Original scientific paper

UDK: 37.091.21:004.382.73/.77(564.3-17)"2020/2021"

Received: March, 18.2022.
Revised: June, 23.2022.
Accepted: July, 26.2022.

doi: 10.23947/2334-8496-2022-10-2-121-132

Investigation of Prospective Teachers' Use of Mobile Technologies in Teaching Activities

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Abstract: The purpose of this research is to examine the pre-service teachers' use of mobile technologies in teaching activities. In this study, the survey method, one of the research methods, was used. The 199 prospective teachers studying at the Faculty of Education, a private university in Northern Cyprus, were included in the workgroup of the research. The 5-point Likert-type scales were used to measure the frequencies of using mobile technologies in instructional activities, motivation, and attitudes towards mobile technologies, competencies in mobile technology use, and its social effects. It was found that social factors had the lowest effect on the use of mobile technologies. Additionally, no gender-based difference was found in the mobile use frequency, motivation, attitude, competency, and social impact of prospective teachers. Moreover, the frequency, motivation, attitudes, competency, and social impact levels of students from the Department of Computer and Instructional Technologies are significantly higher than those departments from Guidance and Psychological Counselling, Special Education, Music Teaching, Elementary School Mathematics Teacher Education, Department of Pre-School Teaching, Classroom Teaching Department, Social Sciences Teacher Education, Turkish Language Teaching. It was concluded that having problems for mobile learning activities that can be used in the scope of mobile learning significantly influences the frequency of use, motivation, attitude, competency, and social impact of the students. Along with this, it was found that the following factors, given in order of importance, are influential on the frequency of the use of mobile technologies by prospective teachers in instructional activities: motivation, attitude, competency, and social impact.

Keywords: prospective teachers, mobile technologies, learning activities, pre-services teachers.

Introduction

Technology, in today's world, continues to develop rapidly become an indispensable aspect for people, and gained an important place in people's lives (Geng, Tan and Yang, 2021). Today, one of the important factors in the widespread use of portable and wireless smartphones and tablet PCs (Sung, Chang and Liu, 2016) is that they are everywhere with people (Georgiev, Georgieva and Smrikarov, 2004). In parallel to this increase, there is also a raise in the context of educational settings. That is why; technology has earned its place in education. Government-funded projects supporting technological content have been realized and schools started to have technological infrastructures. Thanks to mobile devices, students can have access to information at any given place, time (Goundar 2011) and this helps them to develop problem-solving skills and increase learner autonomy (Hakim, Asikin and Nurcahyono, 2021; Cavuş and Uzunboylu, 2009).

When the definitions suggested in the literature for mobile learning are reviewed, Stone (2004) defined the term as e-learning taking place through devices that have Internet connection features. According to the definition suggested by Georgieva, Smrikarov, and Georgiev (2004), it is the use of devices, which can enable interaction without time and space limitations between the instructor and the students, for educational purposes. In addition, Georgiev et al. (2004) put forward that mobile learning is not a new concept and that it is a relatively new concept for e-learning and distance education. It was stated that mobile learning devices have a positive influence on both in-class and outside-the-classroom

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learning activities (Çelik, 2013). The case of using mobile technologies as an effective learning tool is obvious. However, there are certain negative sides as well. According to Oberg and Daniels (2013), mobile devices having a smaller screen compared to other technological devices, extra costs such as Internet connection, and difficulty in writing texts are major challenges we are facing.

Looking at the literature, it has been seen that there are studies (Sırakaya, 2019; Şahin, 2019) aiming to reveal the situation of prospective teachers and teachers regarding the use of technology in education. Şahin (2019) conducted a metaphor study to determine the views of teachers on the use of information technology in education. The metaphors that teachers made about technology use were grouped under the themes of "useful tool", "depth, development and change" and "double effect". In the study, it was stated that teachers think that using information technologies in education is most beneficial, but they also point out that it can have devastating effects.

The declaration of a global epidemic by the World Health Organization at the beginning of 2020 and the fact that COVID-19 is a contagious and spreading virus caused many things to change in our lives. It has made technology more involved in our lives. Meetings began to take place via remote connection, and even education and training had their share of it. While non-contact technologies have started to take a full place in our lives, distance education and teaching have started to be implemented especially in schools of many countries. Individuals had to continue their lives away from contact. Therefore, mobile technologies have played an important role in education (Akhigbe, Ogbonnaya and Owolabi, 2021).

In another study, it is understood that pre-service mathematics teachers have positive thoughts about the learning environment supported by mobile learning. Particularly, a significant part of pre-service teachers thinks that m-Learning in university courses will be more beneficial when combined with face-to-face learning. Pre-service teachers found mobile learning necessary and useful; however, it is understood that they think that it is costly because it requires an internet connection and charging facilities. In addition, some prospective teachers state that mobile learning is very economical and cheaper than school (Koparan and Yılmaz, 2020). Gökbulut (2021) found that the perception level of university students towards distance education is moderate. In addition, university students' readiness levels for mobile learning were found to be high. It is among the findings of this research that there is no significant difference between readiness for mobile learning according to gender, age, and education (Gökbulut, 2021).

Based on the assumption that mobile devices will be used more widely in the coming years, it can be said that mobile learning will become much more common. However, in today's conditions, a higher education level is more suitable for mobile learning (Sabah, 2016). University-level students' widespread use of mobile devices and the provision of wireless internet to students in campus environments make higher education advantageous in terms of mobile learning (Cheon et al., 2012). Christensen and Knezek (2017) and Christensen and Knezek (2018) stated that mobile learning readiness should be determined before starting mobile learning. Thus, it is thought that students will be ready for mobile learning. Mobile learning readiness can be expressed as students' readiness and preference to use mobile devices as part of the learning process (Mahat, Ayup and Luan, 2012). Determining students' mobile learning readiness can provide guiding information in terms of the design, development, and implementation of mobile learning (Sirakaya and Sirakaya, 2021).

Attitude is the tendency of an individual to show positive or negative behavior towards a situation or event, and the attitude of individuals towards this innovation is a determining factor in the adoption of an innovation by individuals (Davis, 1989). In other words, students' attitudes towards new technology will positively or negatively affect the effective and efficient use of that technology in the classroom. This situation can be interpreted as the students' attitudes towards mobile learning will be effective in the successful use of mobile learning in education. In the study conducted by Martin and Ertzberger (2013), it was determined that students' attitudes towards mobile learning positively affect their attitudes towards lessons. Similarly, in the experimental research conducted by Hwang and Chang (2011) it was determined that the education performed on mobile learning increased the attitude towards learning.

The situation of teachers or students being able to use mobile technologies can sometimes be due to their not knowing how to use it, and sometimes because they do not have enough economic power to buy efficient mobile technologies. This increases the gap between countries that have these opportunities and those that do not (Korucu et al., 2016). Thus, due to the problems in mobile technologies and internet infrastructure, it affects learning in education, causing a lack of motivation in students and learning attitudes are negatively affected. They will also have limited access to learning materials. Therefore, teachers avoid giving their students assignments that require mobile technologies or learning technologies (Ribble, Bailey and Ross, 2004). Slow internet connection and infrastructure problems prevent students from using mobile technologies frequently. In addition, it has been observed that students use mobile technologies less frequently in learning activities due to misuse or inability to use mobile devices properly.

In some countries, so that students' learning is not affected, guidance counselors have suggested that students who do not have mobile technologies can be loaned tablets, phones or labtops. They also emphasized that online lessons are a necessity for teachers to overcome problems in online learning and increase students' interaction in the lesson and reduce boredom (Lestari, Astuti and Bhakti, 2020). In the study conducted by Dinis da Costa and Araújo (2016) for the European region, they reported that if students access information on the Internet from home, they achieve better results in digital reading than in printed text.

Problem Statement

It is obvious that future teachers will make learning more permanent with the integration of mobile technologies in instructional activities to prepare the youth for the future. Not limiting the students' learning to the school environment and providing them with learning opportunities with out-of-the-school activities can only be realized through mobile learning. Thus, it is crucial to determine the factor influencing prospective teachers' use of mobile technologies in instructional activities to increase the quality of education. Taking this as the starting point, the following problem statement is the focal point of this study: "What is the influence of the frequency of prospective teachers' use of mobile technologies in instructional activities on learning?"

Research Questions

1) According to the gender, department, and having problems (having slow internet connection or infrastructure problems, misuse or inability to use mobile devices properly) for mobile learning activities that can be used in mobile learning, is there a significant difference in the prospective teachers':

a) Frequency of using mobile technologies in learning activities;
b) Motivation towards mobile learning;
c) Attitude towards mobile learning;
d) Competency in using mobile technology;
e) Social impact

2) What are the major factors that influence the frequency of prospective teachers' use of mobile technologies in instructional activities? (Motivation, attitude, mobile technology use competency, social impact)

Aim of the Study

This research was aimed to examine whether there is a significant difference between mobile technology use frequency, attitude, and motivation towards using mobile technology and their competency according to gender, department, and having problems for mobile learning activities that can be used in mobile learning. It was also aimed to investigate the attitudes, motivation, competency, and social impact and its impact on the frequency of using mobile technologies in instructional activities.

Significance of the Study

Technology has a significant place in the developing world. In this regard, the impact of technology on learning is worthy of attention (Yılmaz, 2011). The constantly increasing number of mobile devices makes the role of mobile learning more important. As the future teachers are prospective teachers of today, the investigation of factors, influencing their mobile technology usage frequency is a significant issue.

Materials and Methods

Research Method

The methodology of the current study could be stated as a descriptive survey model. In survey studies, the opinions, abilities, interests, skills, and attitudes of a group of participants about a subject or event are determined. In addition, these studies are generally conducted on larger samples than other studies (Büyüköztürk et al., 2018).

Participants

The main aim of the research is to investigate the most critical factors, which are likely to influence the frequency of using mobile technology for learning activities of the 199 prospective teachers that are studying at the Faculty of Education in a private university during the 2020-2021 fall semester in Northern

Cyprus. The frequency of participants' socio-demographic variables could be indicated in Table 1.

Table 1

Demographic characteristics of the participants

Variables	Group	f	%
Gender	Male	100	50.3
	Female	99	49.7
	Total	199	100.0
Departments	Computer Education and Instructional Technology	16	8.0
	Guidance and Psychological Counselling	29	14.6
	Special Education	34	17.1
	Music Teaching	17	8.5
	Elementary School Mathematics Teacher Education	19	9.5
	Department of Pre-School Teaching	26	13.1
	Classroom Teaching Department	21	10.6
	Social Sciences Teacher Education	18	9.0
	Turkish Language Teaching	19	9.5
	Total	199	100.0
Having problems for Mobile Learning Activities	No	56	28.1
	Yes	143	71.9
	Total	199	100.0

It could be expressed that of those 199 respondents 50.3% were males while 49.7% were female. Moreover, it might be discussed that most of the respondents were studying at Guidance and Psychological Counselling and Pre-school Teaching departments. Furthermore, it could be argued that 31.2% of the respondents were at least 22 years old and 71.9% of the respondents indicated that they have no problems for mobile learning activities.

Data Collection Tool

It could be stressed that Tonga's (2015) Mobile Technologies in Learning Activities Scales were employed to collect data from the prospective teachers by appointing 5-point Likert-type scales. Furthermore, it might be mentioned that Cronbach's alpha test was also conducted to test the reliability of the scales. Findings regarding Cronbach's alpha test for each of the scales were indicated in Table 2.

Table 2

Findings of Cronbach's alpha reliability test

Name of scale	Cronbach's Alpha (α)
Frequency of Mobile Learning	.893
Motivation towards mobile learning	.870
Attitudes towards mobile learning	.883
Competence of using mobile technology	.872
Social Impact	.853

With the light of the Cronbach Alpha test, it could be concluded that the scales are highly reliable to collect data from the respondents.

Data Analysis

SPSS (Statistical Package for Social Sciences 24) software program would be used to analyze data. Moreover, descriptive statistics, independent samples t-test, one-way ANOVA, and lastly multiple regression analysis would be conducted to interpret findings.

Results

Descriptive findings regarding the scales were illustrated in Table 3. As seen in Table 3, in light of the mean scores, it could be argued that factors related to social impact were the least effective for the respondents to use mobile technologies in learning activities. As a result of Kolmogorov-Smirnov (K-S) tests performed on the general totals and sub-categories obtained from the scales, it was understood that all the data were normally distributed (p>.05).

Table 3
Descriptive findings regarding scales

Scale	N	$\bar{X}$	Sd	K-S (p)
Frequency of mobile learning	199	3.29	.590	.256
Motivation towards mobile learning	199	3.73	.622	.156
Attitudes towards mobile learning	199	3.52	.642	.175
Competence of using mobile technology	199	3.62	.783	.350
Social impact	199	3.29	.493	.225

Findings and Interpretations of Independent t-test and One-Way ANOVA Analysis

For the current study, prospective teachers had also examined to determine statistical differences in terms of attitudes towards mobile learning, motivation towards mobile learning competency of using mobile technology, and social impact in the context of some socio-demographic variables such as gender, department, having problems for mobile learning activities.

Table 4
Independent samples t-test findings according to gender

Scale	Gender	N	$\bar{X}$	Sd	Df	t	p
Frequency of Mobile Learning	Female	99	3.21	.530	197	-1.944	.053
	Male	100	3.37	.622			
Motivation towards mobile learning	Female	99	3.64	.629	197	-2.048	.420
	Male	100	3.82	.605			
Attitudes towards mobile learning	Female	99	3.55	.616	197	.820	.413
	Male	100	3.48	.667			
Competency of using mobile technology	Female Male	100	3.64 3.60	.769 .800	197	.354	.723
Social Impact	Female	99	3.21	.789	197	-.698	.486
	Male	100	3.29	.852			

Table 4 exhibits the independent t-test according to gender findings for prospective teachers by considering five scales namely: Frequency of mobile learning, motivation towards mobile learning, attitudes towards mobile learning, competency of using mobile technology, and lastly social impact. It could be indicated that there was no statistical difference among gender and scales (p>.05).

Table 5
Findings of one-way ANOVA analysis according to departments

Scales	Source of Variation	Sum of Squares	Sd	Mean Squares	F	p
Frequency of Mobile Learning	Between Groups	8,769	8	1,096	3,458	,001
	Within Groups	60,237	190	,317		
	Total	69,006	198			
Motivation towards mobile learning	Between Groups	6.365	8	.796	2.150	.330
	Within Groups	70.304	190	.370		
	Total	76.669	198			
Attitudes towards mobile learning	Between Groups	12.563	8	1.570	4.319	.001
	Within Groups	69.085	190	.364		
	Total	81.647	198			
Competency of using mobile technology	Between Groups	24.655	8	3.082	6.042	.001
	Within Groups	96.905	190	.510		
	Total	121.559	198			
Social Impact	Between Groups	13.816	8	1.727	6.144	.001
	Within Groups	53.402	190	.281		
	Total	67.217	198			

Findings revealed that there were no statistical differences among prospective teachers' motivation levels towards mobile learning and their departments ($F(8,190)=2.150$ $p>.001$). However, "One-way ANOVA" results stressed that frequency of mobile learning use of prospective teachers' ($F(8,190)=3.458$ $p<.001$), attitudes of prospective teachers' towards mobile learning ($F(8, 190)= 4.319$ $p<.001$), prospective teachers' competency of using mobile technology ($F(8, 190)= 6.042$ $p<.001$), prospective teacher's social impact of using mobile technology ($F(8, 190)= 6.144$ $p<.001$), and departments were statistically significant (Table 5).

To advance understanding regarding the statistical differences, the Tukey post hoc test was conducted for the current study. Results indicated that there were significant differences between the frequency of mobile learning, attitudes towards mobile learning, competency of using mobile technology, and social impact of using mobile technology in learning activities and the departments of "Computer Education and Instructional Technology", "Classroom Teaching", "Turkish Language Teaching", "Guidance, and Psychological Counselling", and lastly "Pre-School Teaching". In other words, prospective teachers that are studying at Computer Education and Instructional department tend to use mobile technology more frequently, their attitudes towards mobile learning, competency of using mobile technology, social impact were better when compared with other mentioned departments.

The current study also attempted to investigate statistical differences of prospective teachers' in the context of having problems for mobile learning activities in terms of their frequency of mobile learning, motivation towards mobile learning, attitudes towards mobile learning, competency of using mobile technology, and lastly social impact. Findings of independent samples t-test were exhibited in Table 6.

Table 6
Independent samples t-test analysis on having adequate technology for mobile learning activities

Scales	Having problems for Mobile Learning Activities	N	$\bar{X}$	Sd	df	t	p
Frequency of Mobile Learning	No	56	3.03	.805	197	-2.393	.018
	Yes	143	3.34	.815			
Motivation towards mobile learning	No	56	3.46	.611	197	-3.984	.000
	Yes	143	3.84	.595			
Attitudes towards mobile learning	No	56	3.13	.529	197	-5.744	.000
	Yes	143	3.67	.619			
Competency of using mobile technology	No	56	3.15	.730	197	-5.680	.000
	Yes	143	3.80	.727			
Social Impact	No	56	3.04	.530	197	-3.890	.000
	Yes	143	3.39	.574			

(p<.001)

Findings of independent samples t-test stressed that those prospective teachers having problems for mobile learning activities were more frequently using mobile technology in learning activities. They tend to have higher intentions (attitudes) and were more motivated towards mobile learning, had a more social impact on using mobile technology when compared with the prospective students those problems for mobile learning technology. Thus, it could be indicated that prospective teachers are significantly different in the context of having problems for mobile learning activities by relying on their frequency of using mobile technology in learning activities, attitudes towards mobile learning, motivation towards to mobile learning competency of using mobile technology and lastly their social impact (p<.05).

Table 7
Multiple Regression Findings of Frequency of Using Mobile Learning Technology on Learning Activities

Variables	B	Standard Error	β	t	p	Zero-Order r	Partial r
Constant	.949	.278		3.417	.001		
Attitude	.341	.068	.355	5.035	.000	.469	.346
Motivation	.012	.067	.012	.176	.860	.279	.013
Competency	.157	.052	.203	3.033	.003	.387	.217
Social Impact	.265	.078	.213	3.377	.001	.326	.240
R=0.564	R^2 =0.318						
$F_{(4-186)}$=21.690	p=0.000						

p<.001.

As previously mentioned, multiple regression analysis was employed to test how the frequency of using mobile technology in learning activities are linked with attitudes on mobile technology, motivation towards mobile learning, competency of using mobile technology, and social impact of mobile learning are related to each other. Findings of multiple regression analysis revealed there was a significant relationship (R=0.564, R^2=0.318) among motivation towards mobile learning, attitudes toward mobile learning, competency in using mobile technology, and the social impact of using mobile technology. Moreover, it could be discussed that 31.8% of the variation in the frequency of using mobile technology in learning

activities is explained by four independent variables (Motivation towards mobile learning, attitudes towards mobile learning, competency of using mobile technology, the social impact of using mobile technology (Table 7).

In the light of the standardized regression coefficients (β) order of importance of predictor variables may be expressed as attitudes (β=0.355), social impact (β=0.213), competency (β=0.203), and motivation (β=0.012).

Moreover, when the significance tests of the regression coefficients are examined, it is concluded that the variables of attitude ($p < 0.001$), social impact ($p < 0.01$), and competency of using mobile technology ($p < 0.01$) are statistically significant predictors for frequency of using mobile technology in learning activities.

Aside from these, the current study also aimed to investigate the correlation among predictor variables and the frequency of using mobile technology. Correlation among attitude of using and frequency of using mobile technology on mobile learning could be expressed as (R=0.469) while correlation among social impact towards to use and frequency of using mobile technology in learning activities might be indicated as (R=0.326) whereas correlation among motivation towards to use and frequency of using mobile technology in learning activities could be stressed as (R=0.279). Multiple Regression Equation with regard to frequency of using mobile technology in learning technology could be stated as follows:

Frequency of using mobile learning technology on mobile learning activities= (0.341* Attitude) + (0.012*Motivation) + (0.157* Competency of using mobile technology) + (0.265* Social Impact) + (0.949)

In addition, it was concluded that the frequency of using mobile technology in learning activities of pre-service teachers was affected by their attitudes towards mobile technology use, social impact, their competence in using mobile technology and their motivation to use this technology.

Discussion

It can be said that there is no statistically significant difference between the scales of "Frequency of Mobile Learning", "Motivation towards mobile learning", "Attitudes towards mobile learning", "Competency of using mobile technology", "Social Impact" and gender. Results of independent samples t-test analysis were congruent with the findings of Şad and Nalçacı (2015), Yavuz and Dönmez (2014) whereas, independent samples t-test results of the study were not consistent with the findings of Akgül, Küpeli and Kır (2015), Yılmaz (2011) and Menzi, Çalışkan and Çetin (2012). When the studies on the difference between mobile learning and gender are examined, it is found that there is no significant difference between male and female university students in support of the research finding (Elçiçek and Karal, 2019; Korucu, Ertuğrul and Çoklar, 2019). But in the past, there were also studies in which men's use of mobile technology was significantly better than women's (Ozdamli, Soykan and Yildiz, 2013).

Findings revealed that there were no statistical differences among prospective teachers' motivation levels toward mobile learning and their departments. Results indicated that there were significant differences between the frequency of mobile learning, attitudes towards mobile learning, competency of using mobile technology, and social impact of using mobile technology in learning activities and departments. In other words, prospective teachers that are studying in Computer Education and Instructional department tend to use mobile technology more frequently, their attitudes towards mobile learning, competency of using mobile technology, social impact were better when compared with other mentioned departments. Moreover, the findings of the current study which related to departments and competency of using mobile technology were not congruent with the findings of Usta and Korkmaz (2010).

It could be indicated that prospective teachers are significantly different in the context of having problems for mobile learning activities by relying on their frequency of using mobile technology in learning activities, attitudes towards mobile learning, motivation towards to mobile learning competency of using mobile technology and lastly their social impact. In the findings obtained as a result of another research, positive attitudes were stated in the academic success and mobile learning attitudes of the students (Elçiçek and Bahçeci, 2017).

Moreover, it could be discussed nearly thirty-two percent of the variation in the frequency of using mobile technology in learning activities is explained by four independent variables (Motivation towards mobile learning, attitudes toward mobile learning, competency of using mobile technology, and the social impact of using mobile technology). In addition, it was concluded that the frequency of using mobile technology in learning activities of pre-service teachers was affected by their attitudes towards mobile technology use, social impact, their competence in using mobile technology and their motivation to use this technology. In another study, it was found that the tendencies toward the use of technology in the course had a positive, moderately significant relationship on the independent variable attitude towards

mobile learning (Uyar and Karakuyu, 2019). It has been found that the structures that makeup students' attitudes towards mobile learning predict twenty-two percent of the variance in attitudes towards learning (Tuncer and Dikmen, 2020).

Theoretical and practical implications

Theoretical Implication

A theoretical meaning of this study is how effective the determined factors (Frequency of mobile learning, motivation towards mobile learning, attitudes towards mobile learning, competency of using mobile technology, and lastly social impact) are on pre-service teachers' use of mobile technologies during learning activities. With the use of mobile devices in learning activities by teachers, students' success in lessons will increase. By determining the frequency of use of mobile devices for learning activities by pre-service teachers, it was tested how the frequency of using mobile technology in learning activities is related to their attitude towards mobile technology, motivation towards mobile learning, competency in using mobile technology and the social impact of mobile learning. Thus, the gap in the literature was tried to be partially filled with this research.

Practical Implication

Considering that Mobile Learning activities will increase the interaction between teachers and students, with the rapid spread of mobile technologies in both classroom applications and distance learning environments, the research trend in mobile technologies and mobile learning has increased rapidly and attracted academic research in this field. In this study, the frequency of use of mobile learning teaching activities is suggested as an important variable. It was also emphasized in this research that the variables of attitude towards mobile technology, motivation towards mobile learning, competency in using mobile technology and social impact are important predictors for the frequency of use of mobile learning and teaching activities. For this reason, if pre-service teachers in education faculties are asked to use mobile technologies more in their teaching activities, then their attitudes, motivation, competencies and social impact perceptions (environment, image acquisition in the environment, peer influence) should be increased.

Limitations of the study

A limitation of this study is that while all teachers have mobile technologies, some teachers encountered problems when using these technologies in their learning activities (having slow internet connection or infrastructure problems, misuse or inability to use mobile devices properly). Therefore, considering the variables of the research, prospective teachers who never used mobile technologies in learning activities or did not have mobile technologies were not included in the study.

Conclusion and Recommendations

In this study, pre-service teachers' frequency of using mobile technology in learning activities, their attitudes towards mobile learning, their motivation for mobile learning, their ability to use mobile technology, and finally their social impact levels are similar according to gender. However, it can be said that computer-related departments are better than other departments or those who have no problems for mobile learning are better in these variables. Furthermore, this study revealed that prospective teachers' motivation and attitudes towards using mobile technology for learning activities, their competency, and social impact on mobile learning are critical factors that are shaping their frequency of using mobile technology for mobile learning activities. Besides these results, it is also argued that prospective teachers are statistically different in the context of have no problems for mobile learning activities in terms of their frequency of using mobile technology in learning activities, attitudes towards mobile learning, motivation towards mobile learning, social effect, and lastly their competency in using mobile technology. To be more accurate, findings concluded that prospective teachers having no problems for mobile learning activities are more frequently using mobile technology in learning activities, tend to have higher intentions (attitudes) and more motivated towards mobile learning and are more talented in using mobile technology when compared with the prospective students that have problems for mobile learning technology. Thus in the light of these findings, it is suggested that the necessary incentives should be provided by the governing bodies or on the basis of the state to equip classrooms with adequate technology to accelerate mobile learning activities for boundless education. Needless to state, education via mobile learning technologies

would become more popular in the coming years. Thus, academicians and teachers are recommended to disseminate interactive course contents, which will be more compatible with mobile learning. Lastly, for the further related studies, it is advised to the researchers to conduct their studies with experimental and control groups and employ case studies to create deep perspectives on the effectiveness of using mobile learning technologies for learning activities.

Acknowledgements

Authors would like to express their thanks to their universities, all reviewers working seriously in the process of publishing preferring IJCRSEE to make their articles published.

Conflict of interests

The author declares no conflict of interest.

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