

Investigating Students' and Faculty members' Attitudes Towards the Use of Mobile Learning in Higher Educational Environments at the Gulf Region

دراسة حول تفحص آراء الطلبة وأعضاء هيئة التدريس نحو استخدام التعلم
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Abstract

Recently, the way we learn has been shifted dramatically from traditional classrooms relying on printed papers into E-learning relying on digital/electronic pages. Modern educational technologies attempt to facilitate the delivery of learning from instructors to students in a more flexible and comfortable way. Mobile learning (M-learning) is one of such ubiquitous technologies that has been evolved rapidly to deliver E-learning using personal electronic devices without posing any restrictions on time and location. A review of the state-of-the-art of M-learning regarding the students' and faculty members' attitudes towards the use and adoption of M-learning in the higher educational environments worldwide is addressed. We observed that M-learning has not yet been studied intensively within the Gulf Region universities; the reason that motivated us to focus our study on this area and attempt to identify the gaps that have not been covered within the current available research. Understanding students and faculty members' attitudes within Gulf region countries is the first step towards applying M-learning. Two questionnaires surveys within two neighboring countries within the Gulf region (Oman & UAE) have been conducted in order to examine both students and faculty members' attitudes towards the use of M-learning in the higher education environments. Data was collected from five universities in the Gulf region, one from Oman and four from UAE. 383 students and 54 instructors took part within the study. Findings give a strong indicator that M-learning can be one of the promising educational technologies to be implemented in the higher educational environments within the Gulf region countries.

ملخص

في الآونة الأخيرة، الطريقة التي نتعلم بها قد تحولت بشكل كبير من التعلم بالطريقة التقليدية والتي تعتمد على الورق المطبوع الى التعلم الإلكتروني والذي يعتمد على الصفحات الإلكترونية الرقمية. التقنيات التعليمية الحديثة تحاول على إيصال التعليم من المدرسين الى الطلبة بطريقة أكثر مرونة وراحة. التعلم النقال (بواسطة أجهزة الموبايل والتابلت) هو أحد هذه التقنيات التي تطورت بسرعة لتقدم التعلم الإلكتروني من خلال أجهزة النقال الشخصية دون أي قيود للوقت والمكان. تضمنت الدراسة مراجعة لأحدث وأبرز أوراق البحث العلمية بخصوص آراء الطلبة والأساتذة نحو استخدام وتبني التعلم النقال في مؤسسات التعليم العالي في مختلف أنحاء العالم. لقد لوحظ من خلال هذه الدراسات بأن التعلم النقال لم يُدرس بشكل مكثف في الجامعات الموجودة ضمن دول منطقة الخليج؛ السبب الذي دفعنا الى التركيز في دراستنا على هذه المنطقة ومحاولة التعرف على الثغرات التي لم تتم تغطيتها ضمن الأبحاث المتوفرة حالياً. حيث أن فهم آراء الطلبة وأعضاء هيئة التدريس هي الخطوة الأولى نحو تطبيق التعلم النقال ضمن دول منطقة الخليج. استبيانين تم إجرائهما ضمن بلدين متجاورين في منطقة الخليج (سلطنة عُمان والإمارات العربية المتحدة) من أجل دراسة آراء الطلبة وأعضاء هيئة التدريس نحو استخدام التعلم النقال ضمن مؤسسات التعليم العالي. تم جمع البيانات من خلال خمسة جامعات ضمن منطقة الخليج، واحدة من سلطنة عُمان والأخرى من دولة الإمارات العربية المتحدة. حيث بلغ عدد المشتركين في الدراسة 383 طالب و54 عضو من هيئة التدريس. وقد أشارت النتائج على أن التعلم النقال يمكن أن يكون أحد التقنيات التعليمية الواعدة التي يمكن تطبيقها في مؤسسات التعليم العالي ضمن دول منطقة الخليج.

Dedication

This dissertation is dedicated to my family for their prayer, love and unlimited support during my lifetime.

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Keywords

M-learning, attitudes, higher education, educational technology, Gulf Region.

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Chapter One

Introduction

In this chapter, an overall overview is introduced. The problem definition is highlighted. Research motivations are defined. The aim of this research has been clearly stated. The research questions are described briefly. The used methodology is demonstrated. Dissertation structure and chapters description are addressed.

1.1 Overview

Mobile learning is a new research field. M-learning as one of the recent pedagogical technologies has been implemented in various universities worldwide. M-learning has been integrated with different interrelated technological resources such as: social media, video conferencing, remote access, knowledge sharing and many others. The end-users of M-learning in any education sector are students/learners and faculty members/educators. Understanding the attitudes of the end-users will better help in determining the strengths and weaknesses and facilitate the development of the required infrastructure before implementing M-learning. In this study, our aim is to investigate students and educators' attitudes towards the use of M-learning within the higher educational institutions within the Gulf Region countries.

1.2 Problem Definition

Several research studies address the role of M-learning in the higher educational institutions in various universities worldwide. Students' and faculty members' attitudes are important factors that should be taken into consideration before applying M-learning. In the literature, those attitudes were not covered enough in the Gulf Region universities as per the current available researches. In this work, we will investigate students' and faculty members' attitudes towards the use of M-learning in the higher educational environments within two neighboring countries in the Gulf region (Oman & UAE) by examining different factors.

1.3 Motivations

In the literature, we have observed that M-learning has not yet been studied intensively within the Gulf Region universities. The only exception is the efforts that have been done within the King Saud University, Saudi Arabia (Al-Fahad 2009; Alwraikat & Al Tokhaim 2014). Although, United Arab Emirates (UAE) has launched the iPad initiative in one of its Federal colleges (Hargis et al., 2014) but this study was incomplete and has focused only on faculty members' attitudes without considering students' attitudes. Moreover, the scope of this study was limited and addressed only the foundation program students without taking into concern the students from different specializations. On the other hand, Khaddage & Knezek (2013) has conducted a comparative study of students' attitudes towards the use of M-learning within UAE and USA. However, this study did not investigate the faculty members' attitudes towards M-learning. This is an evident that there is not yet sufficient and comprehensive study that investigates students and educators' attitudes towards the use of M-learning within the Gulf Region universities. This is the reason that motivated us to focus our study on this area and attempt to identify the gaps that have not been covered within the current research.

1.4 Aim of Research

The aim of this research is to examine students and faculty members' attitudes towards the use of M-learning in higher educational institutions within the Gulf Region countries. Attitudes towards M-learning will help in determining strengths and weaknesses and facilitate the development of the required infrastructure. Understanding those attitudes within the Gulf Region countries is the first step towards applying M-learning. Those attitudes will be examined from different perspectives by conducting two questionnaire surveys: one for students and another for faculty members. The questionnaire surveys will be conducted within two neighboring countries within the Gulf Region (Oman & UAE).

1.5 Research Questions

In order to achieve the aim of this study, we are seeking to answer the following research questions:

- Is there any significant difference among students' attitudes towards the use of M-learning in terms of *gender, major, smartphone ownership, country, level of study* and *age*?
- Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of *gender, Academic rank, Academic experience, country* and *smartphone ownership*?

1.6 Methodology

The first step of our research methodology is to reviewing the state-of-the-art of M-learning regarding the students' and faculty members' attitudes towards the use and adoption of M-learning in order to identify the gaps and cover them. Our scope is the attitudes within the Gulf Region countries. A quantitative approach is proposed which relies on two questionnaires surveys: one for students and another for faculty members. We plan to approach five universities. Al Buraimi University College (BUC) is targeted as one of the well-known universities in Oman. Four different reputed universities as a part of Dubai International Academic City in Dubai, UAE are targeted, including The British University in Dubai (BUiD), The American University in Emirates (AUE), Murdoch University Dubai and Amity University Dubai. The questionnaires surveys items are analyzed using the SPSS statistical software. Findings help us in providing a comprehensive picture on how M-learning is going to be implemented in the higher educational institutions within the Gulf Region countries based on the attitudes of both students and faculty members.

1.7 Dissertation Structure

The dissertation structure is divided into five chapters that are organized as follows:

Chapter 1: introduces the overall overview of the study. The problem definition and the research motivations are highlighted. The aim of this research and the research questions were clearly stated. The used methodology is demonstrated.

Chapter 2: A review of the state-of-the-art of M-learning regarding students' and faculty members' attitudes towards the use and adoption of M-learning were discussed. Advantages and disadvantages of M-learning were presented. The integration and implementation of M-learning with other technological resources has been highlighted. Factors affecting the students' and faculty members' attitudes towards the use of M-learning have been demonstrated. Furthermore, the new trends and opportunities, which are evolved while conducting this survey, are explained. The chapter ends with a comprehensive view regarding the end-users' attitudes that will facilitate the work in the next chapters.

Chapter 3: presents the methodology that has been used for conducting this study. It highlights in details the research questions that this study is intended to examine. The venue where the data has been collected from has been stated. The participants of the study are presented. The students' and faculty members' surveys structures are demonstrated in details. Furthermore, the chapter reveals the relationship between the research questions and the survey items in terms of students and faculty members.

Chapter 4: highlights the findings of the study. The chapter shows in details how the students' and faculty members' surveys are be analyzed. The independent and dependent variables are presented. They answer the research questions in details.

Chapter 5: reveals the conclusion of the study besides the future directions that could be possible for future research extension.

Chapter Two

Literature Review

In the last few years, the way we learn has been shifted dramatically from traditional classrooms relying on printed papers into e-learning relying on digital/electronic pages. Modern educational technologies attempt to facilitate the delivery of learning from instructors to students in a more flexible and comfortable way. Mobile learning (M-learning) is one of such ubiquitous technologies that has been evolved rapidly to deliver e-learning using personal electronic devices without posing any restrictions on time and location. Literature that sheds light on using M-learning in various institutions of learning is beginning to emerge. This paper attempts to describe and detail the recent increase in interest and progress made in M-learning. A review of the state-of-the-art of M-learning regarding the students' and faculty members' attitudes towards the use and adoption of M-learning is discussed. Advantages and disadvantages of M-learning were presented. The integration and implementation of M-learning with other technological resources has been described. Factors affecting the students' and faculty members' attitudes towards the use of M-learning have been demonstrated. Moreover, the new trends and opportunities, which are evolved while conducting this survey, are explained. Finally, we present our conclusions.

2.1 Introduction

Mobile learning (M-learning) recently has been shifted from being a theory to a real valuable improvement supporting the learning environment. M-learning can simply be viewed as the natural evolution of e-learning with more effective communication and powerful personalized mechanisms (Mostakhdemin-Hosseini & Tuimala 2005; García & Esteban 2011) or a new platform of distance learning (Georgiev et al., 2004; Zhuang et al., 2011). M-learning makes it easy for all students at different ages to study and access the learning material anytime anywhere. Modern technologies, such as M-learning, give students a convenient opportunity to learn more within shorter time frame. These features

make M-learning an excellent technology for supporting learning in various universities worldwide.

In general, before embarking on developing any technology, it is important to examine the end-user attitude towards the use of such technology. Attitudes toward technology help in determining strengths and weaknesses and facilitate the development of the required infrastructure. The end-users of M-learning technology are students and educators.

In this study, we review the state-of-the-art of M-learning research and examine students' and educators' attitudes within the universities that have applied M-learning and identify various challenges and opportunities to M-learning. In addition, we have reviewed the students' and faculty members' attitudes towards the use of M-learning in their higher education environments, i.e. environments that have not yet implemented M-learning.

This survey is organized as follows: Section 2 provides a background on M-learning technology. Section 3 demonstrates students and educators attitudes towards the adoption of M-learning in the universities where it has been applied. Section 4 presents students and educators attitudes towards the use of M-learning in the universities where it has not yet been applied. Section 5 presents some concluding remarks.

2.2 Background

2.2.1 Educational Technologies in higher educational institutions

Educational technologies aim at facilitating the learning process and enhancing its performance through the management of appropriate technological resources. Recently, there are various technologies that have been employed in higher educational institutions in order to facilitate the learning process, such as tablets, Learning Management Systems (LMS), Intelligent Tutoring Systems (ITSs), smart boards, social media, forums, and blogs, among others. [Almekhlafi & Almeqdadi \(2010\)](#) noted that using technologies in the educational environment helps in delivering more teaching and learning capabilities to students in timely fashion; hence, making teaching and learning a successful way. [Butzin \(2001\)](#) states that educational technologies not only facilitate the learning process

but also prepare students for today's demands and tomorrow's work challenges. Shifting to any of these technologies requires significant development efforts, material preparation and availing financial resources.

2.2.2 Mobile Learning

Nowadays, Mobile technology has been successfully employed in various sectors, including the educational sector. M-learning is a new research trend in the education field that addresses mobility in different dimensions: mobility of technology, mobility of learners, mobility of educators, and mobility of learning. Researchers have defined M-learning in different ways (El-Hussein & Cronje, 2010). Mirski & Abfalter (2004) defined M-learning as an emerging form of distance learning; while Alzaza & Yaakub (2011) stated that M-learning is the next generation of E-learning through the use of mobile technology. Many other authors (Liaw & Huang 2012; Giousmpasoglou & Marinakou 2013; Alwraikat & Al Tokhaim 2014) have defined M-learning as the learning performed with the utilization of small portable devices, such as smart phones, tablets, PDAs and any other similar devices. Lam & Duan (2012) described M-learning as the learning that occurs when the learner uses mobile technology to learn in anytime anywhere. Akhshabi et al. (2011) has defined M-learning as the learning that performed in a non-programmed environment by facilitating the learners' attendance. Hence, M-learning can bring learners from everywhere in order to learn, collaborate, and share ideas instantaneously through their personal computing devices that are accessible anywhere while on the move.

M-learning has been employed in almost all stages of the education sector, such as KG, primary and secondary schools, and higher education institutions. M-learning in higher education is our main concern in this study.

2.2.3 Mobile Learning in higher education

M-learning as one of the recent technologies in the education sector has brought many opportunities for both students and educators in order to facilitate the learning process. Higher education, particularly as an important venue, has employed M-learning in various universities around the world in order to deliver the learning regardless of place

and time. Queen's University Belfast used tablet PCs and PDAs for facilitating feedback from tutors to their students (Berque et al., 2006). Canada College has applied the Interactive Learning Network (ILN) that utilized both tablet PCs and wireless technology in order to offer an active participation among students (Enriquez, 2007). DePauw University has applied tablet PCs by incorporating the DyKnow system (a classroom interaction and management system) which in turn allows students to work collaboratively to solve problems received by their instructor (Berque et al., 2007). Abilene Christian University has applied the Mobile Learning Initiative (MLI) through the use of iPhone and iPod touch by both students and educators (Perkins & Saltsman 2010). Princess Nora University has used mobile phones in order to teach grammar and vocabulary of the French language for undergraduate students (Jaradat, 2014). King Saud University has employed mobile devices to gain the benefits of its applications in order to serve the education programs (Alwraikat & Al Tokhaim 2014). Hence, the introduction of M-learning has proved its efficiency when employed effectively in the context of higher education. So, the near future will reveal that M-learning is going to facilitate a wide range of educational methods in order to support learning (Traxler, 2007).

2.2.4 Advantages and Disadvantages of M-learning

With the introduction of any new technology there is always a debate about its advantages and disadvantages. M-learning has brought various advantages to the education field. In the literature, there is a list of advantages. Kim et al. (2006), Uzunboylu et al. (2009), Hall Jr & Smith (2011), Nassuora (2012), Fong (2013), Gikas & Grant (2013), and Jaradat (2014) state that M-learning facilitates the interaction and communication among students and educators in anytime anywhere. Nassuora (2012) mentioned that Mobile devices in all their types are lighter than using traditional books. More important, learners have the ability to share their knowledge (Al Emran & Shaalan 2014), obtain an immediate assessment feedback (Berque et al., 2006; Lam & Duan 2012), and overcome physical constraints by having access to people and digital learning resources, regardless of place and time, through the use of their mobile devices (Lam & Duan 2012; Boyinbode et al., 2013; Gikas & Grant 2013; Giousmpasoglou & Marinakou 2013; Kutluk & Gülmez 2014). A significant advantage is that M-learning makes it easy

for students with disabilities to effectively participate in the learning process (Beaton, 2006). The technologies associated with mobile devices lend themselves to social media communication among students and educators, most probably through the use of video conferencing technology (Erkollar & Oberer 2012; Gikas & Grant 2013; Al Emran & Shaalan 2014). Figure 1 summarizes the above advantages and demonstrates the integration of M-learning with other technological resources.



Fig.1: M-learning and other interrelated technological resources.

In contrast, mobile learning has brought some disadvantages. Current mobile devices have small screens, limited memory and limited battery life (Cheon et al., 2012; Picek & Grčić 2013; Kutluk & Gülmez 2014). These hardware limitations should disappear over time with the rapid improvement of quality of these components and the new technologies that support them. Gikas & Grant (2013) demonstrated that mobile devices could be a distraction device within the class and there is what so-called “Anti-technology” instructors who find it difficult to deal with. However, those instructors are not witness to the personal nature of mobile devices which gives opportunities for integrating learning with everyday lifestyles, encouraging continuous learning opportunities regardless of time sensitivity and location.

2.3 Students’ and Educators’ attitudes towards the adoption of M-learning

M-learning has been applied in various universities worldwide. Students’ and educators’ attitudes toward using this technology are important success factors that should be taken into account. In this section, we discuss and try to answer the following questions. How M-learning is applied in the context of higher education? What are the students’ and

educators' attitudes towards adopting M-learning? How M-learning is evaluated? The following subsections try to answer these questions from different perspectives.

2.3.1 Tablet PCs

Enriquez (2010) addresses the impacts of the Interactive Learning Network (ILN) model, which involves both tablet PCs and wireless technology on students' performance, on students' perceptions towards ILN versus the traditional learning model. Two studies were conducted in order to evaluate the proposed model. The first study was a comparison between two groups from Canada College: 41 students (using the ILN model) and 28 students (using the traditional learning model). Similar exams and homework were given to both groups of students. The second study was a comparison between Canada College (using the ILN model) and San Francisco State University (SFSU) (using the traditional learning). Pre- and post-tests were given to both groups in order to determine whether the knowledge level is the same. A survey was conducted to measure the students' attitudes towards using the tablet PC. Independent student *t-tests* were performed in order to evaluate the students' performance within the two studies. Results revealed positive perceptions from the students towards the adoption of tablet PCs. The first study results indicated a significant difference between the two groups where ($p < 0.001$) in quizzes and ($p < 0.01$) in homework to those who used the ILN model, but no statistical difference has been observed in the final exam. Moreover, the second study results have revealed a statistical difference between the two groups where ($p < 0.05$) in quizzes and ($p < 0.05$) in the final exam to those who used the ILN model, but no statistical difference was noticed in the homework. Furthermore, post-tests have indicated that Canada College students in the second study have achieved higher scores than SFSU students.

Hargis et al., (2014) addresses the educators' perceptions toward the impacts of the iPad initiative within the Higher Colleges of Technology (HCT), UAE. The iPad initiative has been applied to foundation program students. iPad 3 has been provided to all the students and educators at the foundation program with 22 apps downloaded as a bulk by the college. Data were collected via interviews and surveys. Results have been interpreted within the SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis

framework. Findings from interviews and surveys revealed positive results where the observed strengths outperform the observed threats. Moreover, results indicated that the faculty members are positively supporting the adoption of the new technology. Nevertheless, results have shown that using a couple of apps allow the faculty members to prepare their materials easily. Although the study has presented significant results, it has shown some limitations. The study has focused only on students enrolled in the foundation program. Moreover, it only examines the faculty members' perceptions towards the adoption of the iPad without studying its impact on students' perceptions.

2.3.2 E-podium

Abachi & Muhammad (2014) conducted a study at King Saud University, Saudi Arabia on the effects of M-learning on students and instructors when utilizing and accessing the E-podium technology (an electronic device that records a lecture while it is being delivered within the class and uploads it to the LMS). Two surveys were conducted. The first survey examines the effectiveness of E-podium technology. The second survey verifies the effectiveness of M-learning on students and instructors. The data analyses using *t-test* revealed that 80-90% of students were significantly positive towards using E-podium. Results also indicated that 80% of the students have agreed on receiving an updated material through their mobile devices. Furthermore, more than 80% of students and instructors were positive towards the adoption of M-learning.

Al Emran & Shaalan (2014) proposed a new model that combines four technological resources: M-learning, E-podium, website and video conferencing. The model enables knowledge management mechanisms of lectures materials and makes it easy for students to access these materials. The model offers convenient means for communicating with instructors via video-conferencing. Moreover, the proposed model facilitates knowledge creation and transformation via the integration of M-learning and E-podium.

2.3.3 Social Media

Gikas & Grant (2013) conducted a study for addressing the effects of mobile technologies on learning and teaching and how these technologies have been integrated with social media for providing better learning. Social media technology, in the form of

Skype, twitter, and blogs, are used for sharing ideas and discussions. Data were collected via focus group interviews in order to hear the experiences and perceptions towards the use of mobile technology within three universities in USA. Three instructors, and between two to four students from each university participated in Skype interviews. Results revealed that mobile technology has brought significant benefits to the universities' classrooms. These benefits include: Accessing information quickly and enhancing communication among students and educators.

Erkollar & Oberer (2012) addressed the integration of M-learning with Geographic Information System (GIS) module in a pilot course within a Turkish university. Each student has been provided with a tablet device. Google + and Hangout have been used as a social media in order to facilitate the communication. Surveys were conducted in order to evaluate the students' attitudes towards M-learning and social media. Results revealed that most of the students have interacted effectively with Google +. Moreover, all the students have used Hangout to conduct video conferencing among them, and with their instructors; particularly, in their office hour for discussing course assignments and projects.

2.3.4 eBooks

Glackin et al. (2014) attempted to address the effects of mobile devices and eBooks on student learning. Three questions were involved within the study. The questions are: Will the utilization of mobile devices affect students' access to eResources? What are the benefits and drawbacks behind using mobile devices? How mobile devices will affect the student learning? Data were collected through pre- and post-surveys and focus groups within two universities. The study has targeted the graduate students of social work and both the under- and postgraduate students of nursing. *Pre-survey* was conducted to examine the students' familiarity with mobile devices and eBooks while *post-survey* (including all the *pre-survey* questions with some additional questions) was conducted to determine the impacts of eBooks-based mobile devices on students. Results revealed that 68% of the students were using their mobile devices to access the eBooks within the *pre-survey* while this percentage has been increased to 82% in the *post-survey*. Results indicated that only 72% of the students have access to two mobile devices or more

supported with Internet access. Independent *t-test* results revealed that using two or more mobile devices will significantly increase the students' frequency of accessing eBooks. Students indicated that mobile devices make it easy for them to access eBooks anywhere and at their convenience without referring to the library. Moreover, 81% of the students stated that using mobile devices and eBooks have increased their ability to access the materials easily.

2.3.5 Language Learning

Azar & Nasiri (2014) investigated the Iranian EFL (English as a Foreign Language) students' attitudes towards the adoption of Mobile Assisted Language Learning (MALL) on listening. Two research questions were concerned within the study. The first question tries to compare the impact of cell-phone based audio-books versus the traditional audio-books that uses either CD-ROM or audio-cassette. The second question is concerned with the EFL students' attitudes towards the mobile technology. Seventy students were participated within the study and divided into two equal groups. Both groups were enrolled for the Oxford Placement Test (OPT), as a pre-test. Post-tests were also given to both groups in order to examine the students listening comprehension improvements. The pre- and post-tests were concerned with the first research question. MALL survey and interviews were conducted to address the second research question. Results revealed that there was no significant difference between the two groups in the OPT test while the post-tests results indicated that the *mean* score of the experimental group was higher than the *mean* score of the comparison group. Moreover, almost all of the learners indicated that the MALL is more useful due to its ease of use in listening to topics of interest using their cell-phones.

Jaradat (2014) tries to investigate the students' attitudes towards the effectiveness of mobile phones as a learning tool for French language at Princess Nora University, Saudi Arabia. All the university students are females. The study attempts to answer two research questions. The first question is: What is the applicable method for achieving better students' interaction and understanding? While the second question is: Is there any difference before and after using mobile devices with regard to students' performance? Qualitative and quantitative methodologies were used to collect the data. Pre- and post-

tests were conducted through an experiment. A questionnaire was distributed among 36 female students who were interesting in using M-learning. The same students have applied for pre- and post-tests to examine the effectiveness of M-learning. Qualitative data has been collected via interviews with 10 random students from the participant group. The results indicated that all the students have smart phones: iPhone and Blackberry brands. Results revealed that only 76% of students were interested in learning French language via their mobile phones while the rest preferred to keep using the traditional way of learning. Moreover, results indicated that students' performance have achieved a significant score after using the mobile devices. Although the study has used two methodologies to collect the data, but the results are not conclusive due to the restrictions on the number of participants and gender category.

2.3.6 Business learning

A study by (Kutluk & Gülmez 2014) attempts to investigate M-learning perspectives on university students who are taking accounting lessons. The study tries to examine whether there any significant difference among the students' perceptions on M-learning regarding three different factors. The first factor is concerned with the use of mobile devices in the learning process. The second one is involved with the usage of mobile devices in conducting research in accounting lessons. The third one is concerned with the time it takes mobile devices in learning. Data were collected via face to face interviews and surveys with the 4th class students who are taking accounting lessons in the Akdeniz University, Turkey. Results indicated that 77.3% of the students were using their mobile devices for the learning process. Only 20.4% of the students have used their cell phone for making research in accounting lessons. Results regarding spending time on mobile devices revealed that only 46.6% of the students have spent less than an hour a day for using their mobile devices for the learning process. Collectively, the usage of mobile devices was not effectively performed with accounting lessons but students were interested to use their mobile devices in terms of technological support. As a limitation of this study, perceptions of the faculty members of the accounting course were not investigated.

Hall Jr & Smith (2011) addressed the impacts of the iPad initiative program on a graduate management education. Three factors have been taken into account within this study: evaluating the effects of iPad on the learning outcomes, identifying the iPad usage towards students' flexibility and convenience, and assessing the efficiency of the iPad on the environmental sustainability and energy. The iPad initiative was launched on fall, 2010. Two groups of students (iPad group with 17 members and non-iPad group with 23 members) were randomly involved within the study for evaluation. A *Hotel Tycoon* (an operation management simulation that can be played either in a single player or a multiplayer mode) App has been utilized by the iPad group. Results revealed that there is no significant difference in the learning outcomes between the two groups. 80% of the students mentioned that the iPad was a useful tool for reading assignments. Moreover, iPad initiative has contributed to both environmental sustainability and energy by minimizing students' transportation and eliminating the usage of hard-copy books. Nevertheless, students reported that the limitation of iPad has prevented them from running Java applets and flash player.

2.4 Students' and Educators' attitudes towards the use of M-learning in the institutions of higher education

It is important to investigate M-learning technology before applying it to the learning process in higher education. This requires investigating and examining the users' attitudes towards the M-learning technology. As shown, in the literature, M-learning has been recently applied to various universities; however, many universities worldwide still have not yet applied this technology. The following sub-sections review the factors that need to be taken into account when investigating the students' and educators' attitudes (the users of the mobile technology) towards the use of M-learning technology. Students' and educators' attitudes will add a significant value to the recommendations of using M-learning in higher education.

2.4.1 Gender Difference

Cavus (2011) stated that through the use of independent *t*-test there was no significant difference among the students' attitudes in terms of gender category towards the

integration of M-learning and LMS. Rees & Noyes (2007), Wang et al. (2009), Uzunboylu et al. (2009), and Yang (2012) have similarly found that there was no significant difference in genders towards the use of M-learning. In contrast, (Taleb & Sohrabi 2012; Khaddage & Knezek 2013) has indicated that female students were more positive towards the use of mobile phones rather than male students.

Alwraikat & Al Tokhaim (2014) presented in their research study through the use of independent *t*-test that female instructors' attitudes were more positive towards M-learning rather than male instructors, however this observation contradicts with the study by Uzunboylu & Ozdamli (2011) as male instructors' attitudes were more positive towards M-learning than female instructors.

2.4.2 Students' Majors Difference

Taleb & Sohrabi (2012) have indicated in their study that there was no significant difference among the students' attitudes in terms of academic majors towards the use of M-learning.

2.4.3 Academic Rank Difference

Alwraikat & Al Tokhaim (2014) investigated in their research study the difference in academic rank (Instructor, Assistant Professor, Associative Professor, Full Professor) among 365 faculty members' attitudes towards M-learning in King Saud University, Saudi Arabia. Results indicated that instructors' attitudes, i.e. young teaching assistants were more positive towards M-learning than the academic staff of higher ranks.

2.4.4 Academic Experience Difference

Alwraikat & Al Tokhaim (2014) attempted to examine whether there are differences in the faculty members' attitudes towards M-learning with regard to academic experience. Results revealed that faculty members' attitudes with 21 years or more of experience were more positive towards M-learning.

2.4.5 Country Difference

Khaddage & Knezek (2013) attempted to investigate whether there is any significant difference among students' attitudes towards the use of M-learning within two different regions, USA representing a western country and UAE representing a Middle East country. Findings indicated that USA students were more positive towards the use of M-learning technology ($p < 0.05$) rather than the UAE students. It is worth noting that this study has only focused on students' attitudes without considering the faculty members' attitudes.

2.4.6 Smartphone ownership Difference

Khaddage and Knezek (2013) try to examine whether if there is any significant difference among students' attitudes towards the use of M-learning technology with regard to their smartphone ownership. Results indicated that students who own smartphones (114 students) were more positive towards M-learning than those who do not own them (12 students) with ($p < 0.03$).

2.5 Conclusion

Advanced mobile devices are very popular among students and academic staff. The implication of these devices on the modern teaching and learning environment is an active field of research. The emergence of revolutionary M-learning technologies has had a significant impact on educational technology. The new technology has been applied in various universities worldwide, such as: Queen's University Belfast, Canada College, DePauw University, Abilene Christian University, King Saud University, among others. In this review, we have presented the state-of-the-art in M-learning regarding students and educators attitudes towards the adoption of M-learning and highlighted how M-learning has been integrated with different technological resources. Nevertheless, our study includes a review of attitudes of students and educators towards the prospective M-learning in higher education.

In order to obtain a full picture regarding the students and faculty members' attitudes towards applying M-learning, significant factors have been examined in our survey. Our

study indicated that these factors can be classified into three dimensions: factors specific to students, factors specific to faculty members, and factors related to both end-users. The first dimension includes differences in biographical data such as gender and age, and factors related to enrollment such as student major. For faculty members, it includes also the differences in biographical data as well as factors related to the academic career such as academic rank and academic experience. The second dimension includes differences in the ownership and the use of mobile technology in learning. For faculty members, it includes also differences in the ownership as well as the use of mobile technology in teaching. The third dimension includes differences in students' attitudes towards the use of mobile technology in learning. For faculty members, it includes differences in educators' attitudes towards the use of mobile technology in teaching. Examining those factors lead to provide recommendations on the needs to apply M-learning technology. In the literature, those factors have not fully covered, which impact the conclusion about the recommendations on the need of applying M-learning within higher education environments. As a future direction, we recommend that any survey regarding students' and faculty members' attitudes towards the use and adoption of M-learning technology should consider these factors.

Gulf Cooperation Council (GCC) countries are considered fast growing countries in using educational technologies which are promising countries for applying M-learning. In the literature, we observed that M-learning has not yet been studied intensively within the GCC universities. The only exception is the efforts that have been done within the King Saud University, Saudi Arabia (Al-Fahad 2009; Alwraikat & Al Tokhaim 2014). Although, United Arab Emirates (UAE) has launched the iPad initiative in one of its Federal colleges (Hargis et al., 2014) but this study was incomplete and has focused only on faculty members' attitudes without considering students' attitudes. Moreover, the scope of this study was limited and addressed only the foundation program students without taking into concern the students from different specializations. On the other hand, Khaddage & Knezek (2013) has conducted a comparative study of students' attitudes towards the use of M-learning within UAE and USA. However, this study did not investigate the faculty members' attitudes towards M-learning.

Understanding students and faculty members' attitudes within GCC countries is the first step towards applying M-learning. It is evident that there is not yet sufficient and comprehensive study of these attitudes within the GCC countries. This is the reason that motivated us to focus our study on this area and attempt to identify the gaps that have not been covered within the current research.

As a future direction, we recommend to conduct a survey within two neighboring countries within the Gulf region (Oman & UAE). The target of this survey is to examine both students and faculty members' attitudes towards the use of M-learning in the higher education environments. In order to obtain a full picture regarding the students and faculty members' attitudes towards applying M-learning within GCC countries, significant factors will be examined in our survey. These factors are classified among three dimensions: factors specific to students, factors specific to faculty members, and factors related to both end-users. The first dimension includes differences in biographical data such as gender and age, and factors related to enrollment such as student major. For faculty members, it includes also the differences in biographical data as well as factors related to the academic career such as academic rank and academic experience. The second dimension includes differences in the ownership and the use of mobile technology in learning. For faculty members, it includes also differences in the ownership as well as the use of mobile technology in teaching. The third dimension includes differences in students' attitudes towards the use of mobile technology in learning. For faculty members, it includes differences in educators' attitudes towards the use of mobile technology in teaching. Examining those factors lead to provide recommendations on the needs to apply M-learning. In the literature, those factors have not fully covered, which impact the conclusion about the recommendations on the need of applying M-learning within higher education environments. So, we propose to conduct our study on students and educators attitudes towards Mobile Learning in higher education within GCC countries by examining those factors in order to judge the needs to apply M-learning.

Chapter Three

Research Methodology

This chapter demonstrates the methodology that has been conducted in order to examine the students' and faculty members' attitudes towards the use of M-learning in the higher educational sector of the Gulf region countries (Oman & UAE). It highlights the research questions that this study is intended to examine. The study also addresses the venue where the data has been collected from. The participants of the study are presented. The students' and faculty members' surveys structures are demonstrated in details. Furthermore, the chapter reveals the relationship between the research questions and the survey items in terms of students and faculty members.

3.1 Research Methodology

The aim of this study is to examine the students' and faculty members' attitudes towards the use of M-learning in the higher educational environments within the Gulf region countries. Understanding the students' and faculty members' attitudes helps in determining strengths and weaknesses and facilitates the development of the required infrastructure. Attitudes provide an indication on whether or not the students and educators are ready for using M-learning in the learning/education process. A questionnaire or survey method (quantitative method) is used for data collection. Two surveys are prepared: one for students and one for faculty members. The surveys are conducted within two neighboring countries (Oman & UAE), but with different lifestyle, in the Gulf region.

3.2 Research Questions

In order to investigate the students' and faculty members' attitudes towards the use of M-learning in the higher educational sector within the Gulf region countries, the following research questions need to be examined.

RQ1: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of *gender*?

RQ2: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of the academic *major*?

RQ3: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of *smartphone ownership*?

RQ4: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of *country*?

RQ5: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of their *level of study*?

RQ6: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of their *age*?

RQ7: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of *gender*?

RQ8: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of *Academic rank*?

RQ9: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of *Academic experience*?

RQ10: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of *country*?

RQ11: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of *smartphone ownership*?

3.3 Data Collection

Data is collected by using the questionnaire survey method. Surveys have been conducted within two neighboring countries in the Gulf region (Oman & UAE). Two types of surveys are prepared and distributed, one for students and one for faculty members. Surveys are distributed as a hard copy by the researcher himself and with the help of the faculty members at each academic institution. Data was collected in the last quarter of

2014. Five universities from the Gulf region (Oman (N=1) and UAE (N=4)) are responded and participated effectively in conducting this research. Table 1 demonstrates the comprehensive details of the collected data.

University Name	Country	No. of students	No. of faculty members
Al Buraimi University College	Oman	225	24
Total in Oman		225	24
The British University in Dubai	UAE	29	8
The American University in Emirates	UAE	46	8
Murdoch University Dubai	UAE	56	8
Amity University Dubai	UAE	27	6
Total in UAE		158	30
Total		383	54

Table 1: Participants details.

The population of the participated students was selected randomly with different majors from different departments in different level of studies, *undergraduate* (Diploma, Advanced Diploma, Bachelor) and *postgraduate* (Master, PhD) degrees. In addition, faculty members were also selected randomly from different nationalities with different academic ranks and academic experiences.

3.4 Survey Structure

The surveys are designed according to the study requirements. They are prepared and organized by the researcher of this study. The literature review conducted in this study has indicated some items in these surveys. The surveys are prepared in English language as this is the hub language that all the students and faculty members are capable to understand. The surveys are examined carefully to provide clarity to the respondents. The surveys structures for both end-users are discussed in the rest of this section.

3.4.1 Students Survey

The students' survey consists of 28 items (questions) that are divided into three main sections. Appendix A demonstrates a sample of the students' survey sheet.

The first section of the survey consists of (8 items) that represents the student's personal information/demographic data, including: gender, university/college name, age, major,

CGPA, country, passed credit hours and level of study. Table 2 demonstrates a summary of the first section items along with the literature that have been adopted from:

#	Items description	Sources
1	Gender	-
2	University/college name	-
3	Age	-
4	Major	Taleb & Sohrabi (2012)
5	CGPA	Cavus (2011)
6	Country	-
7	Passed Credit Hours	Al-Ani et al. (2013)
8	Level of study	Yadegaridehkordi et al. (2011)

Table 2: Students' personal information items.

The second section consists of (10 items) that represents the student's information regarding the mobile technology. Table 3 presents a summary of the second section items along with the literature that have been adopted from:

#	Items description	Sources
9	Which mobile technology do you have?	-
10	Which (smartphone / tablet) brand do you have?	-
11	The most commonly usage of mobile devices on daily basis is.	Kutluk & Gülmez (2014)
12	Do you use your (smart phone / tablet) in your study?	Kutluk & Gülmez (2014)
13	Which messaging App do you usually use?	-
14	Internet subscription.	-
15	Average time spent on using (smartphone / tablet) for studying on daily basis is.	-
16	Do you use Cloud Storage feature in your education?	-
17	Which mode of communication do you prefer?	-
18	Which mode of discussion do you prefer?	-

Table 3: Students' information regarding Mobile Technology items.

The third section of the survey consists of (10 items) that represents the attitudes towards the use of mobile learning. A five-point *Likert Scale* with strongly agree (5), agree (4), undecided (3), disagree (2), and strongly disagree (1) has been used to measure the (10 items). Table 4 demonstrates a summary of the third section items along with the literature that have been adopted from:

#	Items description	Sources
19	Mobile technology is a useful tool for my study.	-
20	Mobile technology can offer opportunities for communication and team-working.	Liaw & Huang (2012); Cavus (2011).
21	Mobile technology can help me in finding resources related to my study.	-
22	Mobile technology can bring many opportunities to the learning process.	-
23	Mobile technology can help me to access the course-material anytime anywhere.	Cavus (2011)
24	Mobile technology can be an easy way to get feedback and notifications from my instructors.	-
25	Mobile technology can help me to exchange the course-material with my friends.	-
26	Mobile Apps can help me to manage my study.	-
27	Mobile technology can help me to do my coursework.	-
28	Mobile technology can help me to develop my learning skills.	-

Table 4: Students' attitudes towards the use of M-learning.

3.4.2 Faculty Members Survey

The faculty members' survey consists of 29 items (questions), which likewise the students' survey, are divided into three main sections. Appendix B demonstrates a sample of the faculty members' survey sheet.

The first section of the survey consists of (8 items) that represents the educators' personal information/demographic data: gender, university/college name, age, country, qualification, experience in teaching, nationality and academic rank. Table 5 demonstrates a summary of the first section items along with the literature that have been adopted from:

#	Items description	Sources
1	Gender	-
2	University / College Name	-
3	Age	-
4	Country	-
5	Qualification	-
6	Experience in Teaching	Yadegaridehkordi et al. (2011); Alwraikat & Al Tokhaim (2014)
7	Nationality	-
8	Academic Rank	Alwraikat & Al Tokhaim (2014)

Table 5: Faculty members' personal information items.

The second section consists of (11 items) that represents the educators' information regarding the mobile technology. Table 6 presents a summary of the second part items along with the literature that have been adopted from:

#	Items description	Sources
9	Which mobile technology do you have?	-
10	Which (smartphone / tablet) brand do you have?	-
11	The most commonly usage of mobile devices on daily basis is.	Kutluk & Gülmez (2014)
12	Do you use your (smartphone / tablet) in your teaching?	-
13	Which messaging App do you usually use?	-
14	Internet subscription.	-
15	Average time spent on using (smartphone / tablet) for educational purposes on daily basis is.	-
16	Do you share material with students using Cloud Storage?	-
17	Do you think that mobile devices are distractive devices and should not be used in learning?	-
18	Which mode of communication do you prefer?	-
19	Which mode of discussion do you prefer?	-

Table 6: Faculty members' information regarding Mobile Technology items.

The third section of the survey consists of (10 items) that represents the attitudes towards the use of mobile learning. A five-point *Likert Scale* with strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1) has been used to measure the (10

items). Table 7 demonstrates a summary of the third section items along with the literature that have been adopted from:

#	Items description	Sources
20	Mobile technology is a useful and effective tool in Education.	-
21	Mobile technology can offer opportunities for communication and collaboration among teaching staff.	-
22	Mobile technology can help in finding many resources related to my work.	-
23	Mobile technology allows students to be more active with the course-material.	-
24	Mobile technology is suitable for providing feedback for my students.	Alwraikat & Al Tokhaim (2014)
25	Mobile technology can help me to develop my teaching skills.	Alwraikat & Al Tokhaim (2014)
26	Mobile Apps can help me to manage my work.	-
27	Mobile technology can help me in preparing coursework for my students.	-
28	Mobile technology facilitates the communication between the students and their instructors.	-
29	Mobile technology can make my educational role more flexible.	Alwraikat & Al Tokhaim (2014)

Table 7: Faculty members' attitudes towards the use of M-learning.

3.5 Relationship between Research questions and survey items

Since we are working on two independent surveys (one for students and one for faculty members), we are going to use two tables (Table 8 through 9) that illustrate the relationship between the research questions and the survey items. Research questions from (RQ1-RQ6) concern students. Research questions from (RQ7-RQ11) concern the faculty members.

RQs	Items																					
	1	2	3	4	5	6	7	8	9	10-18	19	20	21	22	23	24	25	26	27	28		
RQ1	•									×	•	•	•	•	•	•	•	•	•	•	•	
RQ2				•							•	•	•	•	•	•	•	•	•	•	•	
RQ3									•		•	•	•	•	•	•	•	•	•	•	•	
RQ4						•					•	•	•	•	•	•	•	•	•	•	•	•
RQ5								•			•	•	•	•	•	•	•	•	•	•	•	•
RQ6			•																			

Table 8: The relationship between the research questions and the students’ survey.

RQs	Items																				
	1	2	3	4	5	6	7	8	9	10-19	20	21	22	23	24	25	26	27	28	29	
RQ7	•									×	•	•	•	•	•	•	•	•	•	•	
RQ8								•			•	•	•	•	•	•	•	•	•	•	
RQ9						•					•	•	•	•	•	•	•	•	•	•	•
RQ10				•							•	•	•	•	•	•	•	•	•	•	•
RQ11									•		•	•	•	•	•	•	•	•	•	•	•

Table 9: The relationship between the research questions and the faculty members’ survey.

3.6 Summary

In this chapter, the research questions of the students’ and faculty members’ attitudes towards the use of M-learning in the higher educational within the Gulf region countries have been addressed. The methodology we follow in this study is quantitative since it is based on the use of questionnaire survey. The data have been collected from five different universities in the Gulf region (Oman & UAE). 383 students have taken part within the study (N=225) from Oman and (N=158) from UAE. The students’ and faculty members’ surveys structures have been described in details. The relationships between the research questions and the survey items in terms of students and faculty members are illustrated.

Chapter Four

Discussion of the Results

This chapter highlights the findings of the study by analyzing the collected data. The chapter shows in details how the students' and faculty members' surveys will be analyzed. The independent and dependents variables are presented. The research questions have been answered.

4.1 Students' Data Analysis

The researcher has distributed 383 hard-copy surveys among the students in The Sultan of Oman (N=225) and in the United Arab Emirates (UAE) (N=158). In order to fill the surveys, students are approached. They are from different majors at different levels of academic study with different ages.

4.1.1 Students' personal information / Demographic Data

The personal/demographic data has been summarized in Table 10. The percentage of the female students was 64.8% while only 35.2% was males. 73.1% of the students age ranges between 18 and 22 while this percentage is very far from those who are above 35 (2.1%). 50.7% of the students were from IT major while students in Business Management, English and Project Management were 30%, 13.1% and 6.3% respectively. 58.7 % of the students were Omani resident while 41.3 % of them were Emirati resident. 91.9 % of the students are studying at the undergraduate level while only 8.1 % are studying at the postgraduate level.

#	Items / Questions	Answers	Frequency	Percentage %
1	Gender	Male	135	35.2 %
		Female	248	64.8 %
2	University/College Name	Al Buraimi University College	225	58.7 %
		The British University in Dubai	29	7.6 %
		The American University in Emirates	46	12 %
		Murdoch University Dubai	56	14.6 %
		Amity University Dubai	27	7 %
3	Age	18 to 22	280	73.1 %
		23 to 28	72	18.8 %
		29 to 35	23	6 %
		Above 35	8	2.1 %
4	Major	IT	194	50.7 %
		English	50	13.1 %
		Business Management	115	30 %
		Project Management	24	6.3 %
5	CGPA	0.0 to 1.99	48	12.5 %
		2.0 to 2.99	174	45.4 %
		3.0 to 4.0	161	42 %
6	Country	Oman	225	58.7 %
		UAE	158	41.3 %
7	Passed Credit Hours	0 – 30	139	36.3 %
		31 – 60	153	39.9 %
		61 – 90	45	11.7 %
		91 – 126	46	12 %
8	Level of study	Undergraduate	352	91.9 %
		Postgraduate	31	8.1 %

Table 10: Students' personal/demographic data.

4.1.2 Students' mobile technology information

The students' mobile technology information is demonstrated in Table 11. 71.3% of the students own a smartphone while only 1% of the students do not have them. 41.5% of the students are using their mobile devices (smartphone or tablet) for browsing the Web and accessing their emails. 81.5% of the students are using their mobile devices in their study while only 18.5% do not do so. WhatsApp is the most popular messenger application since it is used by 83.3% of the students. The rest of students are divided almost equally between BBM and traditional SMS.

#	Items / Questions	Answers	Frequency	Percentage %
9	Which mobile technology do you have?	Smartphone	273	71.3 %
		Tablet	12	3.1 %
		Both	94	24.5 %
		None	4	1 %
10	Which (smartphone / tablet) brand do you have?	Apple	136	35.5 %
		Samsung	187	48.8 %
		Nokia	10	2.6 %
		Blackberry	24	6.3 %
		Lenovo	6	1.6 %
		Others	20	5.2 %
11	The most commonly usage of mobile devices on daily basis is:	SMS	63	16.4 %
		Learning / Education	64	16.7 %
		Internet (web / mail)	159	41.5 %
		Games	21	5.5 %
		Music	26	6.8 %
		Facebook / Twitter / Google+	50	13.1 %
12	Do you use your (smart phone / tablet) in your study?	Yes	312	81.5 %
		No	71	18.5 %
13	Which messaging App do you usually use?	SMS	30	7.8 %
		WhatsApp	319	83.3 %
		BBM	34	8.9 %
14	Internet subscription:	University WiFi	82	21.4 %
		Data package	162	42.3 %
		Both	139	36.3 %
15	Average time spent on using (smartphone / tablet) for studying on daily basis is:	None	24	6.3 %
		Less than 2 hours	187	48.8 %
		More than 2 hours	172	44.9 %
16	Do you use Cloud Storage feature in your education?	Yes	225	58.7 %
		No	158	41.3 %
17	Which mode of communication do you prefer?	Audio-Video	196	51.2 %
		Text	187	48.8 %
18	Which mode of discussion do you prefer?	One-to-one	148	38.6 %
		Social Networks	235	61.4 %
		Apps		

Table 11: Students' mobile technology information.

4.2 Faculty Members' Data Analysis

54 hard-copy surveys have been distributed among the faculty members in The Sultan of Oman (N=24) and the United Arab Emirates (UAE) (N=30). The faculty members are approached. They are from different nationalities and have different qualifications with different years of experience of different academic ranks.

4.2.1 Faculty members' personal information / Demographic Data

The personal /demographic data of the faculty members are demonstrate in Table 12. As far as gender is concerned, 66.7 % of them were males while 33.3 % of them were females. 55.6 % of the participants are resident of UAE while 44.4 % of them are resident of Oman. 51.9 % of the faculty members have awarded MSc degree while those with PhD and BSc awards were 31.5% and 16.7%, respectively. 63% of the participants were at the instructor rank while the rest were academic professors.

#	Items / Questions	Answers	Frequency	Percentage %
1	Gender	Male	36	66.7 %
		Female	18	33.3 %
2	University / College Name	Al Buraimi University College	24	44.4 %
		The British University in Dubai	8	14.8 %
		The American University in Emirates	8	14.8 %
		Murdoch University Dubai	8	14.8 %
		Amity University Dubai	6	11.1 %
3	Age	26 to 35	21	38.9 %
		36 to 45	19	35.2 %
		46 to 55	10	18.5 %
		Above 55	4	7.4 %
4	Country	Oman	24	44.4 %
		UAE	30	55.6 %
5	Qualification	BSc	9	16.7 %
		MSc	28	51.9 %
		PhD	17	31.5 %
6	Experience in Teaching	Less than 5 years	18	33.3 %
		Between 5 to 10 years	15	27.8 %
		More than 10 years	21	38.9 %
7	Nationality	Canadian	1	1.9 %
		Indian	12	22.2 %
		Iraqi	5	9.3 %
		Jordanian	3	5.6 %
		Omani	6	11.1 %
		Pakistani	10	18.5 %
		Romanian	1	1.9 %
		South African	1	1.9 %
		Sudanese	1	1.9 %
		Tunisian	5	9.3 %
		UK	6	11.1 %
		USA	3	5.6 %
8	Academic Rank	Instructor	34	63 %
		Assistant Professor	9	16.7 %
		Associative Professor	6	11.1 %
		Professor	5	9.3 %

Table 12: Faculty members' Personal / demographic data.

4.2.2 Faculty members' mobile technology information

The educators' mobile technology information is shown in Table 13. 57.4 % of the faculty members own a smartphone, 37 % of them own both a smartphone and tablet, and 3.7 % of them have neither. 51.9 % of the faculty members use their mobile devices for browsing the Web and accessing their emails, while only 22.2 % use their mobile devices for learning/education. 77.8 % of the faculty members indicated that they were not using their mobile devices in teaching. WhatsApp messenger takes the highest percentage which is used by 79.6 % of the educators as compare with the traditional SMS (16.7 %) and BBM (3.7 %). 63 % of the faculty members indicated that they use their mobile devices for less than 2 hours daily for the educational purposes. 53.7 % of the faculty members indicated that they are preferring to use the text mode of communication while 46.3 % of them preferred to use audio-video mode of communication.

#	Items / Questions	Answers	Frequency	Percentage %
9	Which mobile technology do you have?	Smartphone	31	57.4 %
		Tablet	1	1.9 %
		Both	20	37 %
		None	2	3.7 %
10	Which (smartphone / tablet) brand do you have?	Apple	18	33.3 %
		Samsung	26	48.1 %
		Nokia	1	1.9 %
		Blackberry	2	3.7 %
		Lenovo	0	0 %
		Others	7	13 %
11	The most commonly usage of mobile devices on daily basis is:	SMS	10	18.5 %
		Learning / Education	12	22.2 %
		Internet (web/mail)	28	51.9 %
		Games	0	0 %
		Music	0	0 %
		Facebook / Twitter / Google+	4	7.4 %
12	Do you use your (smartphone / tablet) in your teaching?	Yes	12	22.2 %
		No	42	77.8 %
13	Which messaging App do you usually use?	SMS	9	16.7 %
		WhatsApp	43	79.6 %
		BBM	2	3.7 %
14	Internet subscription:	University WiFi	20	37 %
		Data package	4	7.4 %
		Both	30	55.6 %
15	Average time spent on using (smartphone / tablet) for educational purposes on daily basis is:	None	11	20.4 %
		Less than 2 hours	34	63 %
		More than 2 hours	9	16.7 %
16	Do you share material with students using Cloud Storage?	Yes	10	18.5 %
		No	44	81.5 %
17	Do you think that mobile devices are distractive devices and should not be used in learning?	Yes	12	22.2 %
		No	42	77.8 %
18	Which mode of communication do you prefer?	Audio-Video	25	46.3 %
		Text	29	53.7 %
19	Which mode of discussion do you prefer?	One-to-one	33	61.1 %
		Social Networks Apps	21	38.9 %

Table 13: Faculty members' mobile technology information.

4.3 Statistical Analysis

The statistical analysis approach has been used to indicate whether there is any significant difference between the independent and dependent variables. SPSS statistical analysis software package¹ is used to analyze the collected data via different analysis and testing techniques.

4.3.1 Independent and Dependent Variables

The independent and dependent variables of this study is shown in Table 14. The dependent variables represent a combination of items related to the participants' attitudes. They are item number 19 through 28 for students' attitudes and item number 20 through 29 for faculty members' attitudes (as shown in Appendix 1). In this case choose to have one independent variable and one dependent variable for each research question as the dependent variable itself is a combination of several items.

¹ SPSS statistical software package is available under license agreement to the British University in Dubai, UAE, where this study is conducted.

Research Questions	Independent Variable (IV)	Dependent Variable (DV)
RQ1: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of <i>gender</i> ?	Gender	Attitudes (Items 19-28)
RQ2: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of <i>major</i> ?	Major	Attitudes (Items 19-28)
RQ3: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of <i>smartphone ownership</i> ?	Smartphone ownership	Attitudes (Items 19-28)
RQ4: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of <i>country</i> ?	Country	Attitudes (Items 19-28)
RQ5: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of their <i>level of study</i> ?	Level of Study	Attitudes (Items 19-28)
RQ6: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of their <i>age</i> ?	Age	Attitudes (Items 19-28)
RQ7: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>gender</i> ?	Gender	Attitudes (Items 20-29)
RQ8: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>Academic rank</i> ?	Academic Rank	Attitudes (Items 20-29)
RQ9: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>Academic experience</i> ?	Academic Experience	Attitudes (Items 20-29)
RQ10: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>country</i> ?	Country	Attitudes (Items 20-29)
RQ11: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>smartphone ownership</i> ?	Smartphone ownership	Attitudes (Items 20-29)

Table 14: Independent and dependent variables.

4.3.2 Research Questions' Analysis

RQ1: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of *gender*?

An independent samples *t*-test was carried out to examine if there is any statistical significant difference among the students' attitudes towards the use of M-learning with regard to their gender. As shown in Table 15, the results imply that the mean values for both male and female students do not indicate any significant differences among the

students in their attitudes in terms of gender. The computed value of t is (1.024) and the significance level is ($p = 0.307, p > 0.05$).

	Gender	N	Mean	Std. Deviation	t	Df	Sig.
Attitudes	Male	135	3.5030	1.09775	1.024	381	0.307
	Female	248	3.3919	0.96519			

Table 15: Differences between Students' attitudes in terms of gender.

Similarly, (Cavus 2011; Rees & Noyes 2007; Wang et al., 2009; Uzunboylu et al., 2009; and Yang 2012) have indicated that there were no significant differences among the students' attitudes towards the use of M-learning with regard to their gender. However, (Taleb & Sohrabi 2012; Khaddage & Knezek 2013) have indicated significant differences among the students' attitudes in terms of gender where female students were more positive towards the use of mobile phones rather than male students.

RQ2: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of *major*?

To determine if there is any significant difference among the students' attitudes towards the use of M-learning with regard to their major, means and standard deviations for the students' majors, including IT, English, Business Management and Project Management, are calculated as presented in Table 16. In addition, a one way analysis of variance (ANOVA) is carried out to test if there is any statistical significant difference between mean values. As shown in Table 17, results revealed that there is no statistical significant differences ($p = 0.926, p > 0.05$) among the students' attitudes with regard to their academic majors and the F value is (0.156).

Major	N	Mean	Std. Deviation
IT	194	3.4253	1.05680
English	50	3.5200	.97164
Business Management	115	3.4096	.96591
Project Management	24	3.3958	1.02171
Total	383	3.4311	1.01386

Table 16: Mean and Standard Deviation for students' attitudes in terms of major.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.485	3	.162	0.156	0.926
Within Groups	392.175	379	1.035		
Total	392.660	382			

Table 17: ANOVA results for students' attitudes in terms of their major.

Similarly, (Taleb & Sohrabi 2012) has revealed that there was no significant difference among the students' attitudes towards the use of M-learning in terms of their academic majors.

RQ3: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of *smartphone ownership*?

To determine if there is any significant difference among the students' attitudes towards the use of M-learning with regard to their smartphone ownership, means and standard deviations for the students' smartphone ownership, including smartphone, tablet, both or none, are calculated as shown in Table 18. In addition, a one way analysis of variance (ANOVA) is performed to examine if there is any statistical significant difference between mean values. As shown in Table 19, results revealed that there are statistical significant differences ($p = 0.023$, $p < 0.05$) among the students' attitudes with regard to their smartphone ownership and the F value is (3.229). In order to determine where the differences in mean values occur, the Tukey test for post-hoc comparisons is used. Results indicated that there are statistical differences among the students' attitudes between smartphone and both smartphone and tablet devices where the differences are in favor of both devices.

Smartphone Ownership	N	Mean	Std. Deviation
Smartphone	273	3.3451	1.00080
Tablet	12	3.2417	.95485
Both	94	3.7096	1.02811
None	4	3.3250	.83815
Total	383	3.4311	1.01386

Table 18: Mean and Standard Deviation for students' attitudes in terms of smartphone ownership.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.786	3	3.262	3.229	0.023
Within Groups	382.874	379	1.010		
Total	392.660	382			

Table 19: ANOVA results for students' attitudes in terms of smartphone ownership.

On the other side, (Khaddage and Knezek 2013) indicated that students who own smartphones were more positive towards M-learning than those who do not own them.

RQ4: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of *country*?

An independent samples *t*-test was performed in order to test if there is any statistical significant difference among the students' attitudes towards the use of M-learning within both countries of residence (i.e. Oman & UAE). As shown in Table 20, results indicated a statistical significant difference among the students' attitudes ($p = 0.000$, $p \leq 0.05$), the differences were in favor of students resident in UAE.

	Country	N	Mean	Std. Deviation	t	Df	Sig.
Attitudes	Oman	225	3.2204	1.00704	-5.055	350.117	0.000
	UAE	158	3.7310	0.94868			

Table 20: Differences between Students' attitudes in terms of country.

However, (Khaddage & Knezek 2013) indicated when attempted to compare the students' attitudes within two different countries, that USA students were more positive towards the use of M-learning technology rather than the UAE students.

RQ5: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of their *level of study*?

An independent samples *t*-test was carried out to investigate if there is any statistical significant difference among the students' attitudes towards the use of M-learning with regard to their level of study. As demonstrated in Table 21, the results reveal that the mean scores for both undergraduate and postgraduate levels do not indicate any significant differences ($p = 0.382$, $p > 0.05$) among the students in their attitudes with regard to their level of study and the calculated value of *t* is (-0.875).

	Level of study	N	Mean	Std. Deviation	t	Df	Sig.
Attitudes	Undergraduate	352	3.4176	1.01332	-0.875	381	0.382
	Postgraduate	31	3.5839	1.02408			

Table 21: Differences between Students' attitudes in terms of their level of study.

RQ6: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of their age?

To determine if there is any significant difference among the students' attitudes towards the use of M-learning with regard to their age, means and standard deviations for the students' age groups (i.e. 18 through 22, 23 through 28, 29 through 35 and Above 35) are calculated as shown in Table 22. Furthermore, a one way analysis of variance (ANOVA) was carried out to examine if there is any statistical significant differences between the mean scores. As shown in Table 23, results indicated that there are statistical significant differences ($p = 0.019$, $p < = 0.05$) among the students' attitudes with regard to their age and the calculated of F value is (3.337). In order to determine where the differences in mean scores occur, the Tukey test for post-hoc comparisons was used. Results revealed that there are no statistical differences among the students' attitudes between and within the age groups.

Age	N	Mean	Std. Deviation
18 to 22	280	3.4929	.92876
23 to 28	72	3.2069	1.20309
29 to 35	23	3.6391	1.05991
Above 35	8	2.6875	1.43471
Total	383	3.4311	1.01386

Table 22: Mean and Standard Deviation for students' attitudes in terms of their age.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.104	3	3.368	3.337	0.019
Within Groups	382.556	379	1.009		
Total	392.660	382			

Table 23: ANOVA results for students' attitudes in terms of their age.

RQ7: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of gender?

An independent samples *t*-test was performed to examine if there is any statistical significant difference among the educators' attitudes towards the use of M-learning with regard to their gender. As shown in Table 24, results indicate that the mean scores for both males and females do not indicate any significant differences ($p = 0.482$, $p > 0.05$) among the faculty members in their attitudes with regard to their gender and the calculated value of *t* is (-0.708).

	Gender	N	Mean	Std. Deviation	t	Df	Sig.
Attitudes	Male	36	3.5694	.86877	-0.708	52	0.482
	Female	18	3.7389	.74054			

Table 24: Differences between faculty members' attitudes in terms of gender.

In contrast, (Alwraikat & Al Tokhaim 2014) revealed through the use of an independent *t*-test that female instructors' attitudes were more positive towards M-learning rather than male instructors. Furthermore, (Uzunboylu & Ozdamli 2011) indicated that male instructors' attitudes were more positive towards M-learning than female instructors.

RQ8: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of Academic rank?

To determine if there is any significant difference among the educators' attitudes towards the use of M-learning with regard to academic rank, means and standard deviations for the educators' academic rank (Instructor, Assistant Professor, Associative Professor and Professor) have been calculated as presented in Table 25. Furthermore, a one way analysis of variance (ANOVA) was carried out to test if there is any statistical significant difference between the mean scores. As shown in Table 26, results revealed that there were no statistical significant differences ($p = 0.410$, $p > 0.05$) among the educators' attitudes with regard to their academic rank and the calculate value of *F* is (0.980).

Academic Rank	N	Mean	Std. Deviation
Instructor	34	3.5412	.77386
Assistant Professor	9	3.5222	1.26469
Associative Professor	6	4.1333	.50859
Professor	5	3.7800	.23875
Total	54	3.6259	.82512

Table 25: Mean and Standard Deviation for faculty members' attitudes in terms of academic rank.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.004	3	.668	0.980	0.410
Within Groups	34.079	50	.682		
Total	36.084	53			

Table 26: ANOVA results for faculty members' attitudes in terms of academic rank.

On the other hand, (Alwraikat & Al Tokhaim 2014) indicated through the use of an ANOVA test that instructors' attitudes, i.e. young teaching assistants, were more positive towards M-learning than the academic staff of higher ranks.

RQ9: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of *Academic experience*?

To determine if there is any significant difference among the faculty members' attitudes towards the use of M-learning with regard to academic experience, means and standard deviations for the educators' academic experience (i.e. falling in Less than 5 years, Between 5 to 10 years, and More than 10 years) was calculated as shown in Table 27. Moreover, a one way analysis of variance (ANOVA) was performed to investigate if there is any statistical significant difference between the mean scores. As shown in Table 28, results indicated that there were no statistical significant differences ($p = 0.894$, $p > 0.05$) among the educators' attitudes with regard to their academic experience and the calculate value of F is (0.112).

Academic Experience	N	Mean	Std. Deviation
Less than 5 years	18	3.5611	.84236
Between 5 to 10 years	15	3.7000	.81766
More than 10 years	21	3.6286	.85155
Total	54	3.6259	.82512

Table 27: Mean and Standard Deviation for faculty members' attitudes in terms of academic experience.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.158	2	.079	0.112	0.894
Within Groups	35.926	51	.704		
Total	36.084	53			

Table 28: ANOVA results for faculty members' attitudes in terms of academic experience.

In contrast, (Alwraikat & Al Tokhaim 2014) revealed through the use of an ANOVA test, that faculty members' attitudes with 21 years of experience or more were more positive towards M-learning than the others.

RQ10: is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of *country*?

In order to test if there is any statistical significant difference among the educators' attitudes towards the use of M-learning within residence in both countries (Oman & UAE); an independent sample *t*-test was carried out. As shown in Table 29, results indicate that the mean scores for both countries (Oman and UAE) do not reveal any significant differences ($p = 0.763$, $p > 0.05$) among the faculty members in their attitudes with regard to their country and the calculated value of *t* is (-0.303).

Country	N	Mean	Std. Deviation	t	Df	Sig.
Attitudes Oman	24	3.5875	.79143	-0.303	52	0.763
UAE	30	3.6567	.86331			

Table 29: Differences between faculty members' attitudes in terms of country.

RQ11: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of *smartphone ownership*?

To determine if there is any significant difference among the faculty members' attitudes towards the use of M-learning with regard to their smartphone ownership, means and standard deviations for the educators' smartphone ownership, i.e. smartphone, tablet,

both, or neither, have been calculated as shown in Table 30. Moreover, a one way analysis of variance (ANOVA) was carried out to examine if there is any statistical significant difference between the mean scores. As shown in Table 31, results indicate that there are no statistical significant differences ($p = 0.338$, $p > 0.05$) among the educators' attitudes with regard to their smartphone ownership and the calculate value of F is (1.151).

Smartphone Ownership	N	Mean	Std. Deviation
Smartphone	31	3.4710	.74975
Tablet	1	3.3000	.
Both	20	3.8950	.93385
None	2	3.5000	.56569
Total	54	3.6259	.82512

Table 30: Mean and Standard Deviation for faculty members' attitudes in terms of smartphone ownership.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.330	3	.777	1.151	0.338
Within Groups	33.753	50	.675		
Total	36.084	53			

Table 31: ANOVA results for faculty members' attitudes in terms of smartphone ownership.

4.4 Conclusion

In this chapter, the collected data has been analyzed via using the SPSS statistical software. The students' and faculty members' personal information have been analyzed and presented. The students' and faculty members' mobile technology information have been analyzed and addressed. The independent and dependent variables of the study have been demonstrated. The research questions have been answered in details via using different statistical testing methods. Table 32 summarizes the analysis of all the research questions.

Research Questions	Findings
RQ1: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of <i>gender</i> ?	No differences
RQ2: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of <i>major</i> ?	No differences
RQ3: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of <i>smartphone ownership</i> ?	The differences were in favor of both devices (smartphone and tablet)
RQ4: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of <i>country</i> ?	The differences were in favor of students in UAE.
RQ5: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of their <i>level of study</i> ?	No differences
RQ6: Is there any significant difference among the students' attitudes towards the use of M-learning in terms of their <i>age</i> ?	The differences were in general but not between or within the groups
RQ7: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>gender</i> ?	No differences
RQ8: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>Academic rank</i> ?	No differences
RQ9: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>Academic experience</i> ?	No differences
RQ10: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>country</i> ?	No differences
RQ11: Is there any significant difference among the faculty members' attitudes towards the use of M-learning in terms of <i>smartphone ownership</i> ?	No differences

Table 32: Summary of the research questions analysis.

Chapter Five

Conclusion and Future work

5.1 Conclusion

The emergence of revolutionary M-learning technologies had a significant impact on educational technology. M-learning has been applied in various universities worldwide, such as: Queen's University Belfast, Canada College, DePauw University, Abilene Christian University, King Saud University, among others. In this study, we have presented the state-of-the-art in M-learning regarding students' and educators' attitudes towards the use of M-learning in higher educational institutions. Nevertheless, our study includes a review of the attitudes of students and educators towards the adoption M-learning in higher education and highlighted how M-learning has been integrated with different technological resources.

In the literature, we have noticed that M-learning has not yet been studied intensively within the Gulf region universities. This has motivated us to focus our study on this area and attempt to identify the gaps that have not yet covered within the existing researches.

In order to obtain a full picture about students and faculty members' attitudes towards applying M-learning within the Gulf region countries, two questionnaire surveys have been conducted within two neighboring countries in the Gulf region (Oman & UAE): one for students and another for faculty members. Eleven research questions are intended to be answered within the study. Five universities have taken part within this study. Al Buraimi University College (BUC) in Oman, The British University in Dubai (BUiD), The American University in Emirates (AUE), Murdoch University Dubai and Amity University Dubai in UAE. 383 students have taken part within the study (N=225) from Oman and (N=158) from UAE. 54 instructors have been taken part within the study (N=24) from Oman and (N=30) from UAE. The collected data has been analyzed using the SPSS statistical software package.

By analyzing the demographic data, results indicated that 64.8 % of the students' participants were females while the male students' participants were 35.2 %. Results have also shown that 50.7 % of the students' majors were in IT as compared to the other majors. 58.7 % of the students were resident in Oman while 41.3 % were resident in UAE. 99 % of the students own mobile devices while only 1 % of them do not. 66.7 % of the faculty members' participants were males while only 33.3 % were females. 55.6 % of the faculty members' participants were from UAE universities while only 44.4 % were from Oman. 51.9 % of the faculty members' participants have a master degree while 31.5 % has a PhD, and 16.7 % has a Bachelor. 96.3 % of the faculty members own mobile devices while 3.7 % of them do not.

By answering the research questions, findings indicated a significant difference among the students' attitudes in terms of their smartphone ownership where the differences were in favor of both devices, i.e. smartphone and tablet (**RQ3**). Findings indicated a statistical significant difference among the students' attitudes in terms of country where the differences were in favor of students resident in UAE (**RQ4**). Results were also indicated that there are statistical significant differences among the students' attitudes with regard to their age but without any indication where the differences were occurred (**RQ6**).

On the other side, findings did not indicate any significant differences among the students in their attitudes in terms of gender (**RQ1**), academic majors (**RQ2**), level of study (**RQ5**). Similarly, findings did not indicate any significant differences among the faculty members in their attitudes with regard to their gender (**RQ7**), academic rank (**RQ8**), academic experience (**RQ9**), country (**RQ10**), and smartphone ownership (**RQ11**).

Overall, results give a strong indicator that M-learning can be one of the promising educational technologies to be implemented in the higher educational environments within the Gulf region countries.

5.2 Future Work

In this study, we focused on two countries from the Gulf region (Oman & UAE). Only 54 instructors were took part within the study. Only one university from Oman and four from UAE have taken part within the study. As a future direction, we are interested to conduct the same research questions within other universities in the other countries in the Gulf region such as: Kuwait, Qatar and Bahrain. Samples from other different universities will add more value to the observed results. It is better to increase the number of faculty members; definitely this will add more value to the current results.

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Appendix A: Questionnaires / Surveys

A.1 Students Surveys

Mobile Learning in Higher Education – Students’ Survey

NOTE: The aim of this survey is to investigate your attitudes and beliefs towards the use of mobile technology (Mobile Devices, Tablets) in education. Please, be informed that all the collected data is confidential and will only be used for research purposes. So, we will be grateful if you respond to all the following questions honestly as your answers will be helpful to better understand your attitudes.

Part #1: Personal Information	
#	Items
1	Gender: <input type="checkbox"/> Male. <input type="checkbox"/> Female.
2	University / College Name:
3	Age: <input type="checkbox"/> 18 to 22. <input type="checkbox"/> 23 to 28. <input type="checkbox"/> 29 to 35. <input type="checkbox"/> Above 35.
4	Major:
5	CGPA: <input type="checkbox"/> 0.0 to 1.99. <input type="checkbox"/> 2.0 to 2.99. <input type="checkbox"/> 3.0 to 4.0.
6	Country:
7	Passed Credit Hours: <input type="checkbox"/> 0 – 30. <input type="checkbox"/> 31 – 60. <input type="checkbox"/> 61 – 90. <input type="checkbox"/> 91 – 126.
8	Level of study: <input type="checkbox"/> <u>Undergraduate</u> (Diploma, Advanced Diploma and Bachelor). <input type="checkbox"/> <u>Postgraduate</u> .

Part #2: Mobile Technology Information	
#	Items
9	Which mobile technology do you have? <input type="checkbox"/> Smartphone. <input type="checkbox"/> Tablet (Ex. iPad). <input type="checkbox"/> Both. <input type="checkbox"/> None.
10	Which (smartphone / tablet) brand do you have? <input type="checkbox"/> Apple. <input type="checkbox"/> Samsung. <input type="checkbox"/> Nokia. <input type="checkbox"/> Blackberry. <input type="checkbox"/> Lenovo. <input type="checkbox"/> Others.
11	The most commonly usage of mobile devices on daily basis is: <input type="checkbox"/> SMS. <input type="checkbox"/> Learning / Education. <input type="checkbox"/> Internet (web / mail). <input type="checkbox"/> Games. <input type="checkbox"/> Music. <input type="checkbox"/> Facebook / Twitter / Google+.
12	Do you use your (smart phone / tablet) in your study? <input type="checkbox"/> Yes. <input type="checkbox"/> No.
13	Which messaging App do you usually use? <input type="checkbox"/> SMS. <input type="checkbox"/> WhatsApp. <input type="checkbox"/> BBM.
14	Internet subscription: <input type="checkbox"/> University WiFi. <input type="checkbox"/> Data package. <input type="checkbox"/> Both.
15	Average time spent on using (smartphone / tablet) for studying on daily basis is: <input type="checkbox"/> None. <input type="checkbox"/> Less than 2 hours. <input type="checkbox"/> More than 2 hours.
16	Do you use Cloud Storage feature in your education? <input type="checkbox"/> Yes. <input type="checkbox"/> No.
17	Which mode of communication do you prefer? <input type="checkbox"/> Audio-Video. <input type="checkbox"/> Text.
18	Which mode of discussion do you prefer? <input type="checkbox"/> One-to-one. <input type="checkbox"/> Social Networks Apps.

Part #3: Attitudes towards the use of Mobile learning.						
#	Items	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
19	Mobile technology is a useful tool for my study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Mobile technology can offer opportunities for communication and team-working.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	Mobile technology can help me in finding resources related to my study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Mobile technology can bring many opportunities to the learning process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Mobile technology can help me to access the course-material anytime anywhere.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Mobile technology can be an easy way to get feedback and notifications from my instructors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	Mobile technology can help me to exchange the course-material with my friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	Mobile Apps can help me to manage my study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	Mobile technology can help me to do my coursework.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	Mobile technology can help me to develop my learning skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A.2 Faculty members Surveys

Mobile Learning in Higher Education – Faculty Members’ Survey

NOTE: The aim of this survey is to investigate your attitudes and beliefs towards the use of mobile technology (Mobile Devices, Tablets) in education. Please, be informed that all the collected data is confidential and will only be used for research purposes. So, we will be grateful if you respond to all the following questions honestly as your answers will be helpful to better understand your attitudes.

Part #1: Personal Information	
#	Items
1	Gender: <input type="checkbox"/> Male. <input type="checkbox"/> Female.
2	University / College Name:
3	Age: <input type="checkbox"/> 26 to 35. <input type="checkbox"/> 36 to 45. <input type="checkbox"/> 46 to 55. <input type="checkbox"/> Above 55.
4	Country:
5	Qualification: <input type="checkbox"/> BSc. <input type="checkbox"/> MSc. <input type="checkbox"/> PhD.
6	Experience in Teaching: <input type="checkbox"/> Less than 5 years. <input type="checkbox"/> Between 5 to 10 years. <input type="checkbox"/> More than 10 years.
7	Nationality:
8	Academic Rank: <input type="checkbox"/> Instructor. <input type="checkbox"/> Assistant Professor. <input type="checkbox"/> Associative Professor. <input type="checkbox"/> Professor.

Part #2: Mobile Technology Information	
#	Items
9	Which mobile technology do you have? <input type="checkbox"/> Smartphone. <input type="checkbox"/> Tablet (Ex. iPad). <input type="checkbox"/> Both. <input type="checkbox"/> None.
10	Which (smartphone / tablet) brand do you have? <input type="checkbox"/> Apple. <input type="checkbox"/> Samsung. <input type="checkbox"/> Nokia. <input type="checkbox"/> Blackberry. <input type="checkbox"/> Lenovo. <input type="checkbox"/> Others.
11	The most commonly usage of mobile devices on daily basis is: <input type="checkbox"/> SMS. <input type="checkbox"/> Learning / Education. <input type="checkbox"/> Internet (web/mail). <input type="checkbox"/> Games. <input type="checkbox"/> Music. <input type="checkbox"/> Facebook / Twitter / Google+.
12	Do you use your (smartphone / tablet) in your teaching? <input type="checkbox"/> Yes. <input type="checkbox"/> No.
13	Which messaging App do you usually use? <input type="checkbox"/> SMS. <input type="checkbox"/> WhatsApp. <input type="checkbox"/> BBM.
14	Internet subscription: <input type="checkbox"/> University WiFi. <input type="checkbox"/> Data package. <input type="checkbox"/> Both.
15	Average time spent on using (smartphone / tablet) for educational purposes on daily basis is: <input type="checkbox"/> None. <input type="checkbox"/> Less than 2 hours. <input type="checkbox"/> More than 2 hours.
16	Do you share material with students using Cloud Storage? <input type="checkbox"/> Yes. <input type="checkbox"/> No.
17	Do you think that mobile devices are distractive devices and should not be used in learning? <input type="checkbox"/> Yes. <input type="checkbox"/> No.
18	Which mode of communication do you prefer? <input type="checkbox"/> Audio-Video. <input type="checkbox"/> Text.
19	Which mode of discussion do you prefer? <input type="checkbox"/> One-to-one. <input type="checkbox"/> Social Networks Apps.

Part #3: Attitudes towards the use of Mobile learning.						
#	Items	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
20	Mobile technology is a useful and effective tool in Education.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	Mobile technology can offer opportunities for communication and collaboration among teaching staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Mobile technology can help in finding many resources related to my work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Mobile technology allows students to be more active with the course-material.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Mobile technology is suitable for providing feedback for my students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	Mobile technology can help me to develop my teaching skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	Mobile Apps can help me to manage my work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	Mobile technology can help me in preparing coursework for my students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	Mobile technology facilitates the communication between the students and their instructors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	Mobile technology can make my educational role more flexible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>