

The Obstacles that Hinder the Use of Mobile Learning Applications among Fourth Grade University Students in the College of Education at the University of Baghdad

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This study aims to identify the degree of use of mobile learning applications among the fourth grade students in Baghdad University and the obstacles to their use. The researcher used the descriptive method to conduct the study. The study sample consisted of (342) students from the College of Education of the Iraqi University in Baghdad, from the fourth grade in distributors in the various departments of the college. They were randomly selected. The researcher designed a questionnaire to collect information from (43) respondents in the first semester of the year 2018 - 2019. The results of the study showed that the degree of use was medium with an average of (3.23), and that the average use rate was also average with an average of (3.15). University laws and regulations prohibit the use of clean appliances ($P = 0.05$) in the rate of use and for the daily use of mobile learning. There were no statistically significant differences at the level ($P = 0.05$) in the other variables studied.

Key words: *Mobile learning, graduate students, degree of use, use constraints.*

Introduction

The Problem

As most students have full knowledge of how to handle mobile devices, this has helped them to start using them in most sectors of education, and in many developed and developing countries alike (Brown, Mbat, & Learning, 2015).

The great development of information technology and the increased use of electronic devices has led to the emergence of a new term in education called mobile learning (Gloria et al., 2016).

One of the reasons for the need to use mobile learning in education processes is the growing growth of mobile devices and the multiplicity of services provided by these devices that can be employed in the field of education. Other causes are the spread of the patterns of distance learning and the community's need for them. It contributes to solve the problem of limited education and helps all groups of society to learn (Tabuenca, Kalz, Drachsler, Specht, & Education, 2015).

With the widespread use of smart devices among Iraqi university students, this paper tries to find an answer to the following question or problem:

- To what extent do mobile techniques and applications serve the process of teaching and learning?

The Aims

This study aims at:

1. Detecting the degree of the use of mobile learning devices by fourth-grade students at the College of Education, University of Baghdad in the educational learning process.
2. Detecting the rate of the use of mobile learning devices by fourth-grade students at the College of Education, University of Baghdad in the educational process of learning.
3. Finding out the obstacles that hinder the use of mobile learning devices by fourth-graders at the University of Baghdad.
4. Investigating the differences among the fourth grade students at the College of Education, University of Baghdad in the use of mobile learning applications attributed to variables (specialisation, age, level of education, gender, and rate of use).

The Hypotheses

It is hypothesised that:

1. Fourth grade students at the College of Education, University of Baghdad commonly use mobile devices in the learning process.
2. Human obstacles had a negative effect on using mobile learning applications.
3. Material obstacles had a negative effect on using mobile learning applications.

The Procedures

In order to achieve the objectives of this study, the researcher put in place the following procedures:

1. A theoretical survey was presented first to describe a number of previous studies related to the subject of the study, and to become acquainted with the educational literature in the field of the use and scope of obstacles to the use of mobile learning applications.
2. The study tool was prepared and presented to a group of arbitrators to verify its sincerity and stability.
3. The researcher identified the society and the sample through reference to the Department of Admission and Registration and the Deanship of Scientific Research and the fourth grade university.
4. The study tool was distributed to a sample of 17(5% of the study sample) students from the fourth grade at the University of Baghdad. This group was excluded from the main study sample.
5. The questionnaire was administered to the sample of the study to be answered in the first semester 2018-2019.
6. The questionnaires were collected and the researcher extracted the data and inserted it into the computer memory and conducted the necessary analysis.

The Limits

- a. The study will limit itself to investigate the obstacles that hinder the use of mobile learning applications by the fourth grade students at the Faculty of Education at the University of Baghdad.
- b. The study was applied in the first semester of the academic year 2018 - 2019.
- c. The results of this study are determined by the validity and consistency of the study tool.

The Value

This study will shed some useful light upon the use of mobile learning applications in the learning process and find out the obstacles that hinder such use. In addition, it is hoped that the results of this study can prove to be beneficial to both teachers and learners in developing educational processes.

Historical Background

Introduction

This era is characterised by rapid changes resulting from the progress of science and technology and information technology, so it is necessary for the educational system to keep up with these changes to address the problems that may result, such as the abundance of information, and increase the number of learners and lack of teachers and distance (Al-Emran, Elsherif, & Shaalan, 2016). These changes led to the emergence of many patterns and methods of teaching and learning, especially with the advent of the technological revolution in information technology, which made the world a small village, which led to increased need to exchange experiences with others and the learner's need for rich multi-source environments for self-research and development. Of new methods, ways and means of teaching and learning, including the emergence of e-learning (Alrasheedi & Capretz, 2018). E-learning is one of the most important modern learning methods, because it helps solve the problem of the great explosion of knowledge that occurred with the emergence of the communications revolution, the increasing demand for education, the interactive multimedia environment to achieve educational goals, and the delivery of educational content to learners in voice, Consider temporal and spatial barriers (Briz-Ponce, Juanes-Mendez, Garcia-Penalvo, & Pereira, 2016).

The development of ICT (in- circuit test) and the spread of electronic knowledge among school and university students has led to the emergence of new forms of education systems. Over the past decade, computer-based teaching and training tools have emerged mainly and interactively with CD-ROMs and local networks. The concept of e-learning has developed and its tools have been characterised by the use of the Internet. Today, wireless and mobile technologies are being invested in particular to introduce a new concept, Mobile Learning Systems (Barhoumi, 2015).

Many sectors of the community have benefited from these services, because they provide significant services in every area of life, such as security, health, economy, communications and politics. The education sector is in no less need than other sectors for mobile services, and ICTs make it possible to develop new forms of learning (Gloria, Oluwadara, & Practice, 2016).

The Concept of Mobile Learning

Mobile learning is defined as "a form of distance learning through the use of small, portable wireless devices such as mobile phones, PDAs (Personal Digital Assistants), smart phones and personal computers to achieve flexibility and interaction in the teaching process, and learning anytime, anywhere (Briz-Ponce et al., 2016).



Mobile learning is also the use of mobile devices in the processes of education, training and job support, and allows supervisors, lecturers and teachers to provide their educational and training materials and professional services on various mobile devices. PC (Pocket Computer) allows students to follow the training exercises and self-learning and career guidance in working through mobile devices.

Mobile learning can also be defined as a form of e-learning, which can happen at any time, anywhere through a mobile device such as a mobile phone, PDA, iPad or laptop Tablet computer or any device from a small portable device.

Another definition of mobile learning is that it provides education and training on PDAs, mobile microphones, mobile devices, smart phones, or mobile phones (Borba et al., 2016). Mobile communication technology is one of the most prevalent forms in mobile learning so that it can provide many services for the whole process. These services include: Internet access, browsing various sites, sending and receiving e-mail, exchange text messages and multimedia messages, run various files and play educational games (Brown et al., 2015).

Mobile education is a real and practical interpretation of the philosophy of distance learning, which is based on broadening educational opportunities for individuals and reducing the cost of education as compared to traditional education systems, as a philosophy that affirms the right of individuals to take advantage of available educational opportunities that are not resected by time, place or in a class of people, where the learner follows his learning according to his ability and energy and his previous skills (C. S. Huang, Yang, Chiang, Su, & Society, 2016).

Mobile Learning Features

There are many mobile learning features that help with their use in the teaching and learning process, some of these are:

1. Improve communication and organisation between the learner and the teacher.
2. Increase the motivation of the learner.
3. Increase the learner's sense of independence.
4. Freedom from time constraints.
5. Freedom from place restrictions.
6. Ability to customise the content to suit the learner.

Mobile technology has become a reliable technique, offering services to the learner, making it accessible to the educational institution and fellow learners from anywhere and at any time.

Because of the multiple services provided by mobile devices and their advanced technologies in learning, many learning institutions around the world have used these techniques in education (McQuiggan, McQuiggan, Sabourin, & Kosturko, 2015).

Services Offered by this Technology Include:

*(SMS) Short Message Service: a service that allows mobile users to exchange text messages between themselves and not to exceed 160 characters.

*(WAP) Wireless Application Protocol: a global standard that includes specific communication standards and rules agreed by a group of companies to help users to access the Internet wirelessly.

*(GPRS) General packet radio service: a technology that allows mobile devices to access the internet at high speed and the possibility of receiving and storing data and files and retrieval.

*(Bluetooth) Bluetooth: a wireless communication technology that connects a set of mobile devices to each other with short-range wireless links.

*(MMS) Multi Media Service: a technology that allows the user to exchange messages with video clips, animations, colour images, or audio.

Types of Mobile Communication Devices

These are the wireless devices that are carried with the learner and accompany him anywhere, and can send and receive phone calls, or text messages or multimedia messages, through access to the internet or any other network, and can also exchange data and files that contain electronic data, or attachments in the form of still images, audio, or videos (Shin, Kang, & Learning, 2015).

These devices can be identified as follows:

1. Mobile Phones: a means of communication based on wireless communication, and can be carried and can roam within a certain area covered by the wireless transmission network.
2. Tablet PC: is a type of computer, almost equal to the size of the palm, which can be carried, uses roaming, and is used to store and review text and multimedia data, and can be used as a desktop computer with all its applications.
3. Laptop: a type of computer, slightly larger than the Tablet PC, that has almost the same features, but the storage capacity may be greater than in the Tablet PC.

4. Personal Digital Assistants (PDAs): portable computers, used to store and organise data, organise personal appointments, create personal task lists, write notes, run text and math programs, play games, read e-books, connect to the Internet and send and review emails (Gloria et al., 2016).

This development led to the rush of learners in the university to acquire mobile devices and deal with them in one way or another, which led to the emergence of the phenomenon of excessive use of these devices, and this in turn led to the question about the usefulness of this use and benefit from it (Reeves, Gunter, Lacey, & Society, 2017).

Methodology and Statistical Processing

Study variables

The variables of the current study are determined as four independent variables, and two dependent variables:

Independent Variables

- a. Specialty, and has three levels: curriculum and teaching, management and pedagogy, psychology and educational guidance.
- b. Age, and has two levels: 22 - less than 30 years, and 30 years or more.
- c. Gender, and has two categories: male, female.
- d. The rate of use of mobile learning applications and has three levels: daily, weekly, and spaced periods (monthly or more).

Dependent Variables

- a. The degree of use of mobile learning applications by fourth-graders at the University of Baghdad.
- b. Obstacles to using mobile learning applications by fourth-graders at Baghdad University.

Population of the Study Sample

The study population consists of all fourth grade students in the College of Education at the Iraqi University in Baghdad. The number of students reached (1134) male and female students, 462 of them were males and 672 were females, according to statistics issued by the Admissions and Registration Department at the Iraqi University in Baghdad for the first semester of 2018 -2019.

The sample of the study consisted of (342) students who were selected by random class method from different departments in the Faculty of Education during the first semester of 2018-2019. Table (1) shows the distribution of the sample members by age, social status, and employment rate.

Table 1: Distribution of the sample of the study sample of the fourth grade students according to independent variables

Variable		Repeat	%
Specialty	Curriculum and Instruction	150	%43.80
	Counselling and educational psychology	148	%43.20
	Management and pedagogy	44	%13.00
	Total	342	%100
age	22-30	201	%58.80
	>30	141	%41.20
	Total	342	%100
sex	male	144	%42.10
	Female	198	%57.90
	Total	342	%100
Use of mobile e-learning applications	Daily	186	%54.40
	Weekly	84	%24.60
	More than a month	72	%21.00
	Total	342	%100

Study Tool

Based on a review of educational literature and previous studies, the researcher prepared a questionnaire to collect data from fourth grade students at the Iraqi University in Baghdad in order to achieve the objectives of the study.

This study consisted of three parts:

The first part includes personal data about the participants of the study questions: specialisation, age, level of education, gender, and also a question about the rate of use of mobile learning applications by the learner, by marking the time period in which these applications are used: Daily, weekly, and spaced intervals.

The second part includes (17) phrases dealing with the areas of use of mobile learning applications among the fourth grade students at the University of Baghdad.

The third part includes (19) phrases dealing with the obstacles facing the fourth grade students at the Iraqi University in Baghdad in the use of mobile learning applications. The

researcher used the Likert pentagram to answer the tool's questions with respect to the degree of use: very large, large, medium, few, very few. As for the impediments section, the five-dimensional Likert scale was also used: strongly agree, agree, neutral, oppose, strongly oppose.

The questionnaire was presented to a group of expert arbitrators of university professors. The arbitrators committee consisted of (12) arbitrators, who were asked to study the content of the questionnaire, and to give their opinion on the clarity of the sentences, the accuracy of their wording, the extent of its content, the comprehensiveness, relevance and association of the paragraphs to the part followed, and any suggestions or additions to paragraphs or parts as a whole. The correlation coefficient of the scale was obtained by extracting the correlation coefficient for each of the scales. The total correlation coefficient of the scale reached (0.83).

Stability of the Tool

To ensure the stability of the tool, the researcher distributed the study tool on a sample of 17 (5% of the study sample) students from the fourth grade of the University of Baghdad. This group was excluded from the main study sample. The stability of the tool was calculated using the internal consistency method (0.81) and (0.84). This means that the questionnaire has a high degree of stability for its application. The purpose behind this procedure is to ascertain the internal consistency of the tool.

Statistical Processing

The researcher analysed the data collected using the statistical program (SPSS). The arithmetical averages and the standard deviations were calculated for the students' estimations for each of the paragraphs of the tool. The instrument's paragraphs were arranged according to the arithmetic averages in descending order. Also one -Way ANOVA (Analysis of variance) was used for the study variables, and the Scheffe test was used for post-comparisons.

The researcher adopted the following measure to judge the degree of use and impediments of mobile learning applications:

*(1 - 2.33) low grade.

*(more than 2.33 - 3.67) medium grade.

*(more than 3.67 - 5) high grade.

Results and Discussion

To answer the question, what is the degree of use of mobile devices by fourth- graders at the University of Baghdad in the process of teaching and learning? the arithmetical averages and standard deviations of the instrument as a whole and for each of the paragraphs of the tool were extracted and arranged according to the arithmetic averages in descending order. Table (2) illustrates these results.

Table 2: The means and standard deviations of the degree of use of mobile learning applications by fourth graders.

	The use of mobile e-learning apps	Mean	STD	Grade
1	I use the internet to get information	4.63	0.66	high
2	I keep the educational information I need on my mobile phone	4.24	0.82	high
3	I am looking at university postgraduate studies	4.21	0.96	high
4	I follow all that is new in my field of specialisation	3.78	0.97	high
5	I submit assignments and follow up on feedback	3.57	1.17	average
6	I follow the scientific news	3.53	0.98	average
7	I use mobile learning applications to access databases and e-books in the library	3.49	1.08	average
8	I schedule appointments, tests and assignments and record courses using mobile learning devices	3.39	1.29	average
9	I use some application programs such as (converter scales, calculator, and dictionaries)	3.28	1.11	average
10	I exchange letters with colleagues in the field of specialisation to inquire about educational matters	3.17	1.21	average
11	I exchange the service of receiving inquiries and answering them with my colleagues in the field of specialisation	3.10	1.15	average
12	I'm getting to know new colleagues in the field of specialisation	3.02	1.31	average

13	I communicate with my teachers to inquire about educational matters	2.81	1.13	average
14	I exchange files and e-books mediated by techniques such as (Bluetooth, WhatsApp)	2.73	1.34	average
15	I am participating in educational forums on the Internet	2.60	1.25	average
16	I buy some educational materials online	1.83	1.07	low
17	I record lectures by voice or video	1.50	0.84	low

Table (2) shows that the arithmetic average of the degree of use of mobile devices by fourth graders at the University of Baghdad on the whole scale reached (3.23) with a standard deviation of 0.55, which is the degree of average use. Also indicated is the increasing interest of learners in mobile devices in education and in the use of the Internet and to see the announcements of the university and everything new in the fields of specialisation, and to communicate with faculty members to inquire about some educational things. This does not live up to what is hoped for, it is up to the use of the intent of mobile learning, still in its infancy, and there are many challenges facing this use, including what is human and related to the provider or the user, including what is material and related to the devices and the technology itself, and this confirms the researcher to urge increased attention in this aspect. The results were consistent with a (Gloria et al., 2016; Picard, 2018) study, which concluded that the use of mobile applications by fourth-grade students at Taibah University in Saudi Arabia was at the level of average.

It is also noted in Table (2) that the arithmetic averages ranged between (4.63-1.50). Paragraph (1), which states that "the use of the Internet for information" is ranked first with an average of 4.63 and a standard deviation of 0.66), with a high degree of use, indicates that it became easy to access the network after the University provided this service to learners at nominal prices. This result was consistent with the (Duman, Orhon, & Gedik, 2015; Heflin, Shewmaker, Nguyen, & Education, 2017) study that many students have recognised the need to use mobile devices to access information on the Internet.

The results also showed that the use of mobile devices in education, in the field of delivery of duties and follow-up feedback, and in the exchange of letters with colleagues in the field of specialisation to inquire about educational things, and to participate in educational forums on

the Internet, came in the order of average, that few faculty members send assignments to learners via their mobile devices, because the experience of e-learning at the Iraqi University in Baghdad is still in its infancy, and that many faculty members do not have the skill to use the technique of sending duties to the learner's devices mobile.

It is also noted in Table (2) that paragraph 16, "I purchase some educational materials through the Internet" and paragraph 17, "I record lectures by voice or video and audio", have received the least use. This may be because online procurement in general is still low in a country such as Iraq, and there is an unreliability in the quality of the purchased items or even in their access to the buyer. This also applies to the purchase of educational materials over the network. With regard to the recording of lectures on video and audio on mobile devices, may be the reason for the decline of the rank obtained is that the laws and regulations of the University prevent such practices, and this may be a kind of confidentiality, and this is also the opinion of most faculty members who prevent most learners from doing recording or photographing lectures.

To answer this question, - what is the average use of mobile devices among fourth grade students at the University of Baghdad in the process of teaching and learning?, the arithmetical averages and standard deviations of the instrument as a whole and each of the paragraphs of the tool were extracted and arranged according to the arithmetic averages in descending order. Table (3) illustrates these results.

Table 3: The mean averages and standard deviations of the rate of mobile devices used by fourth graders of the Iraqi University in Baghdad

Variable	Mean	STD	Grade
Daily	3.36	0.48	average
Weekly	3.24	0.57	average
More than a month	2.87	0.54	average
total	3.15	0.53	average

Table (3) shows that the mean of the mobile application rate in education was (3.15), that the standard deviation was (0.53), and that the average daily use rate was highest with an average of (3.36), while the average weekly use rate was (3.24). The average utilisation rate was calculated at intervals of (monthly and above) at an average of (2.87). The researcher attributed the rate of daily use obtaining the highest rank to the fact that the learners are using these devices everywhere and at any time and even during some of the lectures. This finding was consistent with the (Shin et al., 2015) and (Furio, Juan, Segui, & Vivo, 2015) study.

To answer this question, what are the obstacles to the use of mobile devices among fourth grade students at the University of Baghdad in the process of teaching and learning?, the arithmetical averages and standard deviations of the impediments as a whole and for each of the paragraphs of the tool were extracted and arranged according to the arithmetic averages in descending order. Table (4) illustrates these results:

Table 4: Means and Standard Deviations of the Use of Mobile Devices by Fourth Year Students at the Iraqi University Baghdad

		Obstacles to the use of mobile learning	mean	STD	grade
Human Factors	1	I believe that university laws and regulations prohibit the use of mobile devices during lectures	3.82	1.04	high
	2	Note that university faculty members do not care about mobile learning	3.75	1.11	high
	3	I see that many faculty members are reluctant to photograph and store their lectures for privacy	3.62	1.03	high
	4	I feel that mobile wireless devices adversely affect the health of its user	3.3	1.08	average
	5	My conviction is that mobile devices are distracting to learners during the lecture	3.22	1.23	average
	6	I feel that the use of mobile learning devices causes loss of time	2.54	1.15	average
	7	I do not have time to use mobile learning applications	2.53	1.1	average
	8	Current generation devices do not use technology in their proper use	2.39	1.25	average
	9	I do not believe in the usefulness of employing mobile learning applications in the learning process	2.1	1.03	low
		total	3.03	0.63	average
Financial Factors	10	The high subscription fees and telecom time charges imposed by mobile operators	3.92	1.1	high
	11	Need to charge your device's battery continuously	3.8	1.07	high
	12	Weak confidentiality and the possibility of hacking my information	3.57	1.12	averag

13	Most applications on mobile devices are not compatible with those on desktop computers	3.48	1.03	averag
14	Lack of application programs on mobile devices for use in mobile learning	3.46	1.12	averag
15	Lack of a browser suitable for all types of mobile devices	3.46	1.07	averag
16	My inability to buy an advanced mobile device because of the high prices	3.26	1.26	averag
17	Small screen size limits the amount of information displayed and easy to read	3.21	1.2	averag
18	Difficulty of entering information to the device due to its small keyboard	2.84	1.2	averag
19	There is no Internet connection in the device I own	2.64	1.27	
	total	3.36	0.76	

Table 4 shows that there are human obstacles and material impediments that negatively affect the use of learning applications on mobile learning devices:

First: Human Impediments

Table (4) and from the Department of Human Disabilities show that paragraph (1) "I believe that the University's laws and regulations prohibit the use of mobile devices during the lectures" has obtained a high degree of appreciation and an average of (3.82), followed by paragraph (2) "The lack of activation of faculty members at the University for mobile learning", got an average of (3.75) which is also a high rating. The researcher points out that the laws and regulations of the Iraqi University in Baghdad may prevent the use of mobile devices during the lectures and considers that the use of such devices is a distraction factor for the learner rather than a concentration factor, and that such recordings may be used in the phishing of some teachers and published on the Internet. As for the lack of activation of the faculty members at the University for mobile learning, the researcher believes that many of the faculty members of the university are still in primitive stages of possessing these skills, and the University is currently making great efforts to enrol each member of the faculty intensive courses in e-learning. Regarding how to use the site of the electronic faculty members, where the university dedicated each one of them their own website, such courses are held in the Center for Quality and Academic Development at the University, and this result is compatible with the study of (Briz-Ponce et al., 2016; Brown et al., 2015; Lin, Lin, Yeh, & Wang, 2016; Sarrab, Elbasir, & Alnaeli, 2016; Shin et al., 2015).

The table also shows that there are other human obstacles with a mean score of (3.22) and a standard deviation of (1.23), namely, "I am convinced that mobile devices cause distraction of learners during the lecture." The learner is still not sure that these devices may distract the learner during the lecture, because their use in education is still modern.

This result agreed with (Al-Emran et al., 2016; Y. M. Huang & Chiu, 2015; Pimmer, Mateescu, & GrOhbiel, 2016; So & Education, 2016; Su & Cheng, 2015), which concluded that there are many challenges facing the use of mobile devices in education is a downside of hardware. The researcher pointed out that these devices disperse the ideas of learners and lead to a decrease in concentration. Or the paragraph "I do not believe in the usefulness of employing mobile learning applications in the educational process" came in last place in the paragraphs of human impediments, where it got an average of (2.10), a low rating. This indicates that the learner knows perfectly well that these devices and their use in mobile learning applications are useful, and this result is consistent with the study of (Briz-Ponce, Pereira, Carvalho, Juanes-Mendez, & Garcia-Penalvo, 2017), human impediments and the usage of mobile phones for educational peeresses (Domingo & Gargante, 2016), which found that there was an improvement in students' performances, a better understanding of the concept of mobile learning technology, and also coincided with (Domingo & Gargante, 2016).

This finding contradicted a (Perry, 2015) study, which concluded that learners did not see any improvement in education as a result of the use of mobile learning.

Second: Material Obstacles

Table (4) shows that there are material obstacles that negatively impact the degree of use of mobile learning devices in education. It is evident from the table that paragraph (10), "The high subscription fees and the time of telecommunications imposed by cellular operators." The first is the highest average of (3.92) and a standard deviation of (1.10). This impediment is considered to be an important obstacle for many. The second paragraph in terms of the order was paragraph (11) "the need to charge the battery of the device continuously" and obtained an average of (3.80) and a standard deviation of (1.07), which is a high estimate, and perhaps this problem can be overcome through the presence of electrical abrasions spread throughout the university premises, then the learner can recharge the battery of his mobile device at any time. This result coincided with the results of (Briz-Ponce et al., 2017). Paragraphs (12-19) represented an average score in the responses of the students participating in the study.

Conclusion

The present study focused on the obstacles that hinder the use of mobile learning applications among the fourth grade students at the University of Baghdad.

The most important constraints from the study point of view were the students' lack of confidence that mobile applications might benefit them in their learning processes. The financial expenses of continuous access to the Internet represent a physical burden, so that they are not allowed to use these applications in the areas of learning.

The most important finding in this study was to identify key factors influencing the behavioural intention of users to embrace mobile learning in English learning; Perceived. Advance use of e-learning is not a reliable factor that influences the behavioural intention to adopt mobile learning. This research had many limitations, most of which lead to suggestions for future research. Because of the strict deadline to complete the study, without these limitations, the survey would have been available for a longer period and collected a greater response. Despite these limitations, study participants represented a respectable response rate and there was no indication that a larger sample would have produced different results. The final limitation is a reminder that this research only examines the behavioural intention to embrace mobile learning where research does not measure actual acceptance and use of mobile learning.

Recommendations

In the light of the conclusions reached, the following recommendations could be proposed:

1. Conducting more studies on mobile learning and the attitudes of faculty members and students towards it.
2. Studies concerned with the development and design of special learning programs for mobile learning devices need to be conducted rather than programs that were primarily designed for the library computers and were reduced to suit mobile learning devices.
3. Developing a special course for the teaching of mobile communication technologies so that the learner can make the most of these devices.
4. Conducting workshops for faculty members to train on mobile telecommunications technologies, and how to deal with these techniques by developing and disseminating teaching material to learners, sending and receiving assignments, correcting and feedback.



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