

Instructors Age and Gender Differences in the Acceptance of Mobile Learning

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Abstract—Mobile learning uses promising technologies that offer a space for collaborative and ubiquitous learning, and its acceptance by individuals is critical for its acceptance. This article concerns a study conducted in Kuwait to examine instructor perceptions of m-learning and social media learning tools, as well as to investigate instructor gender and age differences to better understand social and cultural issues that affect the implementation of m-learning in Kuwait. A questionnaire was administered to 132 instructors from different higher education institutions. Results revealed that instructors have moderately positive opinions about m-learning. The findings also confirm significant gender and age differences and reports social and cultural influence that may act as barriers to the implementation of m-learning. Understanding these issues provides insight as to how these technologies are adopted, and allows us to develop better strategies and systems to assist individual instructors better integrate mobile technology into teaching and learning.

Keywords—Mobile learning, perceptions, individual differences, socialm, HCI

1 Introduction

Instructors and technology play important roles in education. Human factors are essential in the integration of Information and Communication Technologies (ICT). Many of these factors are related to instructor age [1] and gender [2]. Mobile devices form the foundation of ICT that is currently reshaping and revolutionizing global communications. The ubiquity of mobile technology makes it a valuable tool to access online learning resources anytime, anywhere. Mobile learning is defined as a learning medium that allows learners to use mobile devices to search and obtain learn-

ing materials anytime, anywhere [3]. The unique capabilities of m-learning have the great potential to enrich the teaching and learning experience [4]. Therefore, educational institutions may encourage instructors to play a significant role in integrating mobile technology into teaching and learning.

The mobile market in Kuwait has experienced strong growth in mobile penetration [5]. The high mobile phone penetration and availability among people in Kuwait are important factors that can enhance the shift to mobile learning. As social media applications have made mobile devices more dynamic, offering opportunities to enrich instructors' collaboration, engagement, and interactivity [6], the use of social media applications among people in Kuwait has increased. This motivates us to look at how this may influence m-learning acceptance and implementation.

The field of human-computer interaction (HCI) is concerned with the interaction between people and computers [7]. Mobile HCI reflects the nature of an individual's interaction with a mobile system [8]. Individual differences among people, which can be affected by culture, could have an impact on the way persons use mobile devices and applications. User individual differences such as personality, cognitive styles, gender, age, and prior knowledge of mobile technology, can affect users' perceptions and attitudes towards mobile technology in learning and social situations [9]. Gender and age also influence how people use mobile phones, while culture can be a critical factor. Previous research has identified gender and age to have effects on the attitudes and behaviour in using m-learning [10, 11, 12].

The acceptance of m-learning by individuals is critical to its successful implementation. Thus, there is a need to research human factors that affect user intention to use m-learning, and to examine the social influence on the use of m-learning. There is a lack of studies that focus on examining instructors' perceptions of m-learning [13] and the use of social media learning tools [6]. In addition, limited research has been done on individual characteristics, such as gender and age differences, in mobile learning in Kuwait [14].

The aim of this study is to examine instructors' perceptions of m-learning, to investigate instructors' gender and age differences, and to understand social and cultural issues that affect the implementation of m-learning in Kuwait. Understanding these differences allows us to develop better strategies and systems to assist and to contribute to better learning experiences and academic success [15], and to understand the major obstacles to instructors, educational institutions, and society.

The rest of this paper is organized as follows: Section 2 introduces related studies. A case study conducted in Kuwaiti higher education (HE) is explained in section 3. Section 4 presents the methodology used for the study. Section 5 provides the results, while section 6 discusses and concludes the study.

2 Related Studies

A recent study was conducted by Alfarani (2015) to understand the adoption of mobile learning in female Saudi teachers in higher education. She found that m-learning has the potential to enhance learning and create collaborative learning environments. Her findings also revealed that resistance to change, social, and cultural

issues that significantly affect the adoption of m-learning [16]. Another study by [17] investigated instructors' perceptions of mobile learning and mobile examination systems in some Arab countries. Results indicated that m-learning could be very helpful, but many factors should be considered to guarantee its successful adoption, fairness, and reliability. Furthermore, a study by Mai (2014) revealed teachers' pre-service perceptions towards using mobile learning in higher education institutions in Malaysia. The results indicated that pre-service teachers (student-teachers) have moderately positive perceptions toward using m-learning in higher education [18].

Regarding gender and age, a number of investigations have documented differences in male versus female use of mobile technology in a range of national and cross cultural contexts [10, 11]. A study conducted by [19] investigated the impact of instructors' age, experience, and gender on the integration of ICT into language learning. The sample of the study was 46 in-service teachers working at Najran University, Saudi Arabia. The results indicated that there is no significant difference in using ICT between the two age groups of teachers. However, the results also showed a significant difference between male and female instructors in using ICT in language teaching. Another study by [12] investigated the determinants of m-learning acceptance to examine age or gender differences in the acceptance of m-learning. Data were collected from 330 respondents in Taiwan. The results revealed that age differences moderate the effects of social influence on the intent of using m-learning. The results also confirmed that gender differences moderate the effects of social influence on m-learning use intention.

Cultural differences in relation to perceptions of technology are key factors for both the acceptance of these types of technology and for their future use [20]. Baker et al. (2007) gave an example of Saudi Arabia, a country with cultural traditions, relating to gender. They pointed that because of cultural and religious norms, there is gender segregation in the Saudi higher education system, which differs significantly from those seen in western cultures. They believed that this has a significant impact on the attitudes and norms that influence the behavior towards the use of mobile technologies [21]. Similarly, [22] sought to determine the influence of culture on Instagram use among males and females in Kuwait. The results revealed that males are more likely than females to disclose personal photos and personal information. They attributed that to the influence on the conservative Kuwaiti culture. Furthermore, [23] reported on gender patterns identified in a cross-national study of mobile phone use by university students in four countries: Sweden, USA, Italy, Japan, and Korea. Results indicated several gendered usage and attitudinal patterns. However, in some cases, cultural variables may be affected by gender.

3 M-Learning in Kuwaiti HE: Case Study

The Ministry of Education in Kuwait (MOE) distributed over 80,500 mobile devices (Tablets) to students and instructors in the 2015/2016 academic year in order to integrate mobile devices into teaching and learning. It is generally agreed that instructors play a crucial role in the integration of mobile technology in education [19]. This motivated the researchers of this article to conduct this study to understand

instructors' perceptions and attitudes toward mobile learning and social media learning tools, to investigate gender and age differences, and to highlight cultural and social issues that affect the implementation of m-learning in Kuwait's HE.

The study tries to answer the following questions:

RQ1: Are there any significant gender differences in instructors' use of social media applications?

RQ2: Are there any significant age differences in instructors' use of social media applications?

RQ3: Are there any significant gender differences in instructors' perceptions of m-learning?

RQ4: Are there any significant age differences in instructors' perceptions of m-learning?

4 Methodology

4.1 Evaluation Tool

A 3-part online questionnaire was developed and adapted from several previous studies [24, 14]. Part 1 is designed to collect demographic data and part 2 investigates instructors' frequent use of several common social media applications, while part 3 measures instructors' perceptions and attitudes towards m-learning and social media learning tools. The questions in part 3 consisted of 5-Point Likert-type scale with 1 for Strongly Disagree, and 5 for Strongly Agree. A pilot study was conducted two weeks prior to the study to ensure that the questions are clear and straightforward, and to validate the initial results. Some improvements were made to the questionnaire such as rephrasing and removing repeated questions.

4.2 Sample

The sample of this study consisted of instructors from various HE institutions in Kuwait, representing both the private and public educational sectors. The questionnaire was randomly distributed online to male and female instructors, to which 132 male and female instructors responded. The statistical analysis of the questionnaire was based on 110 valid responses. Data were then quantitatively analyzed using SPSS. T-test and ANOVA statistical methods were used to carry out the analysis. In all cases, a significance level of 0.05 was adopted.

5 Results

5.1 Instructors' Demographic Data

The demographic data of instructors is presented in Table (1). Male and female instructors are categorized by age (four age groups): "20-24", "25-35", "36-55", and "more than 55 years".

Table 1. Instructors’ Demographic Data: Gender and Age

Gender	Age				Total
	20-24	25-35	36-55	more than 55	
Male	8	19	31	7	65
Female	16	6	21	2	45
Total	24	25	52	9	110

5.2 Instructors’ Frequent use of Social Media Applications

Part 2 of the questionnaire investigates instructors’ frequent use of social media applications such as: Twitter, Instagram, Facebook, YouTube, Snapchat, and LinkedIn. We analyzed the data to determine if there are any significant differences in instructors’ frequent use of social media applications according to the instructors’ gender, which is represented in Table (2), or their age, represented in Table (3).

Regarding the first research question, “*RQ1: Are there any significant gender differences in instructors’ use of social media applications?*” The results presented in Table (2) indicate that there are no significant differences between male and female respondents in using Twitter, “level of significance” ($p=0.894$), Instagram ($p=0.053$), YouTube ($p=0.092$), SnapChat ($p=0.089$), and LinkedIn ($p=0.375$). However, there is a significant difference between male and female instructors in using Facebook ($p=0.000$). Although Facebook is not widely used, male instructors use Facebook (Mean=2.45) more than females (Mean=1.58).

Moreover, looking at the “Mean” values in Table 2, we found that instructors prefer using YouTube more than any other social media application; “Mean” value for males is 3.62 and females 3.67.

Table 2. Instructors’ Use of Social Media Applications: Gender (M: male, F: female) Differences

Social Media Application	Gender	Always	Some times	Rare	I don't use it	Mean	SD	Sig.
Twitter	M	26	17	10	12	2.88	1.139	0.894
	F	13	14	8	10	2.67	1.128	
Instagram	M	29	16	11	9	3.00	1.090	0.053
	F	14	20	7	4	2.98	.917	
Facebook	M	21	11	9	24	2.45	1.287	0.000
	F	2	3	14	26	1.58	.812	
YouTube	M	47	12	5	1	3.62	.700	0.092
	F	30	15	0	0	3.67	.477	
SnapChat	M	14	14	12	25	2.26	1.189	0.089
	F	24	5	2	14	2.87	1.358	
LinkedIn	M	3	4	14	44	1.48	.812	0.375
	F	0	5	8	32	1.40	.688	

Regarding the second research question, “RQ2: Are there any significant age differences in instructors’ use of social media applications?” The findings as shown in Table (3) indicate that there are no significant differences between the four age groups in using Twitter (level of significance, $p=0.748$), Instagram ($p=0.730$), and LinkedIn ($p=0.068$). However, significant differences were found between the four age groups in using Facebook ($p=0.007$), YouTube ($p=0.001$), and SnapChat ($p=0.000$).

Despite the significance, we found that the four age groups are not interested in using Facebook; however, older instructors use Facebook more than younger instructors. On the other hand, younger instructors are very much interested in using YouTube and SnapChat. Regardless of instructors’ gender and age, the results also indicate that instructors, in general, are not interested in using LinkedIn. The frequently used social media applications ranked by instructors according to the (mean) values (highest to lowest) are: YouTube, Instagram, Twitter, SnapChat, Facebook, and LinkedIn.

Table 3. Instructors’ Use of Social Media Applications: Age Differences

Social Media Application	Age	Always	Some times	Rare	I don't use it	Mean	SD	Sig.
Twitter	20-24	8	9	5	2	2.96	.955	.748
	25-35	9	4	5	7	2.60	1.258	
	36-55	18	17	6	11	2.81	1.138	
	more than 55	4	1	2	2	2.78	1.302	
Instagram	20-24	9	8	6	1	3.04	.908	.730
	25-35	12	4	4	5	2.92	1.222	
	36-55	20	20	7	5	3.06	.958	
	more than 55	2	4	1	2	2.67	1.118	
Facebook	20-24	1	1	5	17	1.42	.776	.007
	25-35	8	5	3	9	2.48	1.295	
	36-55	12	4	15	21	2.13	1.189	
	more than 55	2	4	0	3	2.56	1.236	
YouTube	20-24	18	6	0	0	3.75	.442	.001
	25-35	21	3	0	1	3.76	.663	
	36-55	36	14	2	0	3.65	.556	
	more than 55	2	4	3	0	2.89	.782	
SnapChat	20-24	17	4	1	2	3.50	.933	.000
	25-35	9	3	2	11	2.40	1.384	
	36-55	11	10	10	21	2.21	1.194	
	more than 55	1	2	1	5	1.89	1.167	
LinkedIn	20-24	0	1	1	22	1.13	.448	.068
	25-35	0	1	9	15	1.44	.583	
	36-55	3	7	9	33	1.62	.932	
	more than 55	0	0	3	6	1.33	.500	

5.3 Instructors' Perceptions of M-learning

Part 3 of the questionnaire investigated instructors' perceptions of m-learning. Table (4) shows instructors' perceptions of m-learning and social media learning tools considering their gender, while Table (5) reflects instructors' perception according to their age.

Regarding the third research question, "*RQ3: Are there any significant gender differences in instructors' perceptions of m-learning?*" The results presented in Table (4), show that there are no significant differences between male and female instructors. By looking at the mean values of questions 1 and 2, we can conclude that instructors, regardless of their gender, have positive opinions about m-learning. They agree that "I would like to use mobiles in teaching", and believe that "Using mobiles in learning increases students' academic achievement". However, their opinion was neutral, as in Q3, that "M-learning will add additional duties to my regular work", with females slightly higher "Mean=3.18" than males "Mean=2.74".

Questions 4 and 5 investigated instructors' opinions about the role of social media in teaching and learning. No significant differences were found between males and females. By looking at the mean values, males and females instructors agree that "The use of social media applications help in educational attainment", with a mean of 3.74 for males, and 3.87 for females. They also agree that "The use of social media helps to strengthen communication with others", with a mean is 3.97 for males, and 4.24 for females.

Questions 6 and 7 reflect instructors' opinions about the cultural and social effects of using social media in education. The findings show that instructors' opinions were neutral that "The use of social media will cause social and family problems" in which the mean is 3.28 for males, and 3.20 for females. While instructors' opinions regarding Q7 "Our society will reject m-learning because of the customs and traditions", their responses were neutral with a mean of 3.00 for males, and 3.07 for females. These results highlight the question "will culture affect the acceptance and the intention to use m-learning in Kuwait HE?"

Regarding the fourth research question, "*RQ4: Are there any significant age differences in instructors' perceptions of m-learning?*" we did not find significant differences concerning instructors' opinions of m-learning and social media learning tools as in questions 3, 4 and 6, which are presented in Table (5). However, looking at the mean values in Q3 "M-learning will add additional duties to my regular work"; it is interesting to find that younger instructors agree with this statement more than older instructors. On the other hand, significant differences between the four age groups were found in questions 1, 2, 5, and 7. Questions 1 and 2 asked the instructors "I would like to use mobiles in teaching", and believe that "Using mobile in learning increases students' academic achievement". The oldest age group, "more than 55", had a neutral perception, while other age groups were positive about these statements. Moreover, when they were asked whether "The use of social media helps to strengthening the communication with others", as in Q5, the three younger groups show a positive opinion while the oldest group was neutral. Regarding culture as in Q7, "Our society will reject m-learning because of the customs and traditions", instructors have

neutral perceptions, but the mean values indicate that younger groups are more conservative than the older group.

Table 4. Instructors’ Perception of M-learning: Gender (M: male, F: female) Differences

	Question	Gender	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD	Sig.
Q1	I would like to use mobile in teaching.	M	25	15	17	6	2	3.85	1.135	.953
		F	10	17	12	1	5	3.58	1.196	
Q2	Using mobile in learning increases students’ academic achievement	M	18	24	12	9	2	3.72	1.111	.171
		F	7	21	12	4	1	3.64	.933	
Q3	M-learning will add additional duties on my regular work	M	4	12	21	19	9	2.74	1.108	.268
		F	8	11	11	11	4	3.18	1.248	
Q4	The use of social media applications help in educational attainment	M	14	32	11	4	4	3.74	1.065	.100
		F	9	24	9	3	0	3.87	.815	
Q5	The use of social media helps to strengthening the communication with others	M	24	26	8	3	4	3.97	1.118	.264
		F	19	20	4	2	0	4.24	.802	
Q6	The use of social media will cause social and family problems	M	10	15	26	11	3	3.28	1.068	.449
		F	3	15	18	6	3	3.20	.991	
Q7	Our society will reject m-learning because of the customs and traditions	M	7	14	24	12	8	3.00	1.159	.634
		F	6	10	14	11	4	3.07	1.176	

Table 5. Instructors’ Perception of M-learning: Age Differences

	Questions	Age	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD	Sig.
Q 1.	I would like to use mobile in teaching	20-24	7	3	9	1	4	3.33	1.404	.010
		25-35	7	9	7	2	0	3.84	.943	
		36-55	20	17	12	2	1	4.02	.980	
		more than 55	1	3	1	2	2	2.89	1.453	
Q 2.	Using mobile in learning increases academic achievement for students	20-24	4	7	9	2	2	3.38	1.135	.014
		25-35	4	13	4	3	1	3.64	1.036	
		36-55	17	21	10	4	0	3.98	.918	

		more than 55	0	4	1	4	0	3.00	1.000	
Q 3.	M-learning will add additional duties on my regular work	20-24	5	4	10	2	3	3.25	1.260	.255
		25-35	2	7	8	7	1	3.08	1.038	
		36-55	4	11	10	20	7	2.71	1.177	
		more than 55	1	1	4	1	2	2.78	1.302	
Q 4.	The use of social media applications help in educational attainment	20-24	5	13	4	0	2	3.79	1.062	.072
		25-35	6	13	5	1	0	3.96	.790	
		36-55	12	27	7	5	1	3.85	.958	
		more than 55	0	3	4	1	1	3.00	1.000	
Q 5.	The use of social media helps to strengthening the communication with others	20-24	10	11	3	0	0	4.29	.690	.045
		25-35	11	9	2	1	2	4.04	1.207	
		36-55	22	21	5	3	1	4.15	.958	
		more than 55	0	5	2	1	1	3.22	1.093	
Q 6.	The use of social media will cause social and family problems	20-24	1	6	8	7	2	2.88	1.035	.100
		25-35	6	6	11	1	1	3.60	1.041	
		36-55	5	15	23	7	2	3.27	.952	
		more than 55	1	3	2	2	1	3.11	1.269	
Q 7.	Our society will reject m-learning because of the customs and traditions	20-24	5	3	8	6	2	3.13	1.262	.012
		25-35	5	10	6	3	1	3.60	1.080	
		36-55	2	9	21	11	9	2.69	1.076	
		more than 55	1	2	3	3	0	3.11	1.054	

6 Discussions and Conclusion

The purpose of this research is to understand instructors' perceptions of m-learning and online social media learning tools in Kuwait, to investigate gender and age differences, and to identify the degree to which social factors influences the acceptance and use of mobiles in education. The unique characteristics of m-learning have the great potential to enrich the teaching and learning experience [4]. In addition, social media applications have made mobile devices more dynamic and pervasive, and contribute to the belief that social media applications can create collaborative teams that advance participation and engagement [6]. We investigated instructors' use of social media applications to understand their opinions about using these applications in teaching and learning, to address what applications are widely used among the instructors, and to identify applications that can be adapted when implementing m-learning. Our findings suggest that educators and developers of m-learning should note that video-based social media applications are widely used among the instructors, including Snapchat, YouTube, and Instagram, regardless of their gender and age.

Because of cultural and religious norms, there is gender segregation in the Kuwaiti educational system, which differs significantly from what is generally seen in western cultures, and which has a significant impact on the attitudes and norms that influence their behavior. The studies [22, 21] support our findings that, despite the positive views of m-learning by the instructors and their positive opinions about its value,

male and female instructors of all ages are concerned about the cultural and social implications of using m-learning and social media tools in education in Kuwait. This study shows that instructors have neutral perceptions regarding the fact that m-learning and social media allow males and females greater interaction. Understanding these issues is challenging because from a cultural perspective, younger and older adults may interpret their own capacity for attention in different ways. This poses a serious challenge for the designers of mobile learning systems who almost exclusively belong to a younger demographic [8].

Resistance to change sometimes represents a great challenge. It is believed that m-learning increases the workload for instructors because it adds additional duties. Studies report that resistance to change plays an essential role in accepting technology in education [25, 26]. This is, in part, is attributable to a lack of technical competency by instructors, as well as a lack of funds for professional development programs [27]. This study indicates that mobile learning may increase the workload for instructors because it requires additional preparation, however, the study also demonstrates that instructors would like to use mobile technology in their classrooms and do not resist the implementation of m-learning. Creating a teacher training course can help in instructors better accept and implement technology, and can foster collaboration among instructors to become more comfortable with m-learning in and out of the classroom [28]. Once they become familiar and start using m-learning systems, they may begin to persuade their colleagues and friends to adopt it [12].

This study contributes to the field of mobile HCI by examining instructor characteristics and the social implications that affect instructor perceptions related to the use of mobile technology in education. The findings of this study show that most instructors believe that m-learning is appealing because it allows students the freedom to learn whenever and wherever they want, regardless of their gender and age. Despite the positive acceptance of m-learning by instructors, some held conservative views about m-learning and social media applications allowing communications between male and female students. However, as time goes by, societal conservatives might change this perspective of m-learning, which can be considered as a central part of any future Kuwaiti educational system. The findings also confirmed significant gender and age differences, and reported some social and cultural issues that may act as barriers to m-learning implementation. Therefore, this research advances the knowledge of gender and age differences in mobile learning. Understanding these differences allows us to develop better strategies and systems to assist individual instructors and learners better participate in the teaching-learning experience.

Although many educators already use technology in the classroom, they should modify existing class activities by considering age and gender differences, and the social implications to make them more practical and meaningful for learning when using mobile technologies. M-learning remains in its infancy in Kuwaiti educational systems. 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 will consider the possibility of creating mobile learning environments at academic institutions considering social and cultural factors, as well as religious norms and traditions.

7 References

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