

# Prospects and Challenges of Mobile Learning Implementation: Kuwait HE Case Study

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**Abstract:** *Mobile learning is a new learning landscape that offers opportunity for collaborative, personal, informal, and students' centered learning environment. In implementing any learning system such as mobile learning environment, it is important to understand challenges that affect its implementations in aculture. Additionally, learners' and instructors' expectations are deemed necessary for consideration. However, there is a lack of studies on this aspect, particularly in the context of Kuwait HE institutions. This research presents opportunities and prospects of m-learning, and discusses challenges and implications facing its implementation. The authors of this paper conducted a study in Kuwait HE to examine both students' and instructors' perceptions and attitudes toward this trend of learning, to evaluate its effectiveness, and to investigate cultural and social challenges that affect the implementation of m-learning in Kuwait HE. A questionnaire was administered to 499 students and 110 Instructors from different higher educational institutions in Kuwait. The results reveal that students and instructors have positive perceptions of m-learning, and believe that m-learning enhances the teaching and the learning process. The study reports some social and cultural issues that may act as barriers to m-learning implementation.*

**Keywords:** *Mobile learning; human computer interaction; e-learning; higher education; implementation challenges; perceptions*

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## 1. Introduction

Mobile learning has been defined by different researchers. Traxler (2007) defines m-learning, as an educational interaction between learners and the learning materials, which can be accessed from any location, using mobile technology [31]. Kinash et al. (2012) describe m-learning as using mobile devices for educational setting [22]. Mobile technology provides us with a challenge that is to find out how to construct environments that can support different kind of learning settings and activities [4,5]. M-learning is also providing us with opportunity that is to change the existing learning strategies to give students much higher flexible approach to managing their learning experiences. Ozdamli and Cavus (2011) listed some characteristic of mobile learning such as: ubiquitous, portable, blended, private, interactive, collaborative, and instant [28]. The rest of this paper is organized as follows: Section 2 introduces a literature review. Section 3 provides challenges of m-learning that affect the implementation of this technology and the educational process. A case study about m-learning in Kuwaiti higher education is introduced in section 4. Section 5 concludes the study.

## 2. Literature Review

Very recent study conducted by Dashti and Aldashti, (2015) investigated English major students' attitudes and perceptions towards the use of mobile learning at the College of Basic Education in Kuwait [16]. Their results indicated that the majority (80.3%) of students like the use of mobile devices in the learning environment and believe that it enhances their knowledge of language in terms of vocabulary and grammar. Furthermore, Almutairy et al. (2015) presented the findings of a survey study exploring the possibility of integrating m-learning into Saudi Arabian HE institutions [8]. The study showed that m-learning provides unique opportunities, which has positive outcomes in terms of increasing study skills and knowledge acquisition. In addition, Alfarani, (2015) conducted a study to understand the influence on the adoption of mobile learning in Saudi women teachers in higher education [2]. She found that although participants (educators) perceived m-learning to have the potential to enhance communication with students, they identified technological, institutional, pedagogical, and individual obstacles to the use of m-learning which had negative influence on mobile learning acceptance. The findings also revealed that resistance to change and perceived social culture are significant determinants of the current use of and the intention to use m-learning.

Furthermore, an investigation was conducted by Al-Fahad (2009), in order to understand and measure female students' attitudes and perceptions towards the effectiveness of m-learning [1]. Results of the survey indicate that offering m-learning could improve the retention of bachelor students, by enhancing their teaching/learning. Similar study conducted by Nassuora (2013) to understand student's acceptance of m-learning for HE in Saudi Arabia and to examine the possibility of acceptance in m-learning [26]. The researcher used a quantitative approach survey of 80 students. The results from statistical analysis show that there is a high level of acceptance on m-learning level among students.

Regarding cultures, traditions, and religious norms, a recent paper by AL-Kandari et al. (2016) sought to find out the influence of culture on Instagram use between males and females in Kuwait [7]. Study results confirm that males are more likely than females to post their personal pictures on Instagram, more likely to disclose their personal information and more likely to have public accounts unlike females who are more likely to have private accounts than males. In addition, Baker et al. (2007) gave an example of Saudi Arabia a country with cultural traditions relating to gender [13]. Because of cultural and religious norms there is gender segregation in the Saudi HE system, which differs significantly from those who were seen in western cultures, and which have a significant impact on the attitudes and norms that influence their behavior.

### 3. M-learning Challenges

Research indicates that m-learning offers considerable benefits to build and support creative, collaborative, and communicative learning environments [6,29]. The implementation of efficient m-learning project, however, within educational environment is still a challenge due to the complex environment that incorporates management, pedagogical, technological elements, and socio-cultural issues.

Managements of educational institutions need to define clear policies, and technical and pedagogical support, in order to go for wide-scale implementation of m-learning. Lack of support and institutional policies were cited as institutional obstacles [19]. One of the most crucial challenges facing the educational institutions, when implementing m-learning project, is managing the change within the institution. Managing such change will affect processes, activities, and components, as well as people of the educational institution [10].

It is challenging to properly integrate technology into their wider educational activities, and significant efforts and steps have been made to provide methodologies and strategies to integrate mobile devices into teaching and learning practices [20]. Dahlstrom and Bichsel (2014) urge

researchers to look at pedagogical insights that will help instructors to better embrace mobile technologies [15]. It is stressed by [17, 24], that to accomplish this, mobile learning requires a successful integration between educational content and technology to achieve educational goals and to provide a successful teaching and learning environment.

Furthermore, it is important to understand that mobile devices are equipped with various features such as: Camera, location, sensors, media player, calculator, calendar, etc. Understanding these capabilities will help designers to explore the potential of mobile learning, which can truly support informal and social learning models. Goel (2014) stated that it is challenging for instructional designers to design e-learning courses effectively for mobile devices, he pointed out that m-learning should be viewed differently, due to mobile characteristics such as the screen size, screen orientation, mobile storage and memory, and network bandwidth [18].

On the other hand, user interface design is important factor for successful application. Thus, designing and developing an efficient educational interface within a learning environment is still a challenge for most developers, facilitators, and educators [3]. Technical difficulties are a significant aspect in the implementation and integration of m-learning technologies in education. Qureshi et al. (2012) listed some of these difficulties which include "installation, availability of latest technology, fast Internet connection, and uninterrupted supply of electricity, maintenance, administration, security and absence of technical support" [31]. In addition, there are technical challenges related to the infrastructure, mobile device, application development, technical support, security, and technical knowledge of instructors, learners, and other stakeholders, which must be considered during project implementation.

Evaluation is an essential activity in the lifecycle of any interactive learning systems design, and mobile learning adds additional challenges for evaluation of both the technology and the learning outcome. Messinger (2012) stated that there is a lack of evidence regarding the effective use of mobile learning in education, which he believes will limit the widespread adoption of mobile learning and urged to integrate evaluation strategies into the implementations of m-learning [25].

There are cultural norms and social concerns while accepting the deployment of m-learning. Ethical and practical implications such as: resistance to change amongst lecturers; concerns about new social practices affecting lecturers' personal time; increasing amount of information to be stored on his device; privacy issues; data security; and cyber-bullying, were addressed by [12, 14]. The accessibility of mobile devices is another challenge. If mobile learning is to be implemented successfully, students and instructors must own a

mobile device [14]. Cultural differences are key factors for both the acceptance of these types of technology and for their future use [9]. Resistance to change is a challenge; it is believed that mobile technology increases the work for the instructors because it adds additional preparations. Some educators resist the idea of integrating this technology into their practice, because of the constraints it present to them. Studies report that resistance to change plays an essential role in accepting technology in education [21].

#### 4. Case Study: M-learning in Kuwaiti HE

The Ministry of Education in Kuwait (MOE) has launched a national e-learning project in Kuwait based on Kuwait e-learning strategy that was developed in 2008. The MoE distributed 80,500 one to one mobile devices (Tablets) on students and instructors in the academic year 2015/2016 in order to activate mobile learning. Currently, the teacher readiness program is executed to prepare the teacher for the new era. This program is designed by the e-learning team at MoE and international vendors.

In the Arab world, Al-Shehri (2012) stated that one major factor which can make mobile learning suitable and effective choice in the Arab world is the widespread penetration of mobile devices among Arab young students [11]. The mobile market in Kuwait experienced strong growth in mobile penetration to over 200 percent in 2015 offering strong network connections [23]. The high mobile phone penetrations among people in Kuwait as well as availability of good mobile infrastructure are all important factors that can enhance the shift to mobile learning. Therefore, this study was conducted to seek both students' and instructors' perceptions and attitudes toward mobile learning, evaluate its effectiveness, and investigate cultural and social challenges that affect the implementation of m-learning in Kuwait HE.

The study tries to answer the following questions:

- What are the students' and instructors' perceptions towards the use of mobile devices for m-learning?
- Are there any perceived social or cultural issues that may affect the acceptance of m-learning?
- Will instructors resist the idea of mobile learning?

#### 4.1. Methodology

This study was exploratory in nature. It investigates higher education students' and instructors' perceptions and attitudes towards mobile learning. For the sake of satisfying the study's objectives, two online questionnaires have been designed, one for students, and one for instructors (the reason for designing two questionnaires because of slight variations of the questions). During the second academic term (Spring 2015/2016), the questionnaires were randomly distributed to 620 undergraduate students (in which

499 students completed all the questions in the questionnaire successfully). The questionnaires were also randomly distributed to 125 instructors (in which 110 instructors completed all the questions in the questionnaire successfully). The analysis of the survey results is presented based on a valid response of the questioned answered by students and the instructors who completed all the questions in the questionnaires, 499 students and 110 instructors.

The scales used in the two questionnaires were designed to be appropriate to the scope and context of the study. Each questionnaire is consisted of 2 sections. Section 1 collects demographic data, while section 2 of the questionnaire consisted 5-Point Likert type scale as: 1 for Strongly Disagree, 2 for Disagree, 3 for Neutral, 4 for Agree, and 5 for Strongly Agree. In order to rate the questionnaire items, data were quantitatively analyzed using SPSS. Percentages, means, and standard deviations (SD), were used for the sake of the analysis. A pilot study was conducted in order to test the adequacy of the questionnaire, to assess the feasibility of the survey, and to validate the initial results. Few improvements were made for the preparation of the main study.

#### 4.2. Results

In this section, we present results of the study including students' and instructors' demographic data and background information, Tables (1) and (2); Students' and instructors' perceptions and attitudes about m-learning, Tables (3) and (4); A comparison between students' and instructors' opinions and perceptions Table (5).

##### 4.2.1. Respondents Profiles and Background Information

The outputs of the first 6 questions are tabulated below showing students' gender, marital status, age, educational institution, type of mobile device, and frequent use of mobile applications. Table (1) represents the characteristics of the students and Table (2) represents characteristics of the instructors.

##### 4.2.2 Students' Perception of M-learning

Section (2) of students' and instructors' questionnaires used to measure students' and instructors' perceptions and attitudes about m-learning. The term Agreement represents "Strongly agree" plus "Agree" responses, while Disagreement represents "Strongly disagree" plus "Disagree responses". Table (3) reflects students' responses.

##### 4.2.3 Instructors' Perceptions of M-learning

Instructors' responses regarding their perceptions and opinions about m-learning are shown as in Table (4).

Table 1. Characteristics of the Students (499 respondent).

Characteristics	Number	Percentage %
<b>Q1. Gender</b>		
Male	160	32.1%
Female	339	67.9%
<b>Q2. Marital status</b>		
Single	356	71.3%
Married	143	28.7%
<b>Q3. Age</b>		
16-24 Years	336	67.3%
25-35 Years	116	23.2%
More than 35	47	9.4%
<b>Q4. Educational institution</b>		
PAAET	246	49.3%
Kuwait University	38	7.6%
Private University	154	30.9%
Ministry of Education	46	9.2%
Other	15	3.0%
<b>Q5. My mobile device</b>		
I Phone	379	76.0%
Galaxy	110	22.0%
Others	8	1.6%
I do not own	2	.4%
<b>Q6. I use mobile applications</b>		
Seldom	13	2.6%
Sometimes	123	24.6%
Always	363	72.7%

Table 2. Characteristics of the Instructors (110 respondent)

Characteristics	Number	Percentage %
<b>Q1. Gender</b>		
Male	65	59.1%
Female	45	40.9%
<b>Q2. Marital status</b>		
Single	36	32.7%
Married	74	67.3%
<b>Q3. Age</b>		
16-24 Years	24	21.8%
25-35 Years	25	22.7%
36-55 Years	52	47.3%
More than 55 Years	9	8.2%
<b>Q4. Educational institution</b>		
PAAET	65	59.1%
Kuwait University	6	5.5%
Private University	23	20.9%
Ministry of Education	15	13.6%
Other	1	0.9%
<b>Q5. My mobile device</b>		
I Phone	79	71.8%
Galaxy	27	24.5%
Others	3	2.7%
I do not own	1	0.9%
<b>Q6. I use mobile applications</b>		
Seldom	1	0.9%
sometimes	21	19.1%
Always	88	80.0%

Table 3. Students' Perceptions of Mobile Learning.

No.	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Q 7.	Learning by mobile helps me learn anytime anywhere	202	183	66	32	16	4.05	1.040
		40.48%	36.67%	13.23%	6.41%	3.21%		
Q 8.	Learning by mobile increases students' motivation to learning	127	150	140	64	18	3.61	1.106
		25.45%	30.06%	28.06%	12.83%	3.61%		
Q 9.	Mobile helps to follow up on grades and student record	272	166	44	9	8	4.37	.844
		54.51%	33.27%	8.82%	1.80%	1.60%		
Q 10.	Learning by mobile is a good idea	144	161	117	50	27	3.69	1.148
		28.86%	32.26%	23.45%	10.02%	5.41%		
Q 11.	M-learning breaks down psychological barriers between students and instructors	142	175	108	49	25	3.72	1.127
		28.46%	35.07%	21.64%	9.82%	5.01%		
Q 12.	M-learning helps me to share information with other students	238	184	55	8	14	4.25	.918
		47.70%	36.87%	11.02%	1.60%	2.81%		
Q 13.	The use of social media applications help in educational attainment	119	220	95	48	17	3.75	1.030
		23.85%	44.09%	19.04%	9.62%	3.41%		
Q 14.	I feel satisfied if it were to impose the use of m-learning as a new learning tool	103	124	133	84	55	3.27	1.270
		20.64%	24.85%	26.65%	16.83%	11.02%		
Q 15.	I reject m-learning if it allows male and female students to contact each other	74	95	161	97	72	3.00	1.248
		14.83%	19.04%	32.26%	19.44%	14.43%		
Q 16.	Our society will reject m-learning due to the customs and traditions	49	97	167	114	72	2.87	1.175
		9.82%	19.44%	33.47%	22.85%	14.43%		
Q 17.	The use of social media will cause social and family problems	75	136	162	86	40	3.24	1.14
		15.03%	27.25%	32.46%	17.23%	8.02%		

Table 4. Instructors' Perceptions of Mobile Learning.

No.	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Q 7.	Learning by mobile helps students learn anytime anywhere	31	53	14	9	3	3.91	.991
		28.2%	48.2%	12.7%	8.2%	2.7%		
Q 8.	Mobile helps to follow up on recording my grades and follow student's records	62	38	4	6	0.0	4.42	.806
		56.4%	34.5%	3.6%	5.5%	0.0%		
Q 9.	M-learning breaks down psychological barriers between students and instructors	29	49	26	4	2	3.90	.898
		26.4%	44.5%	23.6%	3.6%	1.8%		
Q 10.	M-learning will add additional duties on my regular work as an instructor	12	23	32	30	13	2.92	1.182
		10.9%	20.9%	29.1%	27.3%	11.8%		
Q 11.	m-learning helps to solve the problems caused by the absence of students	30	49	19	8	4	3.85	1.024
		27.3%	44.5%	17.3%	7.3%	3.6%		
Q 12.	Using mobile in teaching increases academic achievement for students	25	45	24	13	3	3.69	1.038
		22.7%	40.9%	21.8%	11.8%	2.7%		
Q 13.	Q13_ Use social media applications help in educational attainment	23	56	20	7	4	3.79	.968
		20.9%	50.9%	18.2%	6.4%	3.6%		
Q 14.	I feel satisfied if it were to impose the use of m-learning as a new teaching tool	24	30	29	15	12	3.35	1.268
		21.8%	27.3%	26.4%	13.6%	10.9%		
Q 15.	I would like to use mobile in teaching	35	32	29	7	7	3.74	1.163
		31.8%	29.1%	26.4%	6.4%	6.4%		
Q 16.	Our society will reject m-learning due to the customs and traditions	13	24	38	23	12	3.03	1.161
		11.8%	21.8%	34.5%	20.9%	10.9%		
Q 17.	The use of social media will cause social and family problems	13	30	44	17	6	3.25	1.033
		11.8%	27.2%	40%	15.5%	5.5%		

#### 4.2.4. Comparing Students with Instructors' Perceptions

Data presented in Table (5) compares students' and instructors' responses. The table shows the percentage of students' and instructors' perceptions and opinions. The term Agreement represents "Strongly agree" plus "Agree" responses, while Disagreement represents "Strongly disagree" plus "Disagree" responses. It is interesting to find similarity in the percentages of most of the questions, as illustrated in Figure (1), which indicates that they have the same perceptions and attitudes toward m-learning.

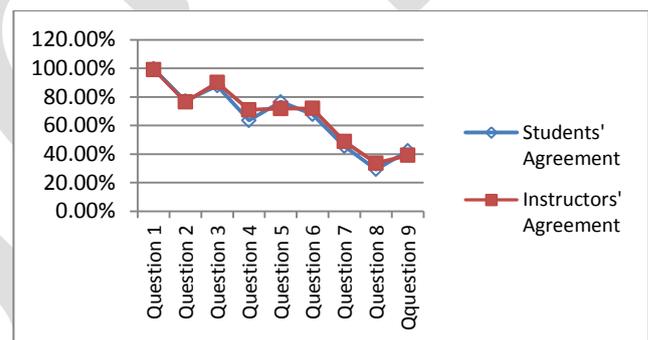


Figure 1. Comparing Students' with Instructors Perceptions.

Table 5. Comparing Students' with Instructors Perceptions.

No.	Question	Students' Agreement	Instructors' Agreement
Q1	I own a mobile device (Device Ownership)	99.60%	99.10%
Q2	Learning by mobile helps students learning anytime anywhere.	77.15%	76.40%
Q3	Mobile helps to follow up on instructors and students' grades and records	87.78%	90.00%
Q4	M-learning breaks down psychological barriers between students and instructors	63.53%	70.90%
Q5	m-learning helps to solve the problems caused by the absence of students	76.55%	71.80%
Q6	Use social media applications help in educational attainment	67.77%	72.00%
Q7	I will be satisfied if it were to impose the use of m-learning as a new teaching tool	45.49%	48.80%
Q8	Our society will reject m-learning due to the customs and traditions	29.26%	33.60%
Q9	The use of social media will cause social and family problems	42.28%	39.10%

#### 4.3. Discussions

Regarding the first research question, "What are the students' and instructors' perceptions and attitudes towards the use of mobile devices for m-learning?" The results presented in Table (3), and Table (4) show that students and instructors have positive opinions about m-learning. The results strongly suggest that majority of the students and instructors perceived mobile learning as appealing learning tool as it allows the freedom to learn whenever and wherever they want. The value of mobility in mobile learning is vital and appreciated by the students and instructors. They perceived potential of providing various ways of learning; follow up on students' records and grades; and in obtaining resources and multimedia learning materials on their mobiles. Students and instructors feel strongly that mobile devices allow them to be connected and collaborate with each other. The enjoyment that they perceived in using their mobile devices is also a key issue in their perception of mobile

learning. In addition, there is also evidence of positive perception of using mobile learning as a social device. By being able to collaborate and connect themselves to the facilitators, students and other people, students and instructors felt positively towards mobile learning with the social features offered through their mobile devices and social media applications. About 67% of the students and 72% of instructors believe that social media applications enhance learning.

In regards to the second research question “*Are there any perceived social or cultural issues that may affect the acceptance of m-learning?*” It is important to point that because of Kuwaiti traditions and conservative culture, there is gender segregation in the Kuwaiti educational system, therefore, students’ opinions about male students contacting female students through m-learning collaboration was exactly divided in half with 33.87% rejected, while 33.87% did not reject. Regarding the society whether they reject m-learning because of Kuwaiti culture and traditions, students who agree are 29.26%, which is less than students who disagree with 37.28%. On the other hand, instructors’ agreement on that are 33.560% of the total number, which is slightly higher than those instructors who disagree (31.80%). In addition, as social media can be used in collaborative learning, students who believed that social media programs will cause family problems are 42.28%, which is higher than 25.25% of those students who disagree, while instructors who believed that social media programs will cause family problems are 39.10% which is higher than 21.00% of the instructors who disagree.

Although the conservative attitudes of students and instructors and the society at large regarding the use of mobile devices equipped with a camera which is allowing male students to contact female students which might negatively affects the use of mobile learning in class, the respondents were divided on this issue, with half ‘agreeing’ and the other half ‘disagreeing’. About 67% of the students and 72% of instructors believe that social media applications enhance learning. However, they indicated that the use of social media will cause family problems because of the culture and traditions in Kuwait. A study conducted by AL-Kandari et al.(2016) supported these findings[7].The study show that families in Kuwait are more likely to reject that their daughters to allow other stranger males to follow them in social media applications. Having male’s followers may shows a female who is a playful. Such image is because “The misbehavior by women is believed to do more damage to family honor” [27]. Another study by Baker et al. (2007) indicated that when, there is gender segregation in the education system, because of cultural and religious norms which differs significantly from those seen in western cultures, will have a significant impact on the attitudes and norms that influence their behavior towards the use of this technology [13].

To answer the third research question, “*Will Instructors resist the idea of mobile learning because it adds more responsibilities?*”, although resistance to change is a negative influence on the acceptance of m-learning [2], instructors in this study felt happy with using m-learning in teaching and not showing resistant to the technology in which (60.17%) of them agree that m-learning is a good idea to be used for teaching. However, (32.79%) of them believed that m-learning will add additional duties on their work. Although mobile devices ownership is more than (99%), m-learning remains in its infancy in Kuwait HE. However, Research indicates that the use of mobile in learning is not as widespread as the devices [15].

## 5. Conclusion

This research presents opportunities and prospects of m-learning, and discusses challenges and implications facing its implementation. The motivation in pursuing this study is the interest to understand students’ and instructors’ perceptions and attitudes about mobile learning, and to look at the readiness of both students and instructors to adopt and use m-learning in Kuwait HE. Our study shows that students’ and instructors’ attitude to mobile learning is welcoming, and that most the students and instructors believe that m-learning is appealing because it allows the freedom to learn whenever and wherever they want regardless of their gender, age, or their educational institution (government or private). Despite the m-learning welcoming by students and instructors, they thought that the society might reject m-learning because it has a conflict with the Kuwaiti traditions and culture, especially that there is gender segregation in the Kuwaiti educational system. M-learning remains in its infancy in Kuwaiti educational systems, and it is hoped that with adequate information and awareness of the requirements of m-learning and its challenges, academic institutions and higher education policy makers in Kuwait should consider the possibility of creating mobile learning environments at academic institutions with consideration of the social, cultural, religious norms, and traditions.

As for a future work, it is important for m-learning implementations to understand and overcome the challenges of m-learning which are discussed in this paper such as management challenges, pedagogical challenges, design and development challenges, technical challenges, evaluation challenges, cultural and social challenges. The increasing availability of open educational resources for mobile technology is making access to learning more affordable for students. A research on how to design and deliver learning content to reach the Arab learners, by adopting pedagogical methodologies, taking into consideration their cultures and traditions is valuable.

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