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THE OPINIONS OF INFORMATION TECHNOLOGY STUDENTS ON USING MOBILE LEARNING

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Abstract
The advances in information and communication technologies in present day are moving the education into a different dimension. Especially, it is not wrong to say that the mobile phones are taking a very important part of our everyday life. The interest in mobile phones is growing day by day and individuals from age 7 to 70 are interested in such devices. People not only follow the advances in mobile phone technology, but they purchase new phones and use their advanced features. As a result of this, we see that educational establishments are including mobile phones in their daily teaching activities. The acceleration of scientific studies in this area is increasing every day. Based on this point, this study has been carried out at the Near East University (by information technology students) in order to find out the opinions of students on mobile learning. A survey was carried out in order to find out the student opinions, and also a literature study was done such that it could perform the basis of this study. The survey consisted of questions and was prepared carefully with the aim to find out the opinions of students on the effects of mobile learning. The results of the survey were analyzed and tabulated using the SPSS packet program. Based on the results of this analysis, positive suggestions are made on the opinions and recommendations of students on the effective use of mobile learning tools. In addition, recommendations are made on how the students can follow the recent advances closely in information technology and also in the right time.

Key words: Mobile learning, m-learning, tele-learning, e-learning, mobile phones and education.

Introduction

Mobile learning (m-learning) is a rather new term which received ongoing attention during the new millenium when mobile technology started its strong impact on society (Frohberg, 2006). The definition of mobile learning has evolved with the advent of new technology. While mobile learning could, in its broadest sense, be said to cover books, CD-ROMs, radios, and laptops, most researchers in the field of educational technology consider mobile learning, or m-learning, to be a subset of e-learning (Laouris & Eteokleous, 2005). Many authors use the term mobile as a synonym to a mobile phone. This amounts to an over simplification that misses the whole concept, because viewing a telephone as a device which operates wirelessly reveals only a very thin aspect of what today's mobile technologies can offer. While the computer constitutes the first human construction that aspired to amplify mental rather than physical human powers (in contrast to all previous human constructs; for an elaboration of this argument see Laouris 1998, 2004, 2005c), the mobile phone goes one step further.

A widely accepted and common used definition of mobile learning proposed by Alexander (2004) is learning that is wireless and ubiquitous so the idea of wearable computing is very well applied to m-learning. Basic task of advanced forms of education is to provide flexible education that could assure mobility to the learners. Mobile learning is generally defined as e-learning through mobile devices (Trifanova & Ronchetti, 2003). Users have to find a personal computer with internet access to learn something in e-learning. This is not a completely anytime anywhere learning (Meisenberger & Nischelwitzer, 2004). According to Brown (2003) "Mobile technologies have the power to make learning even more widely available and accessible than we are used to in existing e-learning environments" (p.1). He proposes Figure 1 as a diagram of flexible learning.

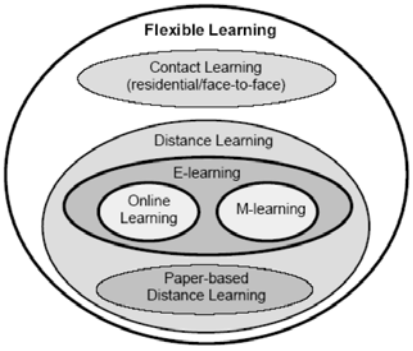

Figure 1: The subsets of flexible learning (Brown, 2003)

Leung and Chan (2003) say that mobile learning framework includes four levels:

- Mobile learning applications,
- Mobile user infrastructure (browser, handheld devices, mobile phones),
- Mobile protocol (adoption of content with WAP or other protocols),
- Mobile network infrastructure (cellular systems, satellites, etc.) (p.1)

Many researchers (Strauss, 2004; Robson, 2004) believe that mobile technologies bring new opportunities to traditional learning in the classrooms and lifelong learning outside the classrooms. M-learning provides location awareness applications to learners (Trifanova and Ronchetti, 2003). Berger (2001) lists the implications that mobile technology can bring to teaching and learning:

- Better realization of "anywhere, anytime",
- Freedom of organization in and out of the classroom,
- Collaboration among students separated geographically,
- Transparent connection to nets,
- Remote sensing and integration of information,
- Shift from "anywhere, anytime" to "everywhere, everytime" (p.58).

Mostakhdemin-Hosseini and Tuimala (2005) view mobile learning simply as the natural evolution of e-learning, which completes a missing component of the solution (i.e. adding the wireless feature), or as a new stage of distance and e-learning (Georgiev et al., 2004). Also, It is obvious that mobile learning will change the concept of traditional learning environment and both student-student and student-instructor relationship. Sharma and Kitchens (2004) present these changes that are presented in Figure 2 and 3 below.

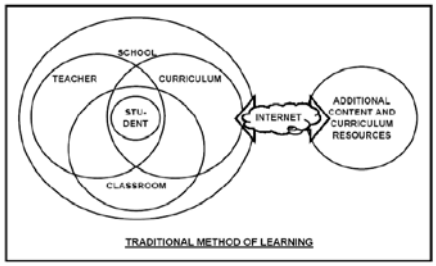

Figure 2: Traditional Method of Learning (Sharma & Kitchens, 2004)

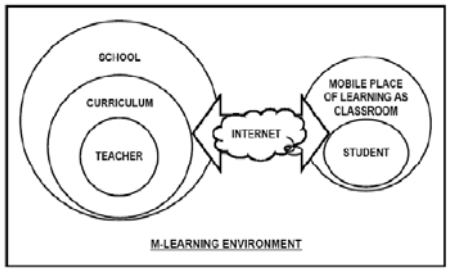

Figure 3: M-Learning Environment (Sharma & Kitchens, 2004)

Purpose of the Study

The purpose of this study is to find out the opinions of information technologies' students on mobile learning. The study focused on answering these questions:

1. What are the opinions of CIS students about mobile learning?
2. What are the opinions of CEIT students about mobile learning?
3. What are the opinions of COM.ENG students about mobile learning?
4. Are there any differences in opinions about the mobile learning between the departments?
5. Are there any differences in opinions about the mobile learning between the grade level (class)?
6. Are there any differences in opinions about the mobile learning between the genders?
7. Are there any differences in opinions about the mobile learning between the nationalities?

Method

Participants

The volunteer participants in this study consisted of 317 undergraduate students attending the Near East University in Northern Cyprus. 127 students from departments of Computer Information Systems (CIS), 100 students from Department of Computer Education and Instructional Technologies (CEIT), and 90 students from Department of Computer Engineering (COM.ENG). The study was conducted during the 2007-2008 Spring term.

Joined the study from students of CIS are %41.70 female, %58.30 male, students of CEIT are %28.00 female, %72 male, and students of COM.ENG are %37.50 female, %62.50 male (see Table 1).

Table 1: Distribution of gender

Gender	CIS		CEIT		COM.ENG		TOTAL	
	F	%	F	%	F	%	F	%
Female	53	41.70	28	28.00	38	42.20	119	37.50
Male	74	58.30	72	72.00	52	57.80	198	62.50

Joined the study from students of CIS are %18.90 first year, %30.70 second year, %29.10 third year, and %21.30 fourth year. Students of CEIT are %24.00 first year, %39.00 second year, %13.00 third year, and %24.00 fourth year. Students of COM.ENG are %5.60 first year, %25.60 second year, %62.20 third year, and %6.70 fourth year. As total, students of these three departments are %16.70 first class, %31.90 second class, %33.40 third class, and %18.00 fourth classes (see Table 2).

Table 2: Distribution of grade level (class)

Grade Level (Class)	CIS		CEIT		COM.ENG		TOTAL	
	F	%	F	%	F	%	F	%
1	24	18.90	24	24.00	5	5.60	53	16.70
2	39	30.70	39	39.00	23	25.60	101	31.90
3	37	29.10	13	13.00	56	62.20	106	33.40
4	27	21.30	24	24.00	6	6.70	57	18.00

Joined the study from students of CIS are %46.50 TRNC, %37.80 TR, %15.70 other nationalities. Students of CEIT are %88.00 TRNC, %10.00 TR, %2.00 other nationalities. Students of COM.ENG are %16.70 TRNC, %71.10 TR, %12.20 other nationalities. As total, students of these three departments are %51.10 TRNC, %38.50 TR, and %10.40 other nationalities (see Table 3).

Table 3: Distribution of students' nationality

Nationality	CIS		CEIT		COM.ENG		TOTAL	
	F	%	F	%	F	%	F	%
TRNC	59	46.50	88	88.00	15	16.70	162	51.10
TR	48	37.80	10	10.00	64	71.10	122	38.50
OTHER	20	15.70	2	2.00	11	12.20	33	10.40

Instruments

In addition to the information gathered via the literature survey, a survey was conducted in order to find out the opinions of students about mobile learning. Data were collected by the authors in the year 2008 using the "Opinions of Information Technology Students on Using Mobile Learning" questionnaire. The questionnaire consists of 15-items and the questionnaire focused on the opinions of information technologies' students on mobile learning. These respondents rated each item as "Strongly Agree", "Agree", "Undecided", "Disagree", "Strongly disagree". The validity of the translated questionnaire was established by a review of three experts in educational technology. Selected items were revised based upon their comments and recommendations. The administration of the revised questionnaire to 15 students yielded a Cronbach's alpha of .95.

Data Analysis

Data were collected using questionnaire. After that SPSS 16.0 was used to analyzed and interpret the collected data. Anova, frequency and percentage methods were used during the analysis process. The data obtained by the survey was commented upon using the SPSS 16.0 program with the percentage, frequency, and Anova statistical analysis techniques.

Results

A-Opinions of students about the mobile learning

It can easily be seen that the CIS, CEIT and COM.ENG students who took part in the study have realized that mobile learning has helped them not to be dependent to a fixed place of study (M=3.80, SD=1.20). It is very important that

students communicate both their classmates and their instructors in e-learning connected with mobile learning. As looking at data, an opinion that using internet communication tools as e-mail (M=3.81, SD=1.19), forum (M=3.44, SD=1.19), and chat (M=3.64, SD1.17) are beneficial in mobile learning, is generally high in our students. Almost every individual have sufficiency to use the mobile phones because of one of the most practical and fastest communication tools nowadays. For this reason, it is said that individuals have opinion to benefit these technologies for realizing their academic developments (M=3.64, SD=1.18). Looking at the data at the end of the study again, students have the opinion that the communication with their instructors are important and mobile learning is also effective in the communication between students and instructors (M=3.66, SD=1.17). As these three departments with general construction, are related with new technologies and follow the fast developments of informatics technology at the right time, we think not to regard as a strange having enough information about mobile learning that based on using mobile phone in education.

Table 4: Scale of opinions of students' on mobile learning

Survey items (N=317)	**Mean**	**SD**
1. Mobile phones should be used in education.	3.42	1.23
2. Mobile phones are appropriate for to use in courses in my department.	3.37	1.22
3. Mobile learning should be started in my department.	3.56	1.17
4. Mobile learning is a new dimension of e-learning.	3.61	1.12
5. Mobile learning enables students to have fun in education.	3.52	1.30
6. Mobile learning is beneficial to use as a method of learning in education and instruction.	3.53	1.19
7. Mobile learning increases the quality of e-learning.	3.49	1.17
8. Mobile learning enables students to follow course content easily.	3.59	1.23
9. Mobile learning is convenient for communication with classmates.	3.62	1.24
10. Mobile learning is convenient for communication with instructors.	3.66	1.17
11. To evaluate spare time is beneficial for academic development with mobile learning.	3.64	1.18
12. Chatting is beneficial in mobile learning.	3.64	1.17
13. Forum is beneficial in mobile learning.	3.44	1.19
14. E-mail is beneficial in mobile learning.	3.81	1.19
15. Time and space are eliminated in mobile learning in education and instruction.	3.80	1.20

B-Opinions of students on mobile learning based upon departments

In this study, a meaningful difference was not found in mobile learning between the students of CIS, CEIT and COM.ENG departments. But the answers given in the questionnaire show that the students are not of the same opinion. Table 5 shows the results in detail.

Table 5: Scale of opinions of students' on mobile learning based upon departments

Survey items	**CIS**		**CEIT**		**COM. ENG**	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
1. Mobile phones should be used in education.	3.52	1.21	3.35	1.25	3.34	1.26
2. Mobile phones are appropriate for to use in courses on my department.	3.47	1.21	3.32	1.19	3.29	1.28
3. Mobile learning should be started in my department.	3.71	1.15	3.53	1.10	3.37	1.25
4. Mobile learning is a new dimension of e-learning.	3.72	1.08	3.58	1.05	3.49	1.25
5. Mobile learning enables students to have fun in education.	3.61	1.27	3.49	1.31	3.41	1.32

6. Mobile learning is beneficial to use as a method of learning in education and instruction.	3.61	1.15	3.56	1.09	3.39	1.35
7. Mobile learning increases the quality of e-learning.	3.61	1.16	3.45	1.09	3.37	1.28
8. Mobile learning enables students to follow course content easily.	3.72	1.20	3.71	1.12	3.29	1.34
9. Mobile learning is convenient for communication with classmates.	3.68	1.24	3.62	1.19	3.53	1.29
10. Mobile learning is convenient for communication with instructors.	3.77	1.14	3.69	1.06	3.48	1.32
11. To evaluate spare time is beneficial for academic development with mobile learning	3.76	1.09	3.64	1.15	3.46	1.30
12. Chatting is beneficial in mobile learning.	3.70	1.14	3.83	1.07	3.34	1.26
13. Forum is beneficial in mobile learning.	3.53	1.12	3.34	1.17	3.44	1.31
14. E-mail is beneficial in mobile learning.	3.97	1.13	3.90	1.07	3.48	1.33
15. Time and space are eliminated in mobile learning in education and instruction.	3.97	1.09	3.85	1.18	3.52	1.33

According to the table 5, the students of CIS department conclude that time and space are eliminated in mobile learning (M=3.97). Besides, they have an opinion that e-mail is beneficial in mobile learning (M=3.97). The students think that the communication with instructor is beneficial in mobile learning, just like traditional learning (M=3.77).

As for the students of CEIT department, they have an opinion that e-mail is the most useful tool in mobile learning (M=3.90). Furthermore, they think, chat is also useful in mobile learning (M=3.83). In addition the communication between student-student and student-instructor are important. Besides, they are conscious about the elimination of time and space in mobile learning (M=3.85).

As for the students of COM.ENG department, they seem to have more information about communication features in mobile learning. They think that communication between student-student is the most useful in mobile learning (M=3.53). They also think that communication between student-instructor is the most useful in mobile learning (M=3.48). Later, they think the student-instructor communication to be useful in mobile learning. In addition, they decide on communicating with e-mail is useful in mobile learning (M=3.48).

C-Gender

There is not statistically significant difference between genders in our study (p>.05). It is normal to think no differences or any discrimination between the genders in this day and age. Nowadays, it is said not to be mistake that females work with males in every field and they are as successful as males at least.

Table 6: Differences between genders

Gender	N	Mean	SD	F	p
Male	198	53.36	14.06	0.563	0.703
Female	119	54.26	13.38		

D-Nationality

There is not statistically significant difference between nationalities in our study (p>.05). Everywhere in the world, new technologies spread quickly and also people try to follow the new developments as much as they can. Acting this reality, we think normally not to differentiate between the nationalities.

Table 7: Differences between nationalities

Nationality	N	Mean	SD	F	p
TR	122	54.07	14.17	0.853	0.427
TRNC	162	54.02	13.15		

OTHER	33	50.73	15.49		

E-Grade level (class)
There is a statistically significant difference between grade levels (classes) in our study (p<.05). According to the table, students at the fourth year have the highest positive opinion about mobile learning. As for the students of first year, they have the least opinion. Because these three parts are related with the technology and if we think the students to develop their knowledge and skills from first year until fourth year, we can say this result is as expected.

Table 8: Differences between grade level (class)

Grade Level (Class)	N	Mean	SD	F	p
1	57	49.11	17.59	4.774	0.003
2	106	53.32	14.45		
3	101	53.98	12.06		
4	53	58.85	8.45		

E-Departments
When considering the various departments of our study, the department of CIS have the most positive opinion about mobile learning (M=55.34, SD=12.64). The department of COM.ENG have the least opinion about mobile learning (M=51.20, SD=16.68). Reason for this could be because the CIS department is based on information technology, whereas the COM.ENG department is engineering based.

Table 9: Differences between departments

Department	N	Mean	SD	F	p
CIS	127	55.34	12.64	2.401	0.092
CEIT	100	53.86	12.03		
COM.ENG	90	51.20	16.68		

Conclusion and Suggestions
All three departments seem to have positive opinions about mobile learning. Based on this result, we can say that students want to use the new technologies in education because they see and use the technological devices in everyday life. On the other hand, it was determined that the mobile learning establishes the communication between student-student and student-instructor, and also for the same reason, the importance of the internet communication tools (chat, forum, e-mail etc.) were found to be an important factor by student opinions. But looking at the general results, actually, it is understood that there is no meaningful differences between opinions on students of different department about mobile learning. In addition, there is not statistically significant difference between genders and nationality in our study (p>.05). But there is a statistically significant difference between grade level (class) in our study (p<.05). According to the table, students of fourth year have the highest positive opinion about mobile learning. As for the students of first year have the least opinion. Because these three parts are related to the technology, and if we think the students always want to develop their knowledge and skills, we can say this result is as expected.

From the results obtained at the end of this study we can say that, our three departments follow the new technologies closely and they have information about mobile learning.

In addition, we can make the following proposals to other researchers in this field:

- While the students of CIS, CEIT and COM.ENG department are giving positive opinions about mobile learning, they seem to be “undecided” about the use of mobile learning in education. For this reason, it is necessary to be set up pilot studies of mobile learning and offer more information to the students in various departments.
- In addition, there is a difference between the opinions of fourth year and first year students. When this result is studied, the feedback obtained and the information about mobile learning and educational technology can be given to the first year students.
- The use of mobile phones should be started in various lessons as learning aids.

- Certain parts of the lessons, for example in parts where brain storm is to be made, can be learned more efficiently using mobile phones

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