A Mobile Learning Model to Improve the Learning Environment in Iraqi Secondary Schools

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Abstract

Nowadays the use of mobile devices has increased dramatically as they have been integrated into different learning facilities. In this paper, the opinions of high school students and their teachers will be evaluated in order to get a better understanding of how mobile devices are used in the learning environment. A qualitative and quantitative method was used in this study. Multiple cases for the purpose of understanding the level of students' use of these devices in schools. Through the results of this study, it can be determined whether spending on textbooks and supplies is necessary compared to replacing it with technology. This model can be divided into five categories. (MLIS) mobile phone by developing a mobile learning model in Iraqi secondary schools (MLIS). This model can be divided into five categories, including mobile learning, drivers, process, community, and influencing factors. Each of the categories is related to each other, as well as related to planning and goals. However, both students and teachers believe that using mobile devices in an educational setting can help increase overall achievement, improve student motivation, and create a positive learning environment in schools. This study also helps enrich the existing literature on mobile technology in schools, where knowledge is lacking in the Iraqi educational system.

Keywords

Mobile Learning, Learning Environment, IT in Schools.

Introduction

Communication, learning and collaboration in the current society would be difficult without the use of technology (Humble-Thaden, 2013). The education system should find better ways to support its students through technology (Sonego et al., 2016), as adolescent usage of mobile devices are continuously increasing in the educational system (Hoffmann, 2015). Thus, it is critical for teachers to incorporate the use of mobile devices into the formal learning setting (Thackara, 2013).

Although traditionally, mobile learning referred to cell phones, iPod, and laptops (Kitchenham, 2011; Stylianidis, 2015) in the educational setting, some researchers (Ford et al., 2014; Sonego et al., 2016) agree on naming the mobile learning as mLearning, mLearning is actually the combination of mobile technologies with Information and Communication Technologies (ICT) (West & Vosloo, 2013). This interaction is illustrated in Figure 1 (Hashim & Ahmad, 2012; Wang et al., 2009). In addition, mobile learning experiences can only exist within an environment where information is created and consumed.

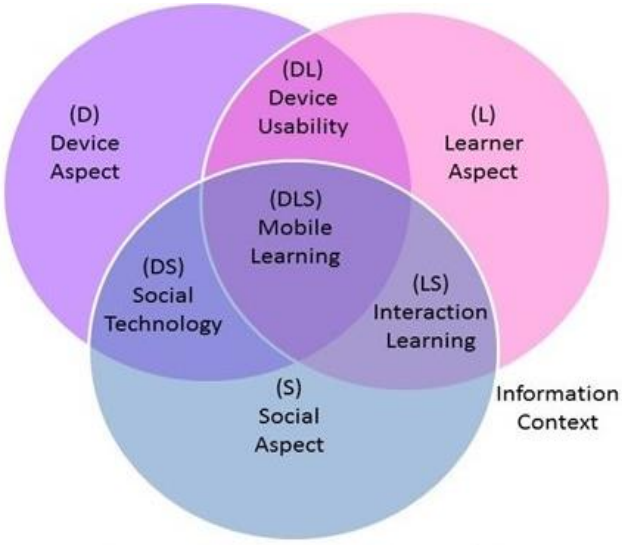

Figure 1 Mobile learning model (Wang et al., 2009)

Some researchers believe that mobile learning is the next step in e-learning, but using a new set of technology (Korucu & Alkan, 2011). On the other hand, some researchers refer to mobile learning as a spontaneous and connected form of learning (Karch, 2015), where

learning tools include media rich, interactive, and multimedia. The evolution and the terminology used with terminology are shown in Table 1 (Kitchenham, 2011).

Different ways of learning are described by researchers (Hassan & Al-Sadi, 2009; Jacob & Issac, 2007a). M-learning is categorized as a form of online learning, meaning that it should be supported by the educational system. Formal learning is divided into three categories, namely, regular classroom learning, distance learning, and online learning. Distance learning can be a combination of both regular classroom learning and online learning, while online learning can combine aspects of e-learning and mobile learning (Figure 2).

Table 1 Comparison between e-learning and m-learning

e-learning	m-learning
Computer	Mobile
Bandwidth	GPRS, G3, Bluetooth
Multimedia	Objects
Interactive	Sponataneous
Hyperlinked	Connected
Collaborative	Networked
Media-rich	Lightweight
Distance learning	Situated learning
More formal	Informal
Simulated situation	Realistic situation
Hyberlearning	Constructivisim, situationisim, collaborative

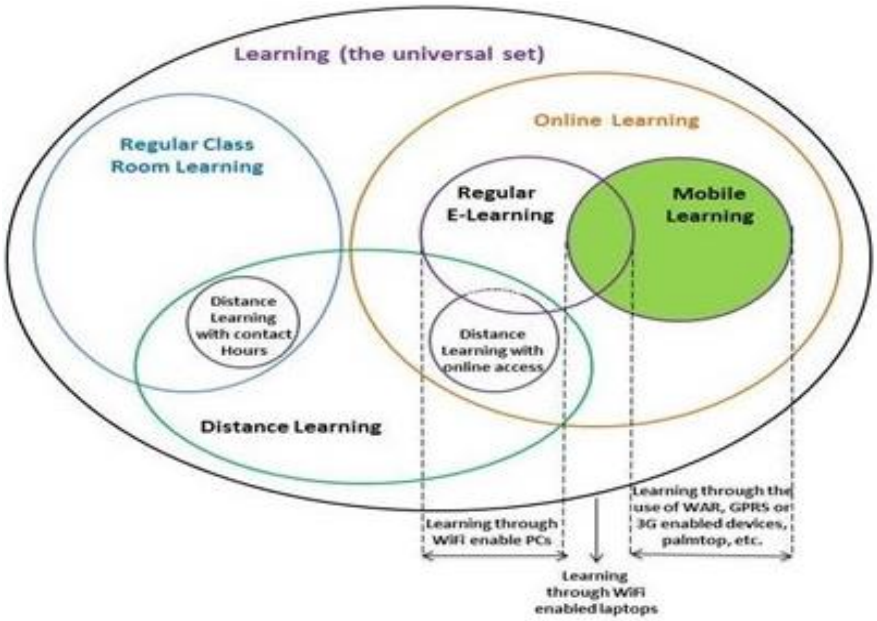

Figure 2 The relationship diagram that shows different learning approaches[13]

Today's form of mobile learning is described by many scholars as an expansion of digital learning and should be applied to the education system (Jiugen & Ruonan, 2016). M-learning offers many advantages to students, including the flexibility of transportation of the device, the use of camera, notepad, phone, email, internet, video and music players, and the relatively affordable price compared to more traditional technologies, such as a laptop (Ofcom, 2015). The use of mobile devices allows students to keep information on one device, instead of having to purchase several devices.

However, a major challenge of using mobile devices in the education system is trying to remain up-to-date with the latest technology in a rapidly developing sector. It is also difficult for teachers to integrate mobile devices into the curriculum in such a way that meets all the students' needs. Other disadvantages or challenges include the software, text size, and content that is specifically chosen for the mobile device. For example, content may be chosen based on the specific intended use. Others also note that mobile devices can have detrimental effects on students, such as fatigue, headaches, decreased concentration, and cell phones may also emit radiation (Goswami & Singh, 2016; Karch, 2015; Kitchenham, 2011; Ofcom, 2015). In 2015, UNESCO published a paper called "Education for Global Citizenship: preparing students for the challenges of the twenty-first century", where UNESCO proposed various ideas to transform educational practices to resolve global issues (UNESCO, 1960). UNESCO advocated the idea of using innovative educational practices and technologies in the school setting, including the use of mobile learning, as an aid in student learning that is consistent with the practices of the 21st century (Ota & De Araujo, 2016).

Methodology

A mixed method approach was used in this study. For the quantitative method, a questionnaire was used to collect data to determine the students' and teachers' perceptions. For the qualitative method, interviews were conducted with experienced teachers and key leaders in the educational system. In line with some researcher (Aldulaimi et al., 2018; Kadhim, 2015; Ota & De Araujo, 2016) the data collected was analysed to form associations using statistical methods. This study is comprised of four parts: (1) preliminary study, (2) research approach, (3) literature review, and (4) implementation. The six implementation steps include the conceptual proposed model, the development of the research tools, the adoption of the specific plan, designing of the actual MLIS model, the acceptance model and the adoption actual MILIS model. This is depicted in figure 3. The purpose of the literature review is to review previous research on m-learning in the high school setting. These studies will be used to describe the issues and interrelationships between knowledge, arguments, and themes, so that an appropriate model can be created.

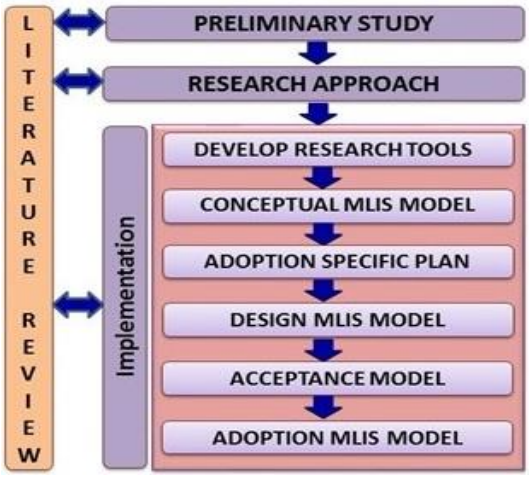

Figure 3 The methodology of research

Overview of the Mlis Proposed Model

Although several researchers (Hashim & Ahmad, 2012; Hassan & Al-Sadi, 2009) have created m-learning models, there is an absence of lack of components. These components may be relevant in the Iraqi education system. Currently, Iraqi high schools are not set up for collaboration, making learning and knowledge an exception, instead of the standard. The Iraqi education system remains in a challenging situation, regardless of the recent efforts to transform the education system into something more efficient and effective (Jacob & Issac, 2007b; Kadhim, 2015; Rasool et al., 2021; Zhang et al., 2020). As a result, this study will look at the advantages and benefits of the education system by reviewing recent research papers, reports, and books. In addition, this research will evaluate the use of cell phones, e-book readers, tablets, iPods, and laptops in Iraqi high schools. Furthermore, recommendations on the enhancement of the education system will be proposed through a model that uses mobile devices. The proposed model will consist of the following five layers: (1) Place of Mobile Learning, (2) Drivers, (3) Process, (4) Community learning, and (5) Influential Factors. Each of these layers is composed of some components that also work at each layer. Each layer is also associated with the other layers.

Mobile learning layer: Prior to implementing mobile learning, it is important that the students' parents be informed. This will strengthen cooperation between parents and the school and allow parents to be involved in mobile learning ideas. In addition to informing parents, teachers also need to inform mentors and superintendents, while being an advocate for mobile learning for students. Administrators are critical to the success of mobile learning, so they should also be informed. Such a project should be made flexible, as it is being built within an uncertain environment.

Driver's layer: It is critical that curriculum-based content be built into the project. Content for mobile learning should include video, audio, and animations. Both teachers and students can be the creators of the content instead of depending on external content. The integration of mobile devices and other current teaching strategies, such as role-playing, podcasts, and storytelling, can be excellent tools for creativity and creation. The infrastructure of mobile learning also needs to be aligned with the school environment. For example, as internet of Wi-Fi connection can be fairly expensive, a school ICT plan needs to be implemented that is a match with the school environment. The content of the curriculum should also be applicable to real life situations. The main feature of mobile learning is providing both students and teachers flexibility. Access to information and knowledge is also made easier and convenient with mobile devices.

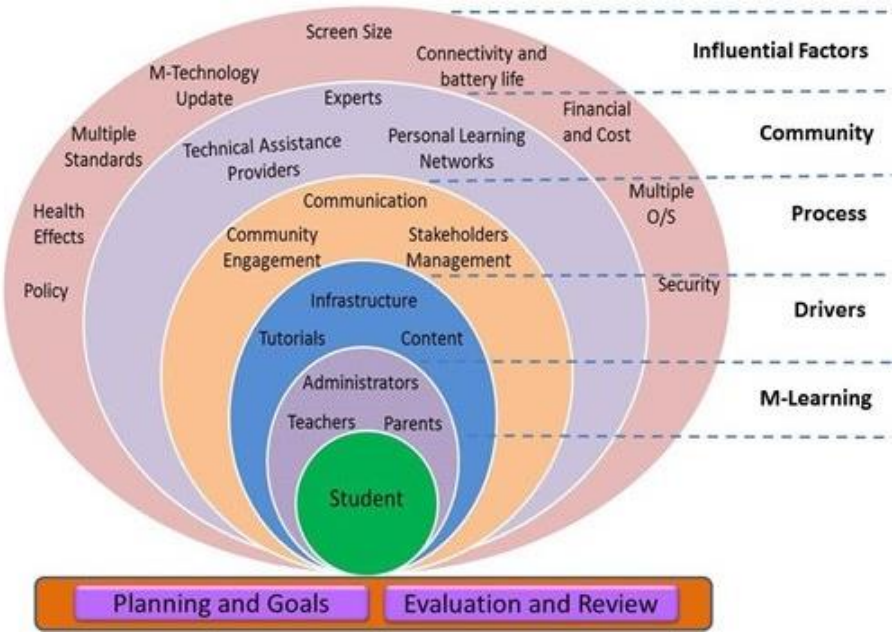

Figure 4 The MLIS model

Process layer: For a digital project to be successful, communication to team members, stakeholders, and the community is critical. In some rural environments, it may be expensive and difficult to install internet. However, internet can be installed in schools through local Wi-Fi. It is also important for involve key stakeholders in the community, such as teachers, school management, parents, and the community. To implement new ideas, support is needed from school principals, teachers, and parents. For the mobile learning project to be effectively implemented, stakeholders need to be convinced of the value of mobile learning in schools. In addition, if the mobile learning project has similar interests to those of the stakeholders, successful implementation may be quicker and easier.

Community layer: A Personal Learning Network (PLN) allows the community to be involved and participate in the project. Through the PLN, members can share ideas, learning, and expertise in a variety of ways using different media and tools. An important feature of the PLN is that people within the community are able to share information, such as teaching strategies, issues, and technologies, on a global scale. However, it may take some time to build these global connections.

Influential Factors: This proposed model also includes factors that may influence the use of mobile devices in the school setting, such as policy, health effects, technology updates, screen size, battery life, cost, and security. In addition, this model also allows for multiple layers to be working in parallel. For example, the process layer and the driver's layer may be working simultaneously. This allows for flexibility in the implementation of the MLIS model.

Monitoring and evaluation of the MLIS model is also required to determine if key milestones are met. Communication of decisions, learnings and mistakes are also important. Planning and goals is another important aspect of this model. The goal is to prepare the studying and learning goals of the students, including cognitive learning, and intra- and interpersonal skills. The planning phase should also include the students and individual motivations should be taken into consideration when developing a learning experience that will be successful and effective.

Table 2 Readiness of students to accept the M-learning

Q	Items	Mean	SD
1	If mobile devices were permitted in schools, I would use them to engage in learning activities to solve problems or issues.	4.357	0.744
2	I would use mobile technologies to supplement what I learned in class and to reinforce specific classroom content.	4.285	1.437
3	If mobile devices were permitted in schools, I would use my mobile phone in the classroom, but I don't feel that my teachers would.	2.785	1.050
4	If mobile devices were permitted in schools, I might use my phone for research purposes that require investigating a problem, taking a position, making a decision, and/or seeking out a solution.	3.928	0.6157
5	I would be comfortable learning with the use of my mobile phone either inside or outside the classroom.	4.142	0.662
6	If mobile devices were allowed in schools, I would use my mobile phone outside the classroom to (a) collaborate with others, (b) communicate with others, and/or (c) research problems of personal interest that address specific content areas.	4.500	0.51880
7	If they were allowed in school, my teachers would be more prone to promote, monitor, and model the ethical use of mobile technologies in their classrooms.	3.142	0.363
8	If mobile devices were allowed in school, I would enjoy using my mobile phone in my classes because it promotes creativity and new ways of thinking.	3.35	0.841
9	If my teachers created lessons that encouraged the use of mobile phones, I would enjoy using it outside of the classroom to promote creativity and innovative thinking.	4.21	0.699
10	I feel that my teachers would be more willing to model and facilitate the effective use of current and emerging mobile devices, applications, and programs in their classrooms if mobile phones were allowed in school.	1.71	3.123

Some research states that students prefer less restrictive school settings. In general, students can use mobile devices to supplement their knowledge on class topics. Table 2 shows the willingness of students to accept mobile learning. Unexpectedly, the results of this study indicated that students feel teachers will not allow mobile devices as an educational tool at school.

Key leaders and teachers that were in charge of Information Technology and eLearning in the Babylon school system were also included in the study to determine if the proposed model was appropriate. Regardless of whether the respondents used mobile devices in their daily lives, Table 3 shows the willingness to accept the proposed model of mobile learning.

Table 3 Readiness of key leaders and teachers to accept the MLIS Model.

Q	Items	Mean	SD
11	This model can reach the target of master learning for the learner	3.545	0.934
12	This model can alleviate the teacher's load of guidance	3.090	1.044
13	This model can reduce the patient's load of guidance	2.818	0.873
14	This model can reduce the learning pressure of the students	3.454	0.934
15	Mobile devices can reduce the pressure	3.818	0.981
16	This model can promote the student's learning interest	3.636	1.026
17	This model can promote the student's learning confidence	4.00	1.000
18	Mobile devices can help student to review their subjects more actively	3.818	0.981

Conclusion

Every year, a large portion of the government budget is used towards school textbooks and supplies that could easily be replaced with mobile technology. Currently, the Iraqi government is in a good position to progress toward mobile learning; however, more funding in the public education sector is required to implement mobile technology across all school systems. This research underlies the importance of mobile learning in the 21st century to help students achieve skills and goals. This study provides resolutions to difficulties in the implementation of mobile learning in schools and forms a proposed model that is applicable to the Iraqi educational system. This study also revealed that individuals who are not regular users of mobile users are supporters of the mobile learning movement in schools.

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