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GRADUATE STUDENTS' ATTITUDES AND PERCEPTIONS TOWARDS MOBILE LEARNING AT KING KHALID UNIVERSITY (SAUDI ARABIA)

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GRADUATE STUDENTS' ATTITUDES AND PERCEPTIONS TOWARDS MOBILE LEARNING AT KING KHALID UNIVERSITY (SAUDI ARABIA)

Abstract:

Mobile Learning (mLearning) has become an influential educational technology in higher education. With the internet and other technological developments, mLearning makes it possible for students to learn, collaborate, and share ideas with each other. However, mLearning student acceptance is critical to its effectiveness. Attitudes toward learning is a vital factor in deciding whether or not students are ready to use mLearning for academic purpose. Student attitudes may identify strengths and weaknesses of mLearning and facilitate development of the technology. This qualitative study aims to investigate graduate students' attitudes and perceptions toward using mLearning in education. Data were collected by conducting interviews with fourteen graduate students enrolled in masters and doctoral programs in the College of Education at King Khalid University (KKU), Kingdom of Saudi Arabia. Generally, graduate students in education disciplines had positive attitudes toward mLearning and expressed a desire to use it in their future educational settings. Students perceived mLearning to be valuable for academic purposes, noting the convenience of being able to access course materials, the ease of communicating with other students and professors at their own pace, and the flexibility mobile devices offer over desktop or laptop computers. However, students identified a few usability issues like small screen size and keyboards, and additional cost of mobile devices and the corresponding cost of Internet access as constraints for using mobile devices for learning.

Keywords: Mobile learning, Graduate students, Attitudes, Perceptions ،Qualitative study

اتجاهات وتصورات طلاب الدراسات العليا في جامعة الملك خالد بالسعودية نحو التعلم المتنقل

الملخص:

هدفت هذه الدراسة التعرف إلى اتجاهات وتصورات طلاب الدراسات العليا نحو استخدام تكنولوجيا الهواتف المتنقلة في التعليم .تم جمع البيانات من خلال إجراء مقابلات مع أربعة عشر من طلاب الدراسات العليا المسجلين في برامج الماجستير والدكتوراه في كلية التربية بجامعة الملك خالد بالمملكة العربية السعودية. توصلت نتائج الدراسة إلى وجود اتجاهات إيجابية لدى الطلاب نحو التعلم المتنقل وأعربوا عن رغبتهم في استخدامه في بيئاتهم التعليمية في المستقبل. وأشارت نتائج المقابلات أن وجد الطلاب استخدام الهواتف المتنقلة أمر مريح ويمكّن تعلمهم بشكل أكثر مرونة وحرية من التعلم التقليدي، بسبب سهولة الوصول إلى المحتوى الدراسي، وسهولة التواصل مع زملائهم واساتذتهم، والراحة والفائدة وسهولة الاستخدام المرتبطة بتطبيقات وأدوات الهواتف المتنقلة. ومع ذلك، أشار الطلاب إلى وجود بعض القيود فيما يتعلق باستخدام تكنولوجيا الهواتف المتنقلة في تعليمهم، مثل حجم الشاشة الصغير، لوحات المفاتيح، والتكلفة الاضافية للهواتف المتنقلة والإنترنت.

كلمات مفتاحية: التعلم المتنقل ، طلاب الدراسات العليا ، الاتجاهات ، التصورات ، الدراسة النوعية.

INTRODUCTION

Mobile technologies are portable devices supported by Internet connection. In recent years, these devices have become popular among young people (Al-Hajri, Al-Sharhan, & Al-Hunaiyyan, 2017), particularly among university students (Park, Nam & Cha, 2012). Naturally, the idea of learning through mobile devices has gradually become a trend in the field of digital learning (Jeng, Wu, Huang, Tan & Yang, 2010). This is because learning with such devices promises "new opportunities and could improve the learning process" (Kalinic et al., 2011, p. 1345), and learning with mobile devices can help to achieve educational objectives if used through appropriate learning strategies (Jeng et al., 2010). Using mobile devices in education can provide opportunities for "collaborative learning, students' appreciation of their learning process, consolidation of learning, and ways of helping learners to see a subject differently than why would have done without the use of mobile devices" (Kukulska-Hulme, 2007, p. 4). According to West (2013), mobile devices can be used dramatically to promote learning and bring digital content to students who like these technologies and use them in their learning as they utilize them in their personal lives. This and similar ideas have brought about the concept of mobile learning, also known as "mLearning", a concept attracting considerable attention in the education industry (Alhassan, 2016; Kukulska-Hulme, 2009).

Defined by Park, mLearning is "any educational provision where the sole or dominant technologies are handheld or palmtop devices." (Park et al., 2012, p. 592). The Mobile Learning Network (2013) further described mLearning as "...the exploitation of ubiquitous handheld technologies, together with wireless and mobile phone networks, to facilitate, support, enhance and extend the reach of teaching and learning (What is Mobile Learning? section, para 1). Hummel distinguishes mLearning from e-learning indicating that "mobility itself will influence the way of learning, fostering the utilization of small free time slices for learning and attending lectures" (Hummel, Hlavacs, & Weissenböck, 2002, p. 5). Still others describe mLearning as learning that is delivered to students anytime and anywhere through the use of wireless Internet and mobile devices (Wang, Wu, & Wang, 2009). For the purposes of this paper, mLearning will be used to refer to any teaching and learning that happens with the use of mobile devices.

Recently, the usage of mobile device technologies have become crucial for higher educational institutions worldwide due to the wide spectrum of its benefits. These technologies encourage, facilitate, and increase students' collaboration and interaction by offering a means for accessing, learning, discussing, and sharing through multimedia mobile content even when they are away from their desktop personal computers (PCs) and hardwired Internet connections (Uzunboylu, Cavus, & Ercag, 2009). Based on the idea of anywhere and anytime learning, mobile device technologies provide "a myriad of opportunities to support learning and performance both inside and outside the classroom" (Martin & Ertzberger, 2013, p. 26). According to Miangah and Nezarat (2012)," mLearning is characterized by its potential for learning to be spontaneous, informal, personalized and ubiquitous" (p. 309). Consequently, the future of mLearning "looks promising due to current and continuing innovations such as flexible and touchscreen displays, multi-screen capabilities, powerful batteries with more charge cycles and longer-lasting battery life, and wireless charging." (Al-Shahrani, 2016, p.90).

Statement of the Research Problem

King Khalid University (KKU) delivers numerous programs and applies different strategies in an attempt to affect student learning skills positively. One of these strategies is the use and integration of mobile technology as a vital part of teaching and learning support. Most graduate students, particularly those attending graduate programs in the College of Education at KKU, are regularly using their mobile devices—mostly for entertainment, socialization, keeping in touch with

family and friends, or checking email. Although these devices are very much a part of students' daily life, this does not necessarily mean that they can or want to learn with such devices (Khatoon, Hill & Walmsley, 2014; Farley et al. 2015).

Nevertheless, the implementation and integration of mLearning at institutions of higher education remain in its initial stage (Al-Shahrani, 2016; Duhan & Singh, 2019; Premadasa & Meegama, 2016). The concepts and educational issues surrounding mLearning are growing and need further study (Al-Shahrani, 2016; Shorfuzzaman & Alhussein, 2016; Wang et al., 2009). Despite mobile wireless device technologies commonly available to students, mLearning in higher education is still in its embryonic stage of implementation, especially in developing countries such as Saudi Arabia (Al-Shahrani, 2016), and little research exists on Saudi students' intention to use mLearning for academic purposes. Specifically, students' attitudes towards using mLearning for learning need to be examined and understood more deeply. To our knowledge, in the context of Saudi Arabian education, the acceptance of mLearning by graduate students has received little attention, and limited research studies currently exist to understand graduate students' attitudes and perceptions of their own and the university's role in the use of mLearning.

Successful implementation of mLearning in education is based on student attitudes and willingness to use mobile devices for learning (Al-Shahrani, 2016; Shorfuzzaman & Alhussein, 2016). Given this background, the primary objective of this paper is to understand graduate students' attitudes and perceptions towards mLearning in education. The findings of this study will provide scholars and educators insight about the issues and trends of mLearning in higher education.

Literature Review

Learning benefits of mLearning in education

Mobile devices are useful as instructional tools (Al-Hajri, Al-Sharhan, & Al-Hunaiyyan, 2017) that can be integrated into educational context to improve teaching and learning outcomes (Holenko Dlab, Hoic-Bozic, & Boticki, 2017). These devices are efficient tools for students to interact, connect, communicate and collaborate with classmates and instructors in a course or seek content by accessing rich digital resources (Al-Shahrani & Walker, 2016). The main benefit of mobile devices is their potential for increasing productivity and allowing students to access academic material without the restrictions of time and place (Dias & Victor, 2017).

Compared with computer desktops which need a fixed location and source of power, mobile devices provide more mobility, flexibility, convenience, expediency and immediacy (Park et al., 2014 ; Peng et al., 2009). To benefit from these characteristics, mobile learners use ubiquitous computing technologies to learn the right thing at the right time at the right place (Peng et al., 2009). According to Al-Hunaiyyan et al. (2017), mobile devices have a significant role in enhancing knowledge sharing activities among academicians and help in creating new ways to connect with their campuses, course materials, students' records, and their colleagues. Instructors and students can learn on the go and at their own pace.

With mLearning, there are many different types of teaching methods and dynamic material can be implemented to great effect. According to Al-Hunaiyyan et al. (2017), mobile devices have a significant role in enhancing knowledge sharing activities among academicians and help in creating new ways to connect with their campuses, course materials, students' records, and their colleagues. MLearning lends itself to personalized learning in which students can have course material and delivery optimized for their preferred learning styles.

The Potential Barriers of MLearning

While mobile wireless technologies give students increased flexibility and new opportunities in the education sector(Traxler, 2007), students may be constrained by small screen sizes, limited input and output capabilities, weak processing power, and limited memory (Al-

Shahrani, 2016). Limited availability of wireless networks may also prohibit access to course materials (Croop, 2009). Cost is one of the most important criteria for deciding to adopt mLearning or not. Several educational researchers (Al-Shahrani, 2016; Liu, Han & Li, 2010; Gilham & Van Belle, 2005) found cost a significant factor for mLearning adoption. Some researchers suggest the personal ownership of mobile devices such as smartphones and the cost of unlimited Internet access or texting as prohibitive for some students (Al-Shahrani, 2016; Aderinoye, et al., 2007; Croop, 2009). However, a few years ago, effective and efficient use of mobile devices for teaching and learning was not easily possible because of some drawbacks, but today, most of these drawbacks, which included screen size, battery life, keyboard, etc. have been rectified. Moreover, Williams (2009) suggests that shrinking data storage solutions cost and low mobile device cost is the main benefits of using mobile technology when compared to desktop and laptops. Although mLearning has several weaknesses at present, potential technological solutions have the abilities to tackle these problems (Al-Shahrani, 2016; Georgiev et al., 2004).

Attitudes and Perception Towards MLearning

Attitude has been defined as a "relatively enduring organization of beliefs, feelings, and behavioral tendencies towards socially significant objects, groups, events or symbols" (Hogg & Vaughan, 2005, p.1) and as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations to which it is related" (Allport, 1935, p. 810). For the current study, attitudes are defined as the students' perceptions, opinions, and beliefs about certain aspects of the profession that have a direct impact on their behaviors.

In educational contexts, students' attitudes play a fundamental role in the achievement of educational goals (Al-Shahrani & Walker, 2016). Regarding technological adoption, students' attitudes largely depend on their educational background and proficiency in using technology. It is anticipated that students with adequate experience in using technology are more likely to adopt it for academic purposes. According to DeVore (1980), "Individual perceptions are largely dependent on a person's background, the amount of study and reflection about technology, and personal experiences with technology" (p. 216). Attitudes towards mLearning influence student and instructor adoption of the technology (Ardies, De Maeyer, Gijbels, & van Keulen, 2015).

Many previous studies indicate a positive attitude towards mLearning (i.e., Al-Hajri, Al-Sharhan, & Al-Hunaiyyan, 2017; Alkhunaizan, 2019 ; Jaradat (2014) Kim, 2013; Kukul, Gokcearslan, & Karademir, 2015; Elcicek & Bahceci, 2015). These studies indicate flexibility, convenience (Zou & Li, 2015), portability, and the ability to personalize student learning (Steel, 2012) as factors in fostering a positive attitude. In Saudi Arabia, Jaradat (2014) investigated students' perceptions of using mobile phones as a learning tool for additional reading practices, as well as for grammar and vocabulary learning inside and outside French language classrooms. The study showed that the use of mobile technologies was somewhat accepted among students. Utilizing mobile technologies enhanced students' language (vocabulary), and indicated that the main advantage of mLearning is the accessibility afforded by the technology, as it is unrestricted by place or time. The study concluded that mLearning has the potential to improve Saudi students' interaction and communication among learners and educators as well as their overall learning experience.

There remains a need to assess the attitudes of Saudi graduate students toward mLearning which could differ from secondary or undergraduate students. Based on the literature review, if graduate students perceive mLearning as a useful tool (i.e. compatible with their current activities, convenient, and easy to use), they will (1) demonstrate positive attitudes towards mLearning and subsequently (2) adopt it for their academic purposes. This paper aims to determine if the attitudes

of graduate students concerning mLearning are generally positive, thus indicating a ripe environment for adoption of mLearning pedagogies in Saudi institutions of higher education.

Research Methodology

Study Participants

Participants in the current study consisted of fourteen male graduate students enrolled in both master and doctoral programs in the College of Education at KKU. Face-to-face interviews were scheduled based on the availability of the interviewees. All interviews were conducted in a neutral location on campus. Participants varied in terms of age and academic programs. Eight participants (57%) were age 25–30, two participants (14%) age 31–35, and four participants (29%) age < 36 years. Eight of the participants (57%) were enrolled in a master's program, and six (43%) in doctoral programs.

All of the participants had mobile devices with Internet capacity which could suggest an implicit bias toward mobile technologies. Regarding mobile technology knowledge, (57.1%) rated themselves as *excellent* , (28.6%) rated themselves as *very good*, and (14.3%) rated themselves as *average*. Table 1 summarized respondents'age and academic programs.

Participant Demographic Characteristics

Table 1

Demographic	Categories	Frequency	%
Age	25–30 years	8	57
	31–35 years	2	14
	< 36 years	4	29
Academic Programs	Master	8	57
	Doctoral	6	43
Mobile technology knowledge	Excellent	8	57.1
	Very good	4	28.6
	Average	2	14.3

All of the participants used their mobile devices for daily usages, such as making phone calls and sending messages. Eight of the participants (57%) used their devices for social networking and watching online videos. Five of the participants (36%) occasionally used their mobile devices for Internet searching. Nine of the participants (64%) used their mobile phones for checking and sending e-mails. Consequently, it can be concluded that the graduate students at KKU had a mobile device readiness. Indeed, an informal observation of graduate students at KKU indicates that a majority (98%) have mobile phones and thus a likely readiness to engage in learning using their mobile phones or other wireless devices.

Data Collection and Analysis

Bogdan and Biklen (2007) indicated that in qualitative research interviews may be used as a dominant strategy for data collection or employed in conjunction with observation and other techniques. In this study, interviews were the primary method for data collection. Before conducting interviews, six professors with various backgrounds and experience levels were provided with the interview protocol to assess the validity of the interview questions. Then, nine experts in the field of educational technology were asked to read and evaluate each question to ensure clarity and validity. Since the participants in the study were native Arabic language speaking students, and the questions had been developed by adopting the measurements from research written in English language, the questions were translated from English language into Arabic language. Two professors in the field of applied linguistics at the Department of English (Faculty of Languages and Translation, KKU) reviewed the draft in Arabic language version to validate its

consistency with the original in English language version. The interview questions and their translations to English language are included in the supplemental material.

The research data were collected via interview forms, including nine open-ended questions, in order to allow students to express their views. For the convenience of the participants, interviews were designed to be (30-45) minutes long. Interviews began with a brief explanation of the interview process and a request to record the interview for accuracy. All interviews were recorded, transcribed, and coded following the interview immediately.

Findings and Discussion

Nine open-ended interview questions provide an in-depth understanding of graduate students' attitudes and perceptions towards the use of mLearning in education. The data collected for this study were analyzed using memos. Memos are such analytic or conceptual notes. According to Glaser (1978), memos are "the theorizing write-up of ideas about codes and their relationships as they strike the analyst while coding" (p. 83). Each memo highlighting a significant coding theme. Four major themes were: (1) supporting learning, (2) educational background and proficiency in using technology,(3) drawbacks of mLearning, (4), and the role of the university in supporting technologies. These themes were identified in student responses to the open-ended questions. For each of the themes, an analytical memo was written as a blueprint for the analysis process, with each theme defined in the different transcriptions and field notes.

Theme 1: Supporting Learning

Within the first theme of "supporting learning", two main subthemes have emerged: (i) communicating with professors and classmates and (ii) accessing academic materials.

Communicating with Professors and Classmates

In the interview data, student responses indicated that mLearning could provide an opportunity for communicating with their classmates, professors, and accessing and studying learning materials anytime, anywhere. One student, for instance, said, "I can use my cellular phone to keep in touch with other students using the applications that are available to me … and accessing academic materials." The following quotes also elaborated this perspective:

> "I think mLearning can help me have access to academic materials no matter where I am. I think that mLearning can help students connect to academic materials throughout their day if they are consistent mobile devices users who desire to access class materials in moments of downtime. I can see myself possibly starting to carry my mobile device around to read articles while I wait for meetings to start or while I am waiting to event to happen"

Similarly, another student stated:

> "I think that students will feel that they can access classroom materials at any time, day or night and there is no longer the feeling of having to wait until actual classroom time in order to have vital questions answered. This eases anxiety in the students and allows them to focus their energy on the actual subject matter of the course rather than the logistics involved in communicating."

Sample quotes include:

> "I actually…like the speed with which mobile devices allow me to keep up with my classrooms. As you know…the world moves at a faster pace than ever, so being able to stay connected at all times is extremely important in order to be successful. I believe that mobile access to academic materials supports the concept of learning at all times, in any method possible."

At the interview, students were asked the following question: What is the value of students using mLearning? One student, for instance, indicated:

> "I have talked to a number of students here on campus who commute and travel a lot who depend on their mobile devices to stay in touch with professors and classmates to complete assignments. I have worked on group projects with students who use mobile devices to keep in touch with me about our projects and I have appreciated how quickly some of them respond to my email requests of blackboard posts because they are responding from their mobile devices. In general, it wasn't difficult for me."

Likewise, students' responses indicated that mobile devices technologies are useful for communication because students and professors are available most of the time. Supporting quotes from one student included the following: "students can communicate with their professors and classmates. Professors should be able to get a hold of them a lot easier. It probably is the wave of the future."

Accessing Academic Material

Student responses indicated high motivation to use a mobile device as a tool allowing them to access learning materials anytime, anywhere. Student attitudes and perceptions reveal an implicit understanding of accessibility, in line with what previous studies (i.e., Holenko Dlab, Hoic-Bozic, & Boticki, 2017; Premadasa & Meegama, 2016; Traxler, 2007) have demonstrated—that mLearning extends students' capacity to access information by allowing them to carry mobile devices. One reported, "It is convenient for people, so they are not locked into being stuck at a desktop computer. If they are not able to afford a computer but have a smart phone, that would be helpful to them as well."

In addition, one student who was more comfortable using his mobile device than his desktop computer to access to academic materials said: " I think that since students are coming in with more proficiency in the use of technology, they are probably more quick and comfortable on their smart phone than at desktop computers. They do not want to be stuck in computer labs and their dorm rooms." Another student said that, "students can go wherever they would like and have easy access materials through the university's Blackboard system," demonstrating an intuitive understanding of the findings of previous studies (e.g., Al-Hajri, Al-Sharhan, & Al-Hunaiyyan, 2017; Al-Fahad, 2009; Chang et al., 2016; Jiugen & Ruonan, 2016; Holenko Dlab, Hoic-Bozic, & Boticki, 2017; Peng et al., 2009).

From students' perspective in this study, using mobile devices were more comfortable and more convenient to carry around compared to PCs, and these features enable them to carry communication and learning tools anytime and anywhere with them into a real-world context. Students, who perceive mobile devices as being convenient, usefulness, and ease of use, have a positive attitude toward mLearning.

Theme 2: Educational Background and Proficiency in Using Technology

To understand students' experience in using technology they were asked to identify their educational background and proficiency in using technology. One stated he is fairly proficient in using some technology for some purposes and still have a lot of room for growth to become proficient in using other technologies for other purposes. Another stated: "My smartphone is something I use every day, mostly for keeping in touch with family and for checking e-mail; not as much for 'academic' pursuits.".

One of students also stated, he is proficient in most of the Microsoft Office programs (Outlook, Excel, Word, and PowerPoint). Another student reported that he has employed the use of design programs such as QuarkXPress and Photoshop (see Appendix A). Students, on average, demonstrated technological fluency for their academic work outside of the mobile environment.

Theme 3: The Role of the University in Supporting Technologies

To understand the role of the university in supporting technologies, students, in this study, were asked to identify the role of the university in encouraging them to use mLearning. Students highlighted adequate wireless coverage at the university where this study was conducted. One student indicated that "Wi-Fi communication access in academic buildings had been spread. So students can access on-campus Wi-Fi from their iPad and other mobile devices". Supporting quotes from one student included the following: " I see the university supporting the use of mLearning a lot. I think that the clear support of a mobile site and the spread of Wi-Fi in an academic building is strong evidence of their encouragement and support for student to use mLearning. I think that an educational establishment like the universities or schools that supports the use of mLearning are making a statement about how pervasive education is, and how important it is for students to incorporate their educational lives into their entire lives." Another student said: "I have noticed that my current class doesn't discourage smart phone use when seeking answers to particular questions. I haven't been instructed one way or another at this point and was surprised that it wasn't discouraged when other students use it."

University endorsement of mobile technology sends a message to students that instruction can occur outside of the campus. According to Wagner and Wilson (2005), "The adoption of next-generation Wi-Fi and MAN/WAN cellular networks will continue to deliver on the promise of 'anywhere, anytime access'..."(p. 43) (see Appendix A). A university that encourages the use of mLearning signals the importance of life-long learning and actively engaging in education no matter where students are located.

Theme 4: Drawbacks of MLearning

Even given all the benefits of using mobile devices, one cannot deny there are some drawbacks of using these technologies. To find out disadvantages of using mobile devices for learning, students were asked to identify issues that might face them while using these mobile devices for academic learning. Students' responses identified some factors that may influence their attitudes negatively: usability barriers, the cost of mobile devices and the cost of services plans to offer Wi-Fi connection.These were the main constraints identified when using mobile devices for learning purposes.

Usability Issues

One of the most critical factors that influence graduate students' mobile technology acceptance is related to usability issues. Two of the students identified usability issues such as small screen size and keyboards as constraints for using mobile devices in an educational context. Sample quotes include "…the small screen and keyboards make it inconvenient and undesirable for me to really use my smart phone for academic learning. I prefer the larger screen of the computer." Another student who identified that the small screen size could make viewing cumbersome, cause

eye strain, or it is difficult for vision-impaired students, also, indicated "…I do not have the greatest vision, and I sometimes find that using a mobile device to do a lot of reading taxes my eyes in an undesirable way." Students are concerned that the screen size of mobile devices may influence learning and they are more comfortable with using larger screen of the desktop. Their responses are negative indications of the importance of mobile devices and their implications on academic learning. Therefore, students are challenged by small screen size may want to consider mobile devices in a larger format, such as a tablet like the iPad. This result is similar to those of earlier studies related to mLearning (Al-Shahrani, 2016; Wentzel et al. 2005). However, one student stated , "…I see mLearning becoming bigger and more prevalent in the future." This finding is confirmed by what Al-Shahrani (2016) and Georgiev et al. (2004) indicated that the new mobile devices that, are being released by well-known companies such as Apple and Samsung, try to provide users with more futuristic, full screens, lightweight, and easy to use devices primarily in the educational context.

The Cost of Mobile Devices and Internet access

Cost is one of the crucial factors in deciding to adopt mLearning or not. At the interview, students were asked to identify the issues might face when using mLearning for academic learning. While some students reported the cost of unlimited data plans, a few of them mentioned the cost of mobile devices, such as smart phones, and the corresponding cost of Internet access can be prohibitive. Students explicitly expressed their negative feelings toward the use of mobile devices for learning: One stated that, "I am concerned about the potentially prohibitive costs associated for some students to have mobile devices." One student quoted the following: "I have found myself a little resistant to using mobile technology for classroom purposes, and again one of the main reasons for this resistance and the limited personal use is because there is a heavy cost associated with mobile technology devices…Yeah, the cost of the device itself is a big fee and the monthly costs associated with maintaining a "data plan" is high, as well."

Students reported that their old mobile devices with limited functionality and features reduced their experience using mLearning for academic purposes. One stated: "I have little experience using mLearning in and out of the classroom. This is mainly true because I have not generally had a mobile device capable of using Blackboard on the device in the past". Another student, also, stated, "…my smart phone is pretty slow, and the Internet service does not always work." As indicated above, the students' response is a negative indication of the importance of mLearning effects on learning. They are concerned about their experience in using mobile devices and additional fees and service costs that may come with mLearning capabilities. As the literature suggests, there are potential barriers to the use of mobile devices such as small screen sizes, limited input, and output capabilities, cost, technical challenges and limited access to broadband wireless (Al-Shahrani, 2016; Croop, 2009; Koole et al., 2010).

Conclusions and Recommendations

In general, the results of this study indicated that graduate students have positive attitudes and perceptions towards mLearning in education. Based on the findings of the study, students perceive mobile devices to be valuable for academic purposes. They liked the convenience of being able to access the course materials, communicate with other students and professors on the mobile device at a time and place that are appropriate and convenient for them, and it provides more flexibility and availability than PCs. Ease of use for them to learn while moving at anytime and anywhere. However, students came up with a few obstacles of using mLearning such as small screen size and ability to view edit or read files when needed to support learning and potential

barriers to the acceptance of mLearning. Students with challenges related to screen size may want to consider mobile devices in a large screen size such as the iPad, Nook or Kindle. Students also were most concerned that the additional cost of mobile devices and the service plans would be problematic for them. Learning is becoming more distributed where students will use their mobile devices to access their course materials at anytime and anywhere. It is important to note that due to the high cost and small screen size of mobile devices, the implementation of these devices may prove to be a challenge in the academic setting.

The study's findings will assist students, instructors and the educational institutions in evaluating the future impact of mLearning. The study was limiting insofar as it only interviewed graduate students at one university. To obtain a diverse and broad perception of the issues relating to the integration of the mLearning approach, it is essential to extend the interviewing process to the other key stakeholders such as undergraduate and instructors and professors, technical support staff, and administrators in the future research. As is the norm in Saudi Arabia, the university study site is segregated by gender. Accordingly, the current study captured the perspectives of male graduate students only. The perspectives of female graduate students should be sought to determine if they are similar to the perspectives of male graduate students.

Regarding institutional adoption of mLearning, this study also helped identify current perceptions graduate student willingness to adopt in their academic settings. Incorporating mobile devices in learning classroom could be helpful. These devices provide an additional means of communication and instant feedback, assistance instant information sharing, etc., whether in groups or individually. Allowing professors and students to interact with each other in mobile applications such as WhatsApp for extra support, assistance, consultations, etc., could be very instrumental to learning process. In addition to email, students could reach their professors using mobile applications, such WhatsApp or Short Message Service (SMS), for instant feedback, assistance, etc., whether in groups or individually (see Appendix A). Besides, both instructors and learners can share information in the form of asynchronous messages anytime, anywhere.

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