New Trends and Issues Proceedings on Humanities and Social Sciences

Issue 5 (2016) 38-44

Selected paper of 4th Cyprus International Conference on Educational Research (CYICER-2015) March 19 – 21, 2015, Girne American University in Kyrenia, CYPRUS

Identifying the Collage Student's Perception Level of Mobile Learning

Murat Topaloglu [a] *****, Trakya University, Address, Kesan Yusuf Capraz School of Applied Sciences, 22800 Edirne
Harun Ozkisi [b], Trakya University, Address, Kesan Yusuf Capraz School of Applied Sciences, 22800 Edirne

Suggested Citation:
Topaloglu, M. & Ozkisi, H. (2016). Identifying the Collage Student's Perception Level of Mobile Learning. *New Trends and Issues Proceedings on Humanities and Social Sciences*. [Online]. 05, pp 38-44. Available from: www.prosoc.eu

Selection and peer review under responsibility of Assist. Prof. Dr. Cigdem Hursen, Near East University

Abstract

There have been great improvements in mobile technologies recently. In line with these developments, the use of mobile technologies in web based distance learning seems to be increasing day by day making learning possible via mobile devices. Both the continuous and rapid developments in mobile devices and the growing number of people with mobile phones render these technologies fruitful and actively used in many fields, including education worldwide, inclusive of our own country. Mobile learning is regarded as a reliable distant education tool for learners who wish to continue their education from outside the institutions. The study was conducted to measure the reactions of individuals to the developed mobile applications and give insight to them. The aim of this study is to identify undergraduate students' use and attitudes of/towards mobile learning who are studying at Trakya University Kesan Yusuf Capraz School of Applied Disciplines. Observations were made about the use and the importance of mobile learning in our lives.
Peer-review under responsibility of of the organizing committee of GLOBE-EDU

Keywords: Distant Education; E-Learning; Mobile Devices; Mobile Learning; M-Learning

***** ADDRESS FOR CORRESPONDENCE: **Murat Topaloglu**, Trakya University, Address, Kesan Yusuf Capraz School of Applied Sciences, 22800 Edirne
E-mail address: murattopaloglu@trakya.edu.tr / Tel.: +90-542-5144796

1. Introduction

Mobile learning is the access to the materials supporting individuals' education and developments via mobile devices (Alford, & Ruocc, 2001; Miertschin, & Willis, 2004; Bradley et al., 2005) making the access to information possible whenever and wherever needed. It is important to note that mobile learning is still in developing stage. This process is shaped by certain needs and the future needs will also direct the development process. Mobile learning devices provide users with learning environments without place and time limitations (Kurnaz, 2010).

The rapid changes in technology have resulted in changes in every sphere of life including education (Demirel, 2009) and a number of studies have been conducted regarding mobile learning (Kılınc, 2007; Kingsbury & Lymn, 2008; Canturk, & Baser, 2009; Kennedy, 2007; Cavus, & Ibrahim, 2009).

Those studies include the development of mobile interaction in classrooms (Fujimura & Doi, 2009; Lindquist et al., 2007) and students' access to learning materials independent of time (Cao et al, 2006; Barbosa et al, 2007; Glavinic et al, 2008). The medicine students were provided with mobile learning opportunities (Sommers et al., 2001; Sharples et al., 2002; Kukulska, & Traxler, 2005).

2. Materials and Method

2.1. Sample and Assessment Instruments

Students at Trakya University Kesan Yusuf Capraz School of Applied Disciplines make up the population of the study. The study sample includes 131 undergraduate students. The data were collected in 2014.

The scale used were modified to 5 point Likert(Celik et al., 2014) from "Mobile Learning Adoption Scale" in compliance with the aims of the study based on expert opinion was applied (Celik et al, 2014). Thus, the scoring was done as follows; "Definitely disagree=1", "Disagree=2", "Not sure=3", "Agree=4" and "Definitely agree=5".

2.2. Aim of the Study and Research Model

The aim of this study is to investigate whether students' demographic backgrounds affect the students' perceptions of mobile learning. Thus, descriptive survey method was used as the research model. Descriptive studies depict the circumstances that are being investigated as it is (Karasar, 2013). The demographic information includes the gender, daily internet use, mobile learning background, mobile learning participant information and the date when the students first started mobile learning, all of which make up the research model. Kruskal Wallis tests were used in order to show whether the subdimensions of the scale differ by demographic information and five hypotheses were developed in the scope of the study which are;

H_1= Participants' attitudes towards mobile learning adoption scale sub-dimensions differ by gender.
H_2= Participants' attitudes towards mobile learning adoption scale sub-dimensions differ by daily internet use.
H_3= Participants' attitudes towards mobile learning adoption scale sub-dimensions differ on whether they have experienced mobile learning previously or not.
H_4= Participants' attitudes towards mobile learning adoption scale sub-dimensions differ by knowledge level of mobile learning.
H_5= Participants' attitudes towards mobile learning adoption scale sub-dimensions differ by the date they have started to use mobile learning.

2.3. Data Analysis

The data analysis was done using SPSS 20 software. Frequency distribution was done for the demographic information collected from 131 undergraduates. Then, factor analysis done for the mobile learning adoption scale data. Factor weight was regarded as 0.40 and no questions were excluded from the scale. Only item 12 was recoded as its factor weight was negative on Rotated Component matrix according to the factor analysis results. Four sub-dimensions were identified according to the factor analysis results and reliability analysis was done for those sub-dimensions. Cronbach's Alpha value was found 0.871, which was considered to be a good level.

3. Findings

3.1. Factor and Reliability Analysis

Factor analysis was applied to the data of the scale used in the study after determining whether the data set is fit for factor analysis using KMO and Barlett's test. Kaiser-Meyer-Olkin (KMO) test result was 0.824, which shows that factor analysis is applicable to the data set. As the p value for Barlett's test was 0.00, $p< 0.05$ in other words, the relationship between the variable was sufficient to do the factor analysis.

Table 1: Mobile learning adoption scale factor and reliability analysis results

Factors	Item	Factor Weight	Factor Explanation Rate	Cronbach's Alfa
Benefits of M-Learning (Factor-1)	M3	.741	18.287	.816
	M18	.730		
	M5	.630		
	M17	.563		
	M16	.552		
	M4	.536		
	M15	.460		
	M12-Reverse	.786		
The Use of M-Learning (Factor-2)	M14	.647	16.098	.756
	M13	.626		
	M8	.499		
	M6	.494		
	M7	.465		
The Accessibility of M-Learning (Factor-3)	M9	.772	12.653	.711
	M10	.756		
	M11	.605		
The Importance of M-Learning (Factor-4)	M1	.832	10.335	.718
	M2	.699		

The four factors obtained explain 57.373 percent of the variance.

Table 2. Kolmogorov-Smirnov normal distribution test results (test of normality)

	Factor 1	Factor 2	Factor 3	Factor 4
Kolmogorov-Smirnov Z	.939	1.295	2.098	2.401
Asymp. Sig. (2-tailed)	.341	.070	.000	.000

H_0= Mobile Learning Adoption Scale sub-dimensions have a normal distribution.

As shown in the table, by acknowledging p>0.05, H_0 hypothesis is also accepted. That is, the sub-dimensions of the scale have a normal distribution. The applications of parametric tests were found accurate.

3.2. Testing the Differences in Mobile Learning Adoption Scale Sub-dimensions by Gender

T-test was used in order to identify the differences by gender of the participants. The difference test results are shown in Table 3.

Table 3. T-test results by gender

	Levene's Test	T-test		
	Sig.	Sig.	Mean Difference	Std. Error Difference
Factor 1	.45	.143	-.18275	.12388
Factor 2	.004	.506	-.05520	.08286
Factor 3	.217	.557	-.08116	.13773
Factor 4	.012	.861	-.02549	.14527

As p>0.05, there is no significant difference between gender and the factors.

3.3. Testing the Differences in Mobile Learning Adoption Scale Sub-dimensions by Daily Internet Use

Anova test was used in order to identify the differences by daily Internet use. According to Levene test results, all of the factors were found suitable for the Anova test.

Table 4. Anova test results by daily Internet use

	F	Sig.
Factor – 1	1.198	.315
Factor – 2	0.738	.568
Factor – 3	0.589	.671
Factor – 4	1.886	.117

According to test results, no significant difference was found against any of the factors.

3.4. Testing the Differences in Mobile Learning Adoption Scale Sub-dimensions by Participants' Familiarity with Mobile Learning

T-test was used in order to identify the differences by participants' familiarity with mobile learning.

Table 5. T-test results for participants' familiarity with mobile learning

	F	Sig.
Factor – 1	2.099	.150
Factor – 2	1.010	.317
Factor – 3	0.103	.749
Factor – 4	3.474	.065

According to test results, no significant difference was found for any of the factors.

3.5. Testing the Differences in Mobile Learning Adoption Scale Sub-dimensions by Participants' Knowledge Level of Mobile Learning

Anova test was used in order to identify the differences by participants' knowledge level of mobile learning.

As the result for Factor 3 was $p<0.05$ in Test of Homogeneity of Variances, the requirement for Anova was not met.

Table 6. Anova test results for participants' knowledge level of mobile learning

	F	Sig.
Factor – 1	6.967	.000
Factor – 2	4.824	.000
Factor – 3	4.762	.001
Factor – 4	5.513	.000

Welch and Brown – Forsythe test was applied for Factor 3. When we look at Table 6, as $p<0.05$, there is a significant difference for all factors.

3.6. Testing the Differences in Mobile Learning Adoption Scale Sub-dimensions by the Date the Participants Have Started to Use Mobile Learning materials.

Anova test was used to identify the differences by the date the participants have started to use mobile learning.

As the result for Factor 2 was $p<0.05$ in Test of Homogeneity of Variances, the requirement for Anova was not met. Welch and Brown-Forsythe tests were applied to Factor 2.

Table 7. Anova test results for the date the participants have started mobile learning.

	F	Sig.
Factor – 1	2.481	.047
Factor – 2	3.521	.002
Factor – 3	1.789	.135
Factor – 4	3.423	.011

When we look at Table 7, as $p<0.05$, there is a significant difference for Factor 1, 2 and 4 while significance is found in Factor 3 as $p>0.05$.

4. Conclusion

According to the results of the study, it was found that Mobile Learning Adoption Scale Sub-dimensions do not show a meaningful difference by age, daily Internet use and familiarity with mobile learning. However, there are differences in participants' attitudes towards all of the sub-dimensions about mobile learning.

These values are as follows:

- I have no idea about mobile learning;
- I think mobile devices are useful;
- I will try to learn it;
- I think I can get information from mobile devices;
- I find the information I need using mobile devices;
- I think mobile devices are going to be useful.

With regard to the date the participants have started to use mobile learning, no significant difference was found only for Factor 3 among the attitudes for all sub-dimensions. After those difference tests, chi-square test was utilised to determine whether there is dependence between the items or not.

Chi-square independence test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories. The statement, which was designed to obtain demographic information, "Have you ever heard of m-learning before?" is a yes-no question. This information can be compared to the statements, "participant information for m-learning" and "the date a participant has started to use m-learning". This information is valuable as it provides feedback for the scale. The following hypotheses will be tested accordingly.

If the statements, "Have you ever heard of m-learning before?" and "participant information for m-learning" are compared.

If Pearson chi-square test statistic p value is below 0.05 and the variables will be dependent.

If the statements, "Have you ever heard of m-learning before?" and "the date a participant has started to use m-learning" are compared.

If Pearson chi-square test statistic p value is above 0.05 and the variables will be independent.

References

Alford, K. L. & Ruocc, A. S. (2001). Integrating personal digital assistants (PDAs) into a computer science curriculum. *In Frontiers in Education Conference, 2001. 31st Annual* (Vol. 2, pp. F1C-F19). IEEE.

Barbosa, J., Hahn, R., Barbosa, D. N. & Geyer, C. F. (2007). Mobile and ubiquitous computing in an innovative undergraduate course*. In ACM SIGCSE Bulletin* (Vol. 39, No. 1, pp. 379-383). ACM.

Bradley, C., Haynes, R. & Boyle, T. (2005). Adult multimedia learning with PDAs-the user experience. *World*, 25, 28.

Canturk G., B. & Baser, N. (2009). Students', Teachers' and faculty members' opinions about problem based learning. *Necatibey Faculty of Education, Electronic Journal of Science and Mathematics Education*, *3*(1).

Cao, Y., Tin, T., McGreal, R., Ally, M. & Coffey, S. (2006). The Athabasca University mobile library project: increasing the boundaries of anytime and anywhere learning for students. *In Proceedings of*

the 2006 international conference on Wireless communications and mobile computing (p. 1289-1294). ACM.

Cavus, N. & Ibrahim, D. (2009). M-Learning: An experiment in using SMS to support learning new English language words. *British Journal of Educational Technology*, 40(1), 78-91.

Celik, I., Sahin, I. & Aydin, M. (2014). Reliability and Validity Study of the Mobile Learning Adoption Scale Developed Based on the Diffusion of Innovations Theory. *Online Submission,* 2(4), 300-316.

Demirel, M. (2009). Yasam boyu ogrenme ve teknoloji. *In 9th Internatıonal Educational Technology Conference,* Ankara, Turkey

Fujimura, N. & Doi, M. (2006). Collecting students' degree of comprehension with mobile phones. *In Proceedings of the 34th annual ACM SIGUCCS fall conference: expanding the boundaries* (123-127). ACM.

Glavinic, V., Rosic, M. & Zelic, M. (2008). Analysis of an Agent-based m-Learning System. *In Electrotechnical Conference*, The 14th IEEE Mediterranean (pp. 280-285). IEEE.

Karasar, N. (2013). Bilimsel Arastırma Yontemi. *Ankara: Nobel Yayın Evi.*

Kennedy, S. J. (2007). Learning and transfer compared in two teaching methods: online problem-based learning and the traditional lecture method. *Capella University.*

Kılınc, A. (2007). Probleme dayalı ogrenme. *Kastamonu Egitim Dergisi*, *15*(2), 561-578.

Kingsbury, M. P. & Lymn, J. S. (2008). Problem-based learning and larger student groups: mutually exclusive or compatible concepts–a pilot study. *BMC Medical Education*, *8*(1), 35.

Kukulska H., A. & Traxler, J. (2005). Mobile learning: A handbook for educators and trainers. *Psychology Press.*

Kurnaz H. (2010). The function of mobile learning on students. *Sakarya University, Institute of Social Sciences, MSc Thesis.*

Lindquist, D., Denning, T., Kelly, M. Malani, R., Griswold, W. G. & Simon, B. (2007). Exploring the potential of mobile phones for active learning in the classroom. *ACM SIGCSE Bulletin*, *39*(1), 384-388.

Miertschin, S. L. & Willis, C. L. (2004). Mobile computing in the freshman computer literacy course what impact?. *In Proceedings of the 5th Conference on information Technology Education* (149-152). ACM.

Sharples, M., Corlett, D. & Westmancott, O. (2002). The design and implementation of a mobile learning resource. *Personal and Ubiquitous Computing*, *6*(3), 220-234.

Sommers, K., Hesler, J. & Bostick, J. (2001). *Little guys make a big splash: PDA projects at Virginia Commonwealth University*. *In Proceedings of the 29th annual ACM SIGUCCS conference on User services* (pp. 190-193). ACM.