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Investigating mobile devices and LMS integration in higher education: Student perspectives

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Abstract

Change is difficult however it is possible that the rapid development and implementation of new technologies and social changes have an influence on the educational provision inevitable. In today's world education is possible at any time and place by modern technologies. As a result, students have the chance to learn educational materials in independent classrooms. The purpose of this study is to integrate mobile technologies and devices with LMS to create new trend in the learning environment. Participants in this study consisted of 93 students. During the survey, a questionnaire was used to collect the needed. In order to analyze and interpret the data SPSS 16.0 was used. The findings of the study propose a powerful approach to facilitate the learning process of students through the use of LMS via mobile phone. Consequently, it be supported that using LMS on mobile devices is the learning platform for the future learning environment. The paper is oriented in order to create a new trend to the education system.

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1. Introduction

Change is difficult but it is probable that the rapid development and implementation of new technologies and social changes make change in the educational provision inevitable [19]. Nowadays, most of the universities are struggling to enhance the professional experience and skills of their personnel in order to utilize the new Technologies in their teaching activities in an efficient way [1]. New technologies allow students to learn more in less time and allow universities to focus on global learning environments if used appropriately [2]. Also, modern technologies have made learning possible at any time and place. As a result, students avail of learning materials independent classroom [3]. One of the modern technologies is learning management system (LMS) which is a software application to be used to integrate technological and pedagogical features into a well-developed virtual learning environment [18]. Students are able to share resources, take online tests, access their grades, and upload assignments, collaborate with class mates and instructor, and have easy Access to course materials. In addition, LMSs enable instructors to create and support dynamic learning environment [17]. McGee and Green [4] indicated that LMS are largely lacking in effective instructional functions.

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On the other hand, in connection with the possibilities offered by modern technology (i.e. evolution of mobile devices) pose new opportunities and new challenges to the educational systems [5, 6]. Uses wireless transmission and mobile devices such as PDAs, mobile phones, laptops and tablet PCs is defined M-learning [7]. This new learning environment supports collaborative and accessible learning experiences for both instructors and students that are integrated anytime and anywhere beyond the classroom [6]. Furthermore, mobile learning allows instructors to utilize the strengths of mobile platforms to bring a variety of new applications to the learning environment (Avraamidou, [8]; Kim et al. [9]; Kukulska-Hulme, [10]; Zurita & Nussbaum, [11]) such as mobility, ease of movement and use, flexibility, functionality, convenience, simplicity, speed, affordability, economic/cost benefits, information management capacity, and share information instantly [12, 13].

1.1. The purpose of the study

The purpose of this study is to integrate mobile technologies and devices with LMSs to create a new trend for the learning environment. The research approach is carried out in order to find out:

1- What are students' perceptions of the new trend learning environment?
2- Are there significant differences between different genders' perceptions of the new trend learning environment?
3- Are there any differences on perceptions of the new trend learning environment between the high-level and low-level students?

2. Method

2.1. Participants

This study has been carried out at the Department of Computer Information Sytems (CIS) at Near East University in Cyprus during the Spring 2010 semester. Participants in this study consisted of 93 students. The female participants were 43.01% (n=40), and male participants were 56.99% (n=53). Joined the study from students of the academic performance are 47.31% (n=44) high-level, 52.69% (n=49) low-level students.

2.2. Insurments

The questionnaire "*Students' perceptions of the new trend learning environment*" was prepared by the authors in the form of a questionnaire related to mobile devices and LMS which aimed to find out students' perceptions of the new trend learning environment. Content and validity of questions were investigated by 4 experts (experts of educational technology and information technology) in this field and were found to be satisfactory. The internal consistency of the questionnaire was found to be .96 using Cronbach alpha. The questionnaire consisted of two sections. The first section (6 items) asked participants for demographic information. The second section of the questionnaire, consisting of 14 items, was prepared to evaluate perceptions of the new trend learning environment. All items represented a positive reaction to the new trend learning environment. Respondents rate each item on a 1-5 Likert scale from "strongly agree" (5) to "strongly disagree" (1).

2.3. Data analysis

During the survey a questionnaire was used to collect data. Consequently, SPSS 16.0 was used to analyze and interpret the collected data. Frequency, mean, standard deviation, independent samples t-test, and percentage methods were used during the analysis process.

3. Results and Discussion

3.1 Students' perceptions

Table 1 presents the mean and standard deviation for each item of the questionnaire. According to the results, students had a positive opinion to the new trend learning environment. It is an inevitable truth that technologies are very important for education institutions.

<u>Table 1. Means and standard deviations for each item of the questionnaire</u>

Items	Mean	SD
1. I found the new trend learning environment enjoyable.	4.93	0.25
2. I think all my friends who used the new trend learning environment are happy.	4.62	0.52
3. New trend learning environment has provided opportunity to discuss the questions with our friends and teachers.	4.70	0.59
4. New trend learning environment has provided opportunity to reach the content of a lesson online any time and any place.	4.88	0.32
5. I would like a similar environment to be used in all of my other lessons.	4.93	0.25
6. With the help of new trend learning environment I learned course subjects easily.	4.63	0.52
7. New trend learning environment has provided self-test opportunity to evaluate myself before final exams.	4.62	0.52
8. Using a new novel teaching tool has motivated me.	4.88	0.32
9. New trend learning environment has provided us opportunity to exchange the files with our friends.	4.68	0.54
10. New trend learning environment has given prompt feedback to me through online assessment immediately.	4.68	0.54
11. New trend learning environment has provided collaborative learning opportunity.	4.93	0.25
12. I would like to see the new trend learning environment to be used in next semesters as well.	4.70	0.53
13. New trend learning environment has provided opportunity to get into online communication with my teachers in definite times.	4.62	0.52
14. New trend learning environment had the quality of remaindering the learning activities automatically (homework and announcement, exam, self-test, chat, etc).	4.63	0.52

According to Table 1, for students it is important to collaborate in the learning process. Thus, students gave strongly agree answer for item 11 "New trend learning environment has provided collaborative learning opportunity *(M=4.93)*". The study shows that communication tools are important in providing collaborative learning. Moreover, mobile devices can provide different learning tools to students such as e-mail, MMS, videoconference etc. Consequently, diversity of learning tools increase the motivation of students during the lecture time. Therefore, item 1 "I found the new trend learning environment enjoyable *(M=4.93)*" was pleasant for students in the study. Whereupon, students are demanding to make use of the same learning environment in all other lessons. In order that, item 5 "I would like a similar environment to be used in all of my other lessons *(M=4.93)*" had the highest mean score, too.

The second highest mean of the students' perceptions was found for item 4 "New trend learning environment has provided opportunity to reach the content of a lesson online any time and any place *(M=4.88)*". Zhang, Perris and Young [14] found that flexibility of time and place is a major advantage in online courses. Also, item 8 "Using a new novel teaching tool has motivated me *(M=4.88)*" has got same mean score. Students enjoyed using mobile

devices as a tool of learning with the reason of flexibility and accessibility of the learning materials anytime and anywhere. An encouraged score from item 3 "New trend learning environment has provided opportunity to discuss the questions with our friends and teachers *(M=4.70)*". Discussion is very important in the education. In order to increase the level of performance, it is required toss hare information between students. Another important result of the survey is the response to the 12th item "I would like to see the new trend learning environment to be used in next semesters as well *(M=4.70)*". According to this result, it is clear students enjoyed using mobile devices as a tool in education.

3.2 Gender differences

The results given in this section are based on the gender's perceptions obtained from the questionnaire. In order to find out whether or not there was any statistically significant difference between gender's perceptions, independent sample *t*-test was carried out and the results are shown in Table 2.

Table 2. Differences between genders

Gender	N	Mean	SD	t	p
Male	53	4.44	.164	-400	.690
Female	40	4.46	.162		

*The mean difference is significant at the .05 level.

According to Table 2, there is no statistically significant difference between genders' perceptions about new trend learning environment. The mean of female students' perceptions on new trend learning environment was 4.46 compared to 4.44 for male, a difference that was found not to be statistically significant (p= .690, p>0.05). Similarly, Rees and Noyes [15] did not find any significant differences between genders' perspectives on the use of mobile phones. However, Broos [16] found significant gender differences towards new communications technology. It in todays world discrimination between different genders is not an ordinary situation. Nowadays, females are working with males in every field. In todays world they are successful as males in using new Technologies.

3.3 Academic performance level differences

As can be seen from the Table 3, there was no significant difference (t=1.382, p>0.05) between the high-level academic performance students (M=4.47, SD=1.143) and the low-level academic performance students (M=4.47, SD=1.180). The study shows both groups of students have similar perceptions on new trend learning environment. The department of general construction, which is related to technologies and follows the fast developments of informatics technology promptly, it was an unexpected outcome to not find enough information about mobile learning which is based on using LMS via mobile phone in education.

Table 3. Differences between academic performance level (GPA)

Academic Performance Level (GPA)	N	Mean	SD	T	p
High-Level (GCPA between 2.00-2.99)	44	4.47	.143	1.382	.143
Low-Level (GCPA between 3.00-4.00)	49	4.43	.180		

*The mean difference is significant at the .05 level.

4. Conclusion

All three departments seem to have positive opinions about new trend learning environment. Based on this result, students want to use the new technologies such as LMS and mobile phones in education for the reason that they see and use the technological devices in everyday life. All of the participants expressed their enjoyment of learning away from the classroom with the help of their mobile devices and LMS. The findings of the study propose a

powerful approach to facilitate the learning process of students through the use of LMS via mobile phone. Consequently, the study supports that using LMS on mobile devices is the learning platform for the future learning environment.

The paper is oriented to any one who is in creating new trend learning environment. The individuals who may be interested in using new technologies (LMS, mobile devices) are teachers, students, and any educational organizations such as universities, schools, and colleges.

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