones in the classroom concerning their age are shown in Table 9. To address this issue, the participants had been classified into three age groups: 18-20, 21-22, and 23 and older. According to the results, the null hypothesis based on equality of importance between groups is not rejected. The significance of all the six factors (.629, .197, .063, .803, .509 and .538) were higher than the significance level (0.05) and thus, age differences between the groups were not significant.

Table 9: Students' perceptions of mobile phone use in classroom according to age

Variables	Group Statistics				ANOVA		
	ages	N	Mean	SD	df	F	Sig.
Boredom	18-20	47	2.91	0.81	2;127	.466	.629
	21-22	29	3.04	0.79			
	23 and older	54	2.88	0.64			
	Total	**130**	**2.93**	**0.74**	**129**		
Social connection	18-20	47	2.73	0.90	2; 127	1.644	.197
	21-22	29	2.65	0.81			
	23 and older	54	2.44	0.75			
	Total	**130**	**2.59**	**0.83**	**129**		
Class-related use	18-20	47	3.27	0.77	2; 127	2.829	.063
	21-22	29	3.22	0.78			
	23 and older	54	3.56	0.69			
	Total	**130**	**3.38**	**0.75**	**129**		
Emergency	18-20	47	3.13	0.92	2; 127	.220	.803
	21-22	29	3.15	0.88			
	23 and older	54	3.25	0.90			
	Total	**130**	**3.18**	**0.90**	**129**		
Addiction	18-20	47	2.64	0.96	2; 127	.678	.509
	21-22	29	2.55	0.90			
	23 and older	54	2.43				
				0.79			
	Total	**130**	**2.53**	**0.88**	**129**		
Perceived behavioral control	18-20	47	2.32	0.70	2; 127	.623	.538
	21-22	29	2.19	0.79			
	23 and older	54	2.17	0.71			
	Total	**130**	**2.23**	**0.72**	**129**		

*Significant at 0.05 level

4.2.3 Perception of Students' Mobile Phone Utilize in Classrooms According to Grade

P-values obtained from the output have been compared to 0.05. The results of One-way ANOVA test administered to compare students' use of mobile phones in classroom across different grades are presented in Table 9. As shown in this table, p-values are greater than the significance level (0.05) across all categories except the addiction variable (p=0.001), and thus, Hypothesis H_0 is not rejected based on the

equality importance of means among groups. Therefore, there is no significant difference between the groups regarding their grades except considering the addiction variable in which the second graders had the highest mean (2.85). So, there is a significant difference between students at different grades concerning their reported degree of addiction to mobile phone use in the classroom.

Table 10: Students' Perceptions of Mobile Phone Use in Classroom According to Grade

Variables	Group Statistics				ANOVA		
	Years of study	N	Mean	SD	df	F	Sig.
Boredom	1	38	2.72	0.81	3; 126	2.238	.087
	2	34	3.16	0.64			
	3	30	2.89	0.82			
	4 and higher	28	2.98	0.59			
	Total	**130**	**2.93**	**0.74**	**129**		
Social connection	1	38	2.47	0.92	3; 126	1.215	.307
	2	34	2.74	0.77			
	3	30	2.73	0.87			
	4 and higher	28	2.44	0.70			
	Total	**130**	**2.59**	**0.83**	**129**		
Class-related use	1	38	3.36	0.82	3; 126	.157	.925
	2	34	3.41	0.75			
	3	30	3.44	0.77			
	4 and higher	28	3.32	0.65			
	Total	**130**	**3.38**	**0.75**	**129**		
Emergency	1	38	3.12	0.93	3; 126	.959	414
	2	34	3.11	0.86			
	3	30	3.43	0.94			
	4 and higher	28	3.10	0.85			
	Total	**130**	**318**	**0.90**	**129**		
Addiction	1	38	2.14	0.72	3; 126	6.112	.001*
	2	34	2.85	0.89			
	3	30	2.82	0.90			
	4 and higher	28	2.37	0.80			
	Total	**130**	**2.53**	**0.88**	**129**		
Perceived behavioral control	1	38	2.05	0.63	3; 126	1.503	.217
	2	34	2.40	0.82			
	3	30	2.23	0.73			
	4 and higher	28	2.29	0.68			
	Total	**130**	**2.23**	**0.72**	**129**		

*Significant at 0.05 level

Chapter 5

CONCLUSION

This chapter summarizes this study and the results obtained from this study in order to make some generalizations and draw conclusions. This study was administered during the 2015-2016 academic year, and designed to explore why Iranian students utilize mobile phones during the classrooms at Eastern Mediterranean University in the Turkish Republic of Northern Cyprus and to find out whether there are differences in the perception of the students according to age, gender, and grade variables. The participants were 130 students studying at Faculty of Pharmacy. A quantitative research approach was adopted to collect and analyze the data, and thus, questionnaires were used as data collection instruments.

Mobile phones have a vital role in the human life. There has been a dramatic rise in the use of mobile phones as the most widespread technological tool. Mobile phones are motivating tools that allow individuals to accomplish more than they assume. Use of mobile phones for educational purposes has also become very popular and today it is a ubiquitous device among university students. Recent studies show that students persist using this device during classroom. However, to date, the findings of the majority of studies support that mobile phone use is negatively associated with students' academic performance and they frequently point to its interference with learning (Harman & Sato, 2011). Students use their mobile phones for a variety of purposes.

The findings of the present study indicated that students utilized mobile phones especially to text and chat with their family or friends, comment and share files via social networks. The use of mobile phones for reading news or even gaming was rare. Similar to many classrooms across the world, students in this study majorly used their mobile phones for course-related purposes for example, for taking notes, accessing lecture notes or slides, searching information about classwork and utilizing some applications such as a calculator. Students appeared to use their phones usually when they feel bored in the class because they find the lesson uninteresting in fact, students are more involved when classes are interactive and encourage interaction with teachers and peers.

Moreover, there is a likelihood of getting addicted to mobile phone addiction because it has become a constant companion many students are addicted to texting or lack self-control concerning connection to social networks like Google and Twitter. However, sometimes students they need to do something urgent during classroom with their friends or family or for example, to make or receive an important call or to get someone to do something for them because they cannot do it themselves at that time. Understanding these reasons contributes a lot to understand the phones use behaviors of students and how and to what extent these causes may affect their academic performance and well-being.

Investigating perception of students about mobile phone use in classroom in relation to gender indicated no statistically significant differences and both male and female students appeared to have an equal tendency to use their mobiles in order to communicate with their friends and families. These findings are consistent with those

found by Economides (2008) who compared perceptions of Greek female and male students.

Nevertheless, the result of comparison regarding the age of the students showed statistically significant difference (relationship exists) among the three age groups, may be due to the fact that students at different ages gave different degree of importance to mobile technologies. It appears that the new generation of students or younger students are more willing to use these technologies. And also when the age of the student, as it increases, usually affects the various developmental changes which are associated with maturity and cognitive development for a worthwhile performance of students, a point noted in Ukueze (2007). Finally, the perception of students on the utilize of mobile phones in classroom concerning their grade showed no significant difference suggesting that, regardless of their grades, all students can benefit from mobile technologies. However, this finding is in contrast with the findings of some other studies. For example, results of Đogaš et al.'s (2014) study showed that statistically significant differences between the students regarding the grade at which they were studying.

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APPENDIX

Appendix A: Examining the Determinants of Iranian Students' Use of Mobile Phones during Lecture Periods

Dear Respondent,

My name is Mohsen Mortazavi. I am a master's student in the Computer Education and Instructional Technologies Department at Eastern Mediterranean University, Famagusta. In the delimitation of my thesis, the purpose is to evaluate examining the Determinants of Iranian Students' Use of Mobile Phones during Lecture Periods. Please, kindly attempt to answer all the questions sincerely and do note that any information given in this questionnaire will be treated confidentially.

Demographics

Gender: Male/Female   Age: 18 – 20 ☐   21 – 22 ☐   23 and older ☐

Year of studies: 1 ☐   2 ☐   3 ☐   4 and higher ☐

Students have reported many reasons behind their use of mobile phones during lecture periods. Kindly indicate how often you use your mobile phone during lecture periods based on the following reasons.

Item	Never	Rarely	Sometimes	Usually	Always
1. In a boring class to pass time					
2. Uninterested in the discussion in class					
3. When I don't like the instructor teaching a particular course/subject					
4. Lack of interest in the course or topic being taught					
5. Uninteresting lecturer to pass time					
6. Stay in touch with friends and family					
7. Wanting to know the current update on my friend's profile page on the social networking sites					
8. To be entertained.					
9. To flirt (either with someone in class or outside the class)					
10. Chatting with family or friends					
11. To take notes					
12. To access lecture slides or notes					
13. To search or get information about classwork					

14. Use as a calculator					
15. To look up the meaning of a difficult word/concept used during lecture period in the mobile dictionary app of my phone					
16. Need to do something important e.g., call my family for something urgent					
17. Need to discuss something important with my friends or family					
18. To make or receive an urgent call					
19. To get someone to do something for me because it can't wait					
20. To send an urgent message					
21. Can't control the urge to connect on social networking sites e.g., Facebook					
22. I am addicted to my mobile phone					
23. Pressure to read or reply new message(s)					
24. I feel distressed when my phone is not with me					
25. Pressure to respond to incoming phone calls					
26. I believe I have the ability to use my phones yet listen to the lecture in the class					
27. Visiting the social networking sites during lecture periods does not affect my concentration especially in a boring class					
28. Playing games on my phone during lecture periods does not affect my concentration especially in a boring class					
29. Uninterested in a question raised by fellow students in the class					
30. To text a student about classwork					
31. To record audio or video lectures					
32. To do something urgent for others e.g., send phone numbers or address					
33. To search the internet for the meaning of difficult words/concept used by the lecturer during lecture periods					
34. To reduce my mental stress					
35. Need to inform others (e.g., friends) of my present situation					
36. Because of fatigue					
37. For business-related reasons/purposes					
38. To take the photo of images of illustrations on the board					