



SMARTPHONES AS TOOLS FOR DISTANCE EDUCATION

Assist. Prof. Dr. Nazime Tuncay
British University of Nicosia
TRNC
nazime.tuncay@bun.edu.tr

Abstract

Needs of students become so sophisticated that they refuse to carry heavy weight laptops or books; and they save everything in their phones. After observing that all the students taking the course have Smartphones and are already using these for educational purposes like note taking and googling; some courses at the British University of Nicosia are started to be delivered as a distance education course via Smartphones; and these devices are also used for assessment and evaluation. Purpose of this study is to find the attitude of students to mobile education and to measure the difference of success between traditional education students, blended education students and mobile education students. Also, paper discusses application problems and suggest solutions. Students were astonished to see their results and mistakes at the end of mobile exams and teachers were happy that they do not have to read lots of papers for hours.

Keywords: Smartphones, Students, Distance Education, Mobile Education.

INTRODUCTION

Smartphones combine multiple features; give mobility and entertainment to its users that these advanced technological devices become unavoidable part of most people's lives. A high percentage of students at universities have a latest technology Smartphones and are professionals using its facilities like finding their ways with GPRS, taking pictures, creating albums, using specially the following programs like Gmail, Viber, WhatsApp, and Facebook perfectly with their phones. Due to the reasonable mobile internet connection plan prices, this usage increases day by day. According to eminent pedagogy expert Scott P. Simkins, as far as technological innovations is concerned, it is not pedagogy itself that mattered, but how pedagogic innovation is used by taking into account the specific environment in which it is adopted (George, 2014). Distance education aim is making courses available to students every time and Smartphones are making this goal easy to achieve. They combine multiple features as well as giving more mobility and entertainment to its users that these advanced technological devices become unavoidable part of most students' lives.

The Smartphones are "the hand held computers" for configuring the daily schedules, saving large documents, for watching videos, listening music, using internet, using world wide web, video conferencing and lots of other things that they weren't doing a decade before. Now days, they even turn their Smartphones to Projectors; share video or audio and make multimedia presentations with their high megapixel cameras. What is important is motivating students to our courses, and this process is easier when we refer to their own education equipment choices. The Activity Theory states clearly that all human activity is oriented towards goal attainment and that this process is mediated by tools (Kirkwood, 2005). Training of learners through activities is a sure way of inculcating the requisite and desired skills (Rajesh, 2015); and it easier with the use of Smartphones in education.

By 21st century, it is well known that distance education courses are as good as the traditional ones. Without convincing people that distance education courses are successful and without providing the necessary infrastructure; we cannot expect them to be successful (Tuncay & Poyraz, 2013; Tuncay&Öznacar, 2014). For example, Russell (2002) based on his study of an extensive database of 355 citations to educational articles over the past century that document no significant difference in student achievement when distance learning is compared to traditional modes (Gaudelli, 2006); where personal outcome of distance education students is connected positively to the self-determined forms of motivation and negatively to those which are less self-determined. The achievement of personal goals through a combination of needs, tension, tendencies, forces



and urges, which lead the individual to express and maintain a voluntary activity (Hoy and Miskel, 1982; Weinberg & Gould, 2003; Goulimaris, 2015) relate with the desire of an individual to satisfy a need, to achieve a goal or to try and surpass him/herself or somebody else (Harrison, et. al., 1996) which also is the tendency of individuals to try and satisfy their needs and achieve their goals (Robbins, 1998; Goulimaris, 2015) which brings out the results that students and their motivation are the most important part of the success of our courses. Therefore, educators should choose the tool which motivates students most.

Despite the bandwidth limitation, many researchers agree that videoconferences add a human touch to online learning and decrease the psychological distance between students (Lim, et.al. 2012). Thanks to the new technologies like Samsung S6 or iPhone6, videoconferencing is now possible with Smartphones. The heavy desktop computers or laptops are losing attraction among students and educators. Communication through live videos also enhances authentic student-student interaction (Smyth, 2011) and this is unavoidable part of distance education courses. There are several different ways of free video conferencing that people today are using for different purposes, but mainly for communicating with their families, friends and colleagues. Some examples of these are: TeamViewer, AnyMeeting, Google+ Hangout, Skype, Spreed Meeting, ooVoo, GoToMeeting Free, Room.co, BigMarker, Gruveo, magnocall, vline, LiveCage, Veeting, Teembox, Ninchat, liveminutes, camdip, meetfm, hall, emeet.me, faceflow, livecage, mebeam and VSee. Of course distance educators are keen on downloading these mainly web-based video conferencing tools and holding one-to-one or group video calls. Among these BigMarker, Skype, Veeting, Ninchat, Google Hangouts, Zoom.us, Livecage, ooVoo are good for group-calls up to 10 students. Thus, distance educators can divide easily their students to groups of 10 and have their students present their group work face-to-face! However, we have again the obstacle that our students do not like carrying their laptops with them and instead of buying a laptop, most of them prefer buying a latest technology Smart Phone and insist on not using a laptop for any project. They even use online office programs like Word, Excel and PowerPoint for preparing their homework's, instead of using them with a laptop computer. That is for, distance educators start selecting video conference programs like Skype, ooVoo, Tango, Hangouts, Viber, Video Chat, Mico and SOMA which work perfectly with for Smartphones and which are preferred by students due to their being fast and easy. Everything start changing one by one by the time that Smartphones are introduced to the education life. Educators and researchers start discussing this new technology in their reports (Wagner, 2008; Nawi et al., 2012; Shuib, 2010; Aliff & Isa, 2014; Nawi, et. al., 2015). It's clear that portable equipment like mobile phones makes m-learning possible at any time, and any place compared to the use of a notebook that can easily be damaged and does not last long (Wagner, 2008; Nawi et al., 2012; Shuib, 2010). As a result of some research studies among Islamic Education teachers, that are delivered for using mobile phones in secondary schools; it is seen that there is potential for m-learning produced for Islamic Education in secondary schools (Aliff & Isa, 2014; Nawi, et. al., 2015).

In the literature, it is found that there are lots of distance educators who have used mobile devices such as laptops and PDA's in distance education; some used digital media file called podcast, that plays sound; is accessed from a website, and can be opened and/or downloaded to play on a computer or portable player in which learners are active creators of the content knowledge and active participants in their learning (Salmon, et.al., 2008; Bell, 2011; Dianne Forbes & Elaine Khoo, 2015) and in these for feedback to be formative, participants must be willing to learn from each other within a community of inquiry (Garrison, Anderson, & Archer, 2000); some used learning management systems like Moodle and Blackboard (Servonsky, 2005; Bradford, 2007); some used blogs like Wiki, Blogger and WordPress; and very few of them used Smartphones as main distance education tool. What is more, there could not be found any information in the literature about the Smart Phone Exam experiences of distant learners. Student perspectives are a vital guide for future directions in teaching and learning (Dianne Forbes & Elaine Khoo); therefore in this research study aimed first finding students attitudes to Smart Phone usage; and delivered 3 different groups of education to measure if there is any significant difference between students having Mobile Courses or other courses; and then the research is directed to students perspectives of Mobile Education. This research is significant in its own ways of research and the findings.

METHOD

75 Comp 111 (Information Technology course) Students in British University of Nicosia, are divided to three groups: Traditional Group, Blended Group and Mobile Group. This division is done according to students their own choices and preferences. Students which have an old version of Smartphone and do not trust their skill of using it, opt for Traditional Group; students which have the latest technology of Smartphone, and are already doing lots of learning with it, opt for Mobile Group. Some of the students which work in part time jobs opt for Blended Group and some opt for Mobile Group. Thus, 3 groups of students have the Comp 111 course for 4 months (October 2015- January 2016) accordingly in the groups that they have chosen. Table 1 shows group statistics according to sex of students. In traditional group there were 18 Male, and 7 Female students; in Blended group there were 15 Male and 10 Female Students. Some researches stated that there may be difference between female and male students (Ozyurt, 2015, Stoilescu, 2010), e-device usage skills and preferences. Therefore, this is also taken into consideration in the study.

Table 1: Groups Statistics

		Female	Male	Total
Mobile Group	<i>Traditional</i>	7	18	25
	<i>Blended</i>	10	15	25
	<i>Mobile</i>	13	12	25
Total		30	45	75

Traditional Group students have face-to-face education with computers and projectors. “Traditional” name is used for this group, since traditionally all computer courses take place face-to-face in a class with computers called labs. This group students had to come to the class every day. These students have a paper exam as a midterm exam and 2 mobile exams as an end of the course exam. An example of a mobile exam is shown in Figure 1. Students come to the classroom, and take only their smartphones with them. When the time comes, course teacher sends the exam to the student’s phones and they start solving it. After the students starts the exam, every attempt of the students is send as a message to the teacher. Teacher monitors the exam also from the Smartphone. As soon as the student finishes the exam, the students score comes to the screen and the analysis of the quiz also. An example from the end of page can be seen at the figure below.

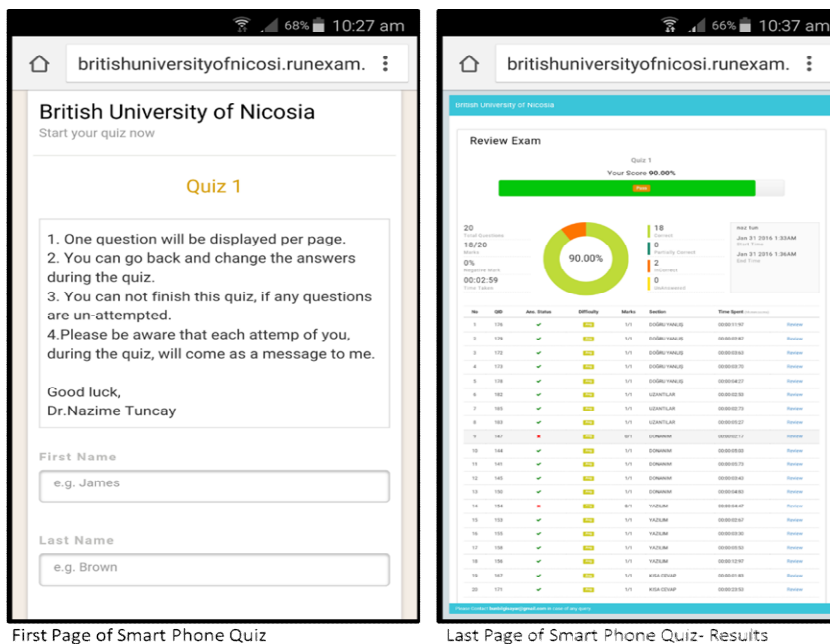


Figure 1: First and Last Page of a Smart Phone Quiz - in Vertical Layout

Blended Group students come to class some days and follow the courses that they do not come from their Smartphones (see Figure 2). These students have a paper exam as a midterm exam and a 2 mobile exams as an end of the course exam.

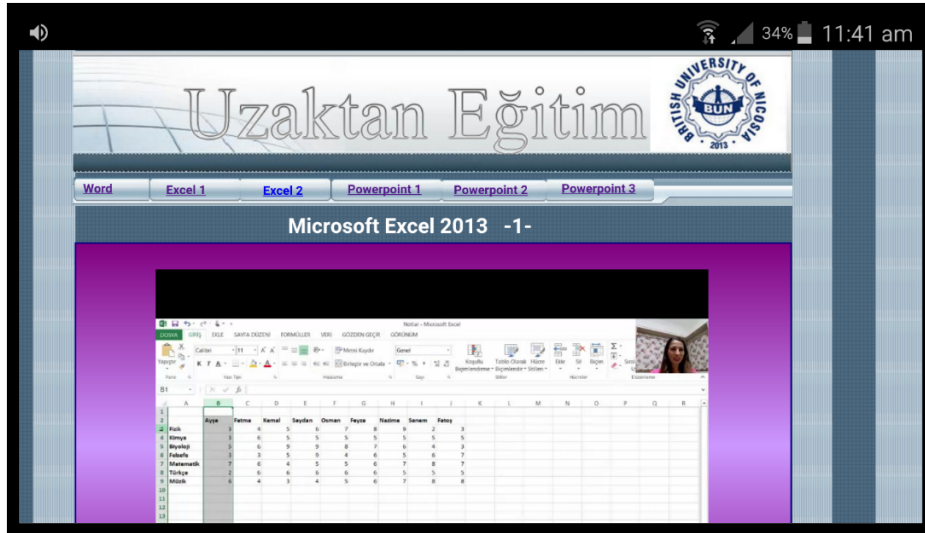
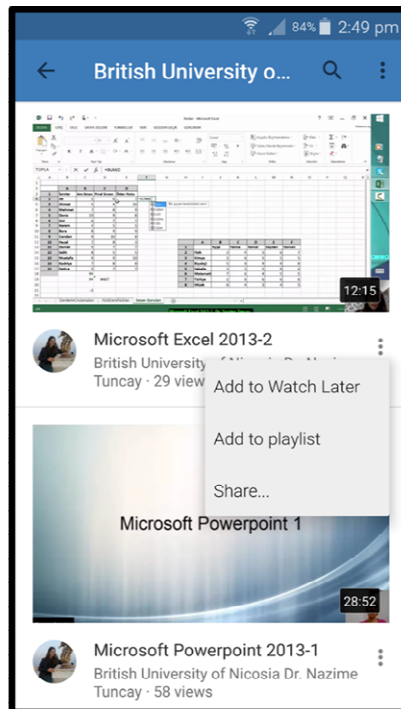


Figure 2: Videos in a Smartphone with Smartphone Horizontal Layout

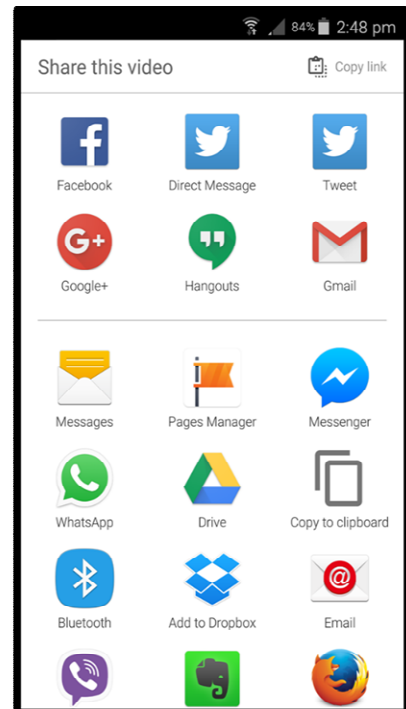
Mobile Group students do not come to the class at all and they follow course blog as well as the course videos that the course teacher have recorded for the Comp 111 students. Thus instead of listening to the course teachers explanations face to face in traditional classroom, the students were accessing to the course videos (see Figure 2) and doing the assignments that were announced in the course blog (Figure 3). These students were called only to the classroom twice for the examinations: A paper exam and a 2 mobile exams.



Some Examples of SmartPhone Classwork



Some Examples of SmartPhone Videos



Sharing Classwork and Videos

Figure 3: Blog- Video Page and Sharing in a Smartphone

Purpose of this study is to find the attitude of students to Smartphone education and to measure the difference of success between traditional students, blended students and mobile students. For this purpose, a modern traditional course, a mobile course and a blended course is delivered to three groups of students in the British University of Nicosia. In the mobile courses all courses and exams are delivered to students via Smartphones; where in the blended courses, only some of the courses and the exam was with Smartphones.

RESULTS AND DISCUSSIONS

1. Students' Smartphone Usage Statistics and Attitude towards Smart Phone Usage

An online questionnaire is prepared to collect data about students Smartphone usage. Some results from this questionnaire is listed below.

1 Number of Hours that Students use Smart Phone: It is found that 12 students use Smartphones less than 4 hours, 41 students use Smartphones less than 10 hours; and 22 students use Smartphones more than 10 hours a day which is really a lot. If we think that a human being spends at least 10 hours for his personal needs like, sleeping, eating, bathing,... than it means that they are today's student not only carry these devices in their pockets or handbags but they are really busy with some type of work with their Smartphones. In other words, %84 of the students were using Smartphones more than 4 hours a day (see Table 2). This means, if you want to reach a student, than with a greatest probability they would see your messages in 8 hours. This is a really good probability if we think about working students in a full time job.

Table 2: Smart Phone Facilities and Students Preferences

Hours Spend	Number of Students	Percentages (%)
Less than 4h	12	16
4<=h<=10	41	55
More than 10	22	29

2 Smart Phone Facilities and Students Preferences: Another interesting item of the online questionnaire was reasons of students being so engaged with this media. They are asked to write what they are mainly using Smartphones for. It is found that students these days instead of using a laptop to access to social media, they were accessing to Facebook (%25) and YouTube (%5) from this media. Only %24 of them were using these devices for a phone's old-fashioned purposes like "Calling and Texting". It was really interesting to see that the university students were not as keen on as games as they were thought to be; and only 11% of them were keen on playing games with their Smartphones. %7 of students said that they were using Smartphones for watching Movie; %11 of the students said that they were Googling for things that they do not know. % 4 of the students said that they were happy surfing through the internet with their Smartphones without exactly knowing what they are doing. Nonetheless, all students stated that Smartphones were very useful for them in their daily lives. You can see the number and percentages and the keywords that students used to answer this question item in the questionnaire in Table 3.

Table 3: Smart Phone Facilities and Students Preferences

Smart Phone Facilities	N	P
Facebook	19	%25
Calling and Texting	18	%24
Googling	8	%11
Games	8	%11
WhatsApp	6	%8
Watch Movie	5	%7
YouTube	4	%5
Surfing	4	%5
Instagram	3	%4

3 Smart Phone and Motivation: Students’ attitude to mobile learning is taken with a questionnaire and one of the items in this questionnaire is “Does having some course with Smartphones improve students’ motivation towards learning?”

It’s seen that in total %20 of the students do not agree with this idea; and totally %58, 66 of them agreed that using smartphones in education would increase their motivation towards learning. More than half of the students were towards using the Smartphone and this was very encouraging for the start of using them the in the education. The percentages can be seen in Figure 4.

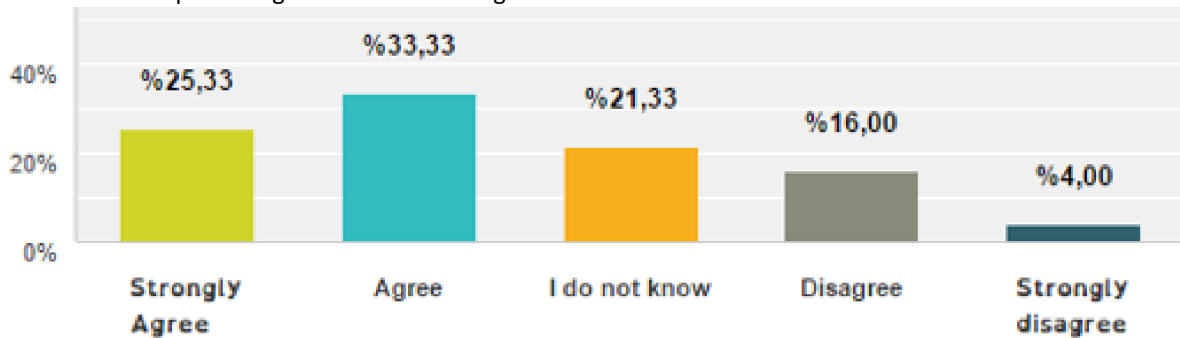


Figure 4: Smart Phone and Motivation

4 Obstacles in Smart Phone Learning and Smart Phone Exams: What are the biggest obstacles in Smart Phone Learning and Smart Phone Exams? The biggest obstacle in Smartphone courses and Smartphone exams are seen by students’ as Internet access problems (%38, 67). Also, insufficient skills of using Smartphones, Not everyone’s having a Smartphone, Students Negative Attitudes and some other reasons. The percentages can be seen in Figure 5.

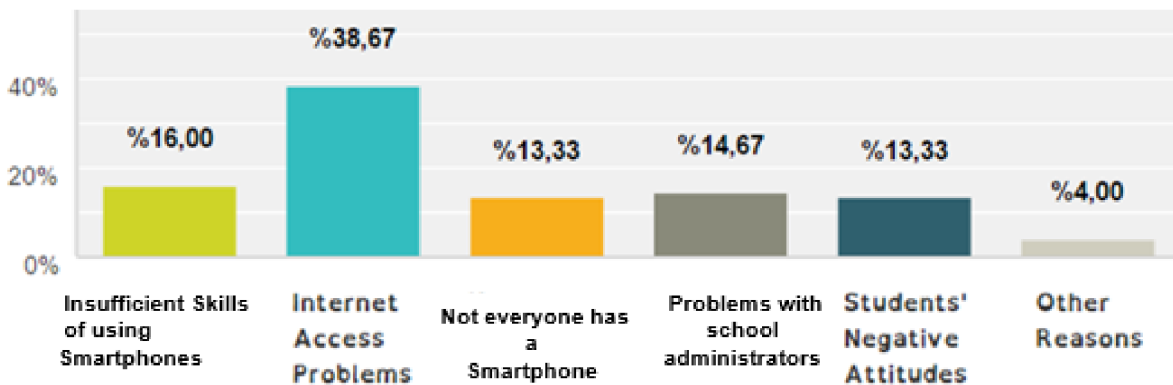


Figure 5: Smartphones and Obstacles

2. Results of Students Success in Traditional, Blended and Mobile Exams

In this part, statistics with the Paper Exam, Mobile Exam1 and Mobile Exam 2 is delivered. Here, Mobile Exam Average is founded by taking the average of Mobile Exam1 and Mobile Exam 2.

1. Female and Male Students Results: Female students and male students Paper Exam results were similar and Female students Mobile Average Scores’ mean (M= 84, 58) is a little higher than the Male students’ Mobile Average Scores mean (M=81, 22).

Table 4: Female and Male Students Paper Exam and Mobile Average Exam Results

Sex		Paper Exam	Mobile Average
Female	Mean	90,37	84,58
	N	30	30
Male	Mean	90,89	81,22
	N	45	45

2 Paper Exam and Mobile Exam: A paired-samples t-test was conducted to compare the Paper Exam Scores and the average score of Mobile Exams. You can see the results in the table Paired Sample t-test Statistics for Paper Exam and Mobile Exam in Table 4. Here Mobile Average is the average score of the scores taken in 2 mobile exams which was delivered as an end of course exam. There was a significant difference in the scores for Paper Exam (M=90, 68; SD=10) and average mobile exam scores (M=82, 57; SD=11, 03); $t(74) = 6, 48, p=0, 00$. These results suggest that exam type really does have a success scores. Specifically, results suggest that students get higher marks when they have paper exams. Although students were good at using social media for sharing their photos, they were not good at sending or receiving a document in Facebook or registering to a blog by themselves. What is more they were not knowing any of their passwords when they are required to use a laptop, since they were saving everything in their Smartphones and does not knowing their Gmail, Instagram, WhatsApp passwords.

Table 4: Paired Sample t-test Statistics for Exam types

		Mean	N	SD	SE Mean
Pair 1	Paper Exam	90,68	75	10,30	1,19
	Mobile Average	82,57	75	11,03	1,27

When they are given another Smartphone for their exam, they were looking astonishingly how they are going to use that Phone. Some other documenting problems that were seen during the courses were, sending emails without any subject and doesn't attaching a document with a name on it. These type of problems were not also foreseen before the course and since all students had the Smartphone and used them at least 4 hours a day, they were taught to really know how to use it. Another problem that is seen during the courses is students getting out of battery, to avoid these problem extra batteries were taken at the exam place. Students are also reminded before the examination to charge their phones and come to the class with a full battery. They were not using an Antivirus program with their Smartphones and they were thinking that these programs work only well with computers or laptops. Thus, how to download and install an antivirus program via Google Play should also be taught before delivering mobile courses. These may be the reasons of their getting lower marks at Mobile Exams.

3 Mobile Exam 1 and Mobile Exam 2: A paired-samples t-test was conducted to compare the Mobile Exam 1 scores and the Mobile Exam 2 scores. You can see the results in the table Paired Sample t-test Statistics for Paper Exam and Mobile Exam in Table 5.

Table 5: Paired Sample t-test Statistics for 2 Mobile Exams

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mobile1	77,133	75	12,28	1,42
	Mobile2	88,00	75	13,56	1,57

There was a significant difference in the scores for Paper Exam (M=77, 13; SD=12, 23) and average mobile exam scores (M=88; SD=13, 56); $t(74) = -6, 93, p=0, 00$. These results suggest students get higher marks in the Mobile2 exam than the Mobile1. These results may be a sign of their getting used to this new system of examination.

4 One-way Anova: A one-way ANOVA was conducted to compare the success of students in Traditional, Blended and Mobile classes between Mobile Exams average scores. There was not a significant effect of three groups of $F(2, 72) = 2.44, p = .78$. Similarly, a one-way ANOVA was conducted to compare the success of students in Traditional, Blended and Mobile classes in Paper Exams. There was not a significant effect of three groups of $F(2, 72) = 7.84, p = 0.72$ (see Table 6).

Table 6: Anova Results

		Sum of Squares	df	Mean Square	F	Sig.
Mobile Average	Between Groups	60,67	2	30,33	,24	,784
	Within Groups	8939,00	72	124,15		
	Total	8999,67	74			
Paper Exam	Between Groups	15,68	2	7,84	,072	,931
	Within Groups	7834,64	72	108,81		
	Total	7850,32	74			

These results can be interpreted such as: Evaluating students' success with Mobile Exams or Paper Exams do not differ between the groups. Nonetheless, this research study showed that Mobile Education is possible; as soon as all your students have Smartphones with good internet access and eager instructors to deliver such education!

3. End Of Course Results

An end-of course questionnaire is distributed to the students and their ideas about the course is taken. Also, one-to-one interviews with 30 students is delivered to understand clearly their perspectives. Students were very happy to watch the videos from their Smartphones. They were glad to hear their teachers' voice in the videos and to replay the video to listen the course subjects as much as they require. They were also happy that teacher was on a social media with themselves and answered their questions. Students also find it useful, to reach teacher from WhatsApp, Viber or Messenger which were their Smartphones facilities and teacher was also using it. They were happy also not to be forced to go to a computer lab to do their homework. On the other hand, all the students were happy with blogs and they share the information from the blogs to their own documents. Some other students' answers from the end-of-course questionnaire can be found below.

Do you want to attain to Mobile Courses again?

Students were asked, whether they want to attain to a mobile course again or not. Although there was not much difference between the female and male students perspectives of the course, there were some students which prefer not to attain to Mobile courses again, since they found it difficult and they preferred face-to-face classroom instruction (%24); there were some students that they do not want any more Mobile courses because they do not have good internet connection (%6.67); %29.33 of the students said that they agree using and would happily participate in any other mobile course. What is more, %17,33 of them said that they really enjoyed using it and they want to participate in the mobile courses next semester.

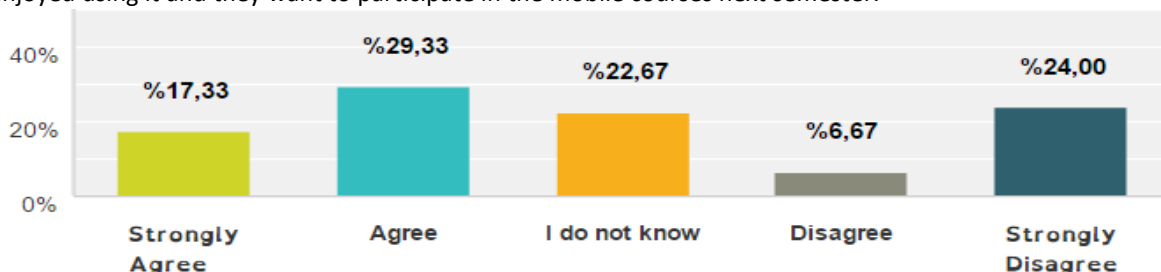


Figure 6: Mobile Course Again?

2 Do you want to attain to Mobile Exams again?

At the end of the course students were asked if they were volunteered for any future exams. In total %48, 67 were eager for Mobile exams and they have said they were very easy for them. What is more they stated that they were happy to see their results as soon as the exam finishes and they were glad to know instantly their wrong answers. They even said that they have learned during the examination.

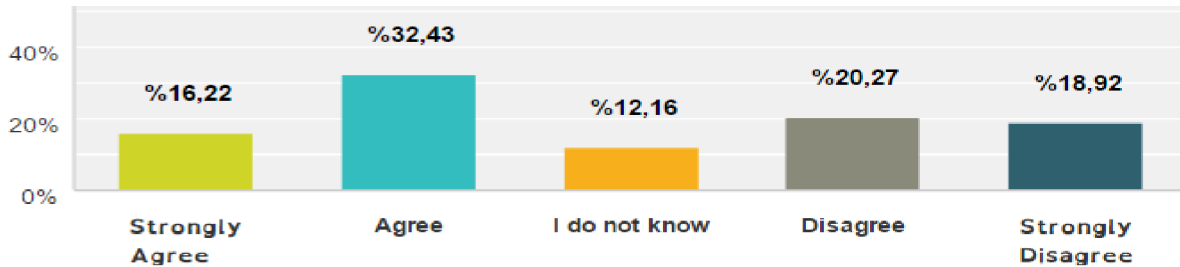


Figure 7: Smart Phone Exams Again?

Students have stated in their interview that although they can manage Mobile courses, mobile exams were hard for them. They said that they become stressed, if they click a wrong answer, and if their Smartphones does not work during the exam. Some students also said that since they have an old version of Smartphone, they would not be in the same situation with their friends which have a new Smartphone. What is more, most of the students were afraid of inconsistent internet access and internet access problems. The interview results and students end of course online questionnaire results were consistent since they were afraid of some technological and internet problems they were not too volunteered for mobile exams. To solve this problems, universities may sell Smartphones with a discount at the beginning of the semester to students, thus they will have the same opportunity. They may also sell with reasonable fees internet access packages for Smartphones.

3.3.3 What do you think about the Mobile Exams?

For taking further information about students taught about Mobile Exams, they were directed the question "What do you think about the Mobile Exams?" on the online questionnaire and the answers are taken with a 5 Likert scale (Very Easy, Easy, I do not know, Hard, Very Hard)

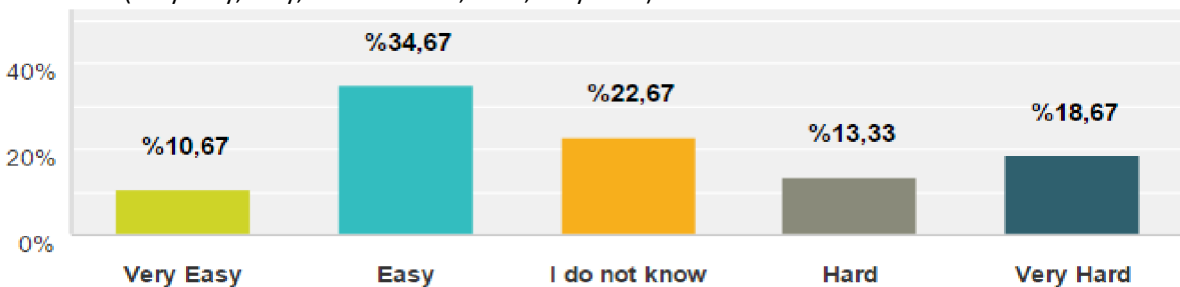


Figure 8: Are mobile exams easy?

Another question from the end of exam questionnaire was about the easiness of the mobile exams. The results were coinciding with the results of 3.3.2. Similar percentages of students' finds the exam easy (in total 45, 3%) and similar percentages of students had wanted to have future mobile exams.

CONCLUSION

Literature review about the tools used in Distance Education revealed that, smartphones are relatively new in this area. However there are some obstacles in this usage, such as not all students having a Smartphone, slow internet access, insufficient Smartphone usage knowledge, administrators, teachers' and students' negative attitude towards usage in education may prevent an obstacle in this new technology's usage. On the other hand, the research study with Traditional, Blended and Mobile group of students reveals that there is not any significant difference between these students' Paper and Mobile exam results. However, there was a



significant difference between the Mobile 1 and Mobile 2 exams as well as female and male student's mobile exam results. In the interviews, students expressed anxiety towards using this new technology in the courses and their happiness specially using social media with their teachers. What is more, all the students expressed that they find blogs and videos very useful in the mobile and blended courses. It is concluded that before delivering any other Smart Phone Education to the students, students' skills in using Smartphones for educational purposes should be improved. Nonetheless, it was the first experience of Smartphones in the university, its sure that next semester students are going to be given some Smartphone usage courses before delivering any other Mobile courses or Mobile exams.

REFERENCES

- Bradford, P., Porciello, M., Balkon, N. & Backus, D. (2007). The Blackboard Learning System. *The Journal of Technology Systems*, 35: 301-314.
- Bell, B. (2011). *Theorising teaching in secondary classrooms: Understanding our practice from a sociocultural perspective*. New York, NY: Routledge.
- Dianne Forbes & Elaine Khoo (2015). Voice over distance: a case of podcasting for learning in online teacher education, *Distance Education*, 36:3, 335-350. DOI: 10.1080/01587919.2015.1084074
- Gaudelli, W. (2006). Convergence of Technology and Diversity: Experiences of Two Beginning Teachers in Web-Based Distance Learning for Global/Multicultural Education. *Teacher Education Quarterly*.
- George, S. B. (2014, January 20). *Towards Innovative Pedagogy*. The Hindu: Education Plus.
- Goulimaris, D. (2015). The Relation between Distance Education Students' Motivation and Satisfaction, *Turkish Online Journal of Distance Education*, 16(2).
- Harrison, J. M., Blakemore, C. L., Buck, M. M., & Pellett, T. L. (1996). *Instructional Strategies for Secondary School Physical Education* (4th ed.). Dubuque, IA: Brown & Benchmark.
- Hoole, J. (2012). *Blend: In Seven Days or Less Successfully Implement Blended Strategies in Your Classroom*. USA: Amazon Kindle Edition.
- Hoy, W. K., & Miskel, C. G. (1982). *Educational administration: Theory, research, and practice*, 2nd edition. New York: Random House.
- Kirkwood, G. K. (2005). Information and Communication Technology (ICT) in higher education Teaching- A tale of gradualism rather than revolution. *Learning, Media and Technology*, 30(2): 185-199.
- Lim, S., Cha, S., Park, C., Lee, I., & Kim, J. (2012). Getting closer and experiencing together: Antecedents and consequences of psychological distance in social media enhanced real-time streaming video. *Computers in Human Behaviour*, 28(4):1365-1378.
- Maněnová, M. (2013). Options of using the Moodle e-learning system for education by means of mobile devices. *Trend of the Education*.
- Nawi, M.A.M, Jamsari, E.A., Hamzah, M.I., Sulaiman, A. & Umar, A. (2012). The Impact of Globalization on Current Islamic Education. *Australian Journal of Basic and Applied Science*, 6 (8):74-78.
- Nawi, M.A.M. & Hamzah, M.I. (2014). Mobile Fatwa (M-Fatwa): The Integration of Islamic Fatwa through Mobile Technology. *Turkish Online Journal of Distance Education*, 15 (2): 108-116.



Nawi, A., Hamzah, M. I., Rahim, A. A. A. (2015). Teachers Acceptance of Mobile Learning for Teaching and Learning in Islamic Education: A Preliminary Study, *Turkish Online Journal of Distance Education*, 16(1).

Ozyurt, O. (2015). An Analysis on Distance Education Computer Programming Students' Attitudes Regarding Programming and Their Self-Efficacy for Programming Assist. *Turkish Online Journal of Distance Education*, 16(2).

Rajesh, M. (2015). Revolution in Communication Technologies: Impact on Distance Education. *Turkish Online Journal of Distance Education*, 16(1).

Robbins, St. P. (1998). *Organisational Behaviour: Concepts, Controversies and Applications*. NJ: Prentice Hall.

Salmon, G., Mobbs, R., Edirisingha, P., & Dennett, C. (2008). Podcasting technology. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 20–32). New York, NY: Open University Press.

Shuib, A.S. (2010). Reka Bentuk Kurikulum M-Pembelajaran Sekolah Menengah: Teknik Delphi; Proceedings of Regional Conference on Knowledge Integration in ICT; 652-665.

Servonsky, E. J., Daniels, W. L & Davis, B. L. (2005) Evaluation of Blackboard as a platform for distance education delivery. *ABNF Journal*, 16(6): 132-135.

Stoilescu, D., & Egodawatte, G. (2010). Gender differences in the use of computers, programming, and peer interactions in computer science classrooms. *Computer Science Education*, 20(4), 283-300

Tuncay, N. & Öznacar, M.D (2014). *Sanal Düşler ve Özel Gerçekler: Özel Eğitim Gerektiren Bireyler ve Uzaktan Eğitim*, Anı Yayıncılık: Ankara.

Tuncay, N. & Poyraz, C., (2013). Distance Education from "Impossible" To Be "Possible". *Journal of Educational and Instructional Studies in the World*, 3(2).

Wagner, E. D. (2005). Enabling Mobile Learning. *Educause Review*, 40(3), 40-53.

Weinberg, R.S., & Gould, D. (2003). *Foundations of sport and exercise psychology* (3rd edition). Champaign, IL: Human Kinetics.

Stoilescu, D., & Egodawatte, G. (2010). Gender differences in the use of computers, programming, and peer interactions in computer science classrooms. *Computer Science Education*, 20(4), 283-300.