Factors That Influence Mobile Learning Acceptance in Higher Education Institutions in Dubai

Mohammad Issa Saleem Al-Zoubi

Irbid National University, Jordan

ARTICLE INFO	ABSTRACT
corresponding Author: ***Mohammad Issa Saleem Al-Zoubi*** Irbid National University, Jordan	Many studies have scrutinised the benefits of m-learning. Somehow, it is still necessary to comprehend the dissatisfaction of certain learners towards m-learning experience. Thus, this research aims to investigate the factors that might impact the acceptance of m-learning among university students: quality of service, uncertainty avoidance and trust. Portability and access to countless activities are among the advantages of mobile devices, and these foster and ease ubiquitous learning. This study scrutinises the theories and cognitive techniques to offer individualised, motivated and valuable experience of mobile education for transfer to the subsequent word learning and reading comprehension. As surveys and forms are the data sources, the quantitative methodologies are employed. Twenty six (26) items from diverse research domains were constructed in the questionnaire to measure six constructs, and undergraduate and postgraduate students of the university in Doubi were selected as respondents. Two hundred (395) completed questionnaires were obtained. Further, the modified acceptance framework on TAM and IDT theories is adopted to identify the influencing factors of students' intention to use m-Learning. Also, eight hypotheses were formulated to analyse the linkages between the factors in the proposed model. Most positive correlation between quality of service, student readiness, trust, compatibility, perceived ease of use, perceived usefulness and behavior intention to use M-Learning by empirical data. This study looks into a timely topic of integrating a mobile device amongst students at higher education in Dubai. Several crucial implications for the students are highlighted in this study.

Introduction

Kukulska-Hulme and Shield (2008) and Behera (2013) describe mobile learning (m-Learning) as learning that can possibly occur irrespective of time and place using portable device. According to Shuler (2009) and Kim et al. (2013), this learning method generates learning experience that is more personalised. Also, mobile devices allow users access to learning apps within an assortment of varied contexts when engaged in the interaction with their environment or other users.

Also, m-learning has increased in growth and it is shifting from asynchronous to synchronous instructor-to-learner communication and delivery of content. This is due to the quick technological progress. In particular, asynchronous learning is about obtaining information even when there is no instructor-learner interaction; reading an e-book on a laptop. Conversely, synchronous learning is about active instructor-learner interaction in back and forth manner. An example is the participation of learner in online webinar through enquiries or comments using the tool of video conferencing or a smartphone. M-learning is not restricted by time-and-space. According to Mirski and Abfalter (2004) and Goundar (2011), using this learning method, educators as well as students can communicate using many learning tools by way of mobile gadgets.

Mobile learning (m-learning) is learning with mobile devices in locations and at times that fit the needs of students and often time, it supplements the traditional education. As articulated by Rogers (2009), technology evolves all the time and such change has started to impact the domain of education through enhanced learning opportunities including mobile learning, ubiquitous learning and seamless learning. All these are attainable with mobile devices.

Problem Statement

As reported by Shuler et al. (2012), the investigation of mobile learning particularly in terms of its success or failure has been primarily post trial. Thus, prior to the implementation of m-learning, the elements that influence students' acceptance including acceptance factors, limitations and requirements, have to be examined first (Mtebe & Raisamo, 2014). This way, the researcher could assure that money and time are well spent in the system's implementation which will create success (students' acceptance). Also, the investigation could offer help to universities especially when they want to align their strategic

planning with the students' demands. As Embi and Nordin (2013) had stated, such will foster sounder technology investment. Williams (2009) further indicates m-learning as a substantial alternate platform for learning services. Thus, it is important to be knowledgeable in the influencing factors of m-learning acceptance among higher education institutions' learners. In relation to this, Liu and Han (2010) stated subjective willingness of individuals and cognitive engagement in m-learning activities as among m-learning's success keys.

Thus, within the higher education institutions, two issues are to be addressed in the implementation of m-learning: disparity in terms of the perceptions of technology between students and the university, and inadequate knowledge and integration of students' acceptance during technology investment decision. It is therefore crucial to address the factors, limitations and requirements that impact m-learning acceptance among students in higher learning institutions (universities). Therefore, this study attempts to discover the factors or dimensions impacting students' acceptance towards m-learning. Further, a model of mobile learning acceptance will be constructed.

Service quality, social influence and cultural differences are three of the impacting factors of the acceptance of students towards m-learning. Among the three factors, the factor of service quality has been found to impact users' acceptance intention (Abu-al-aish & Love, 2013). Liu and Han (2010) further added that service quality demonstrates a positive causal relationship between user's satisfaction on a web portable and the perceived quality of service in its entirety. These are the reasons why service quality is a crucial contributing factor to students' attitude towards applying m-learning. Also, when the factor of service quality is understood, universities could provide the students with high quality

services and make better their pedagogical and learning strategic plans.

Meanwhile, social influence is the degree to which an individual believes that significant others believe he or she should employ the new system (Cruz et al., 2014). Comprehending the aspect of social influence is crucial within the context of student's interest in m-learning. In fact, the previous studies have reported that the decision of a student often times is affected by their peers or by significant others including parents and instructors (Miller et al., 2003; Abu-al-aish & Love, 2013).

Also, the mobile learning market is increasingly becoming global. As such, cultural difference is now a crucial factor. Therefore, universities or training organizations must understand cultural difference or otherwise, they could not obtain substantial competitive edge (Ariffin & Dyson, 2012). As such, better and more meaningful services' development in higher education realm is attainable when the model of technology acceptance (TAM) and the innovation diffusion theory (IDT) are extended.

Lastly, the primary purpose of this research is to examine the acceptance of student towards m-Learning within the setting of Dubai's higher education. In this paper, the background of the theory and model which could describe and foretell new technology acceptance is highlighted. Next, the methods of research, hypotheses and the reliability of instrument measurement are explained, which then will be followed by the discussion on the study outcomes. The conclusion is presented in section seven and eight. This research is expected to offer greater comprehension on m-Learning acceptance for the situation of students in Dubai.

Theoretical Background and Current Research

In this study, the expanded model of technology acceptance is introduced. This model incorporates

the theory of innovation diffusion to find out the determinants of mobile learning acceptance.

Technology Acceptance Model (TAM)

TAM is a well-established theory. It has five components: perceived ease of use (PEOU), perceived usefulness (PU), attitude toward using (ATU), behavioural intention to use (BI), and behaviour system use (Fred D. Davis, 1989). PEOU denotes the extent to which a user is confident that the application of a certain service would not require effort. Meanwhile, PU refers to the extent to which an individual is sure that the usage of a certain system would lead to the enhanced the individual's job performance. Both PEOU and PU are regarded as the two most instrumental factors for system usage. As stated by Liu and Han (2010), both PEOU and PU make up the core beliefs that contribute to information technology acceptance amongst users. With respect to ATU, this component generates direct prediction of users' BI which in turn decides AU.

Later on, Venkatesh and Davis (2000) introduced TAM2. As an extension of TAM, TAM2 contains additional components: quality of output, image, job relevance, voluntarism, demonstrability of outcomes and subjective norm. At the same time, ATU is not included in TAM2 as this component is considered as weak predictor of either BI or AU. TAM2 is consistent with Taylor and Todd's (1995a; 1995b) works which found that TAM2's external variables have powerful influence on user acceptance, and that both PU and PEOU have indirect impact on AU by way of BI.

Innovation Diffusion Theory (IDT)

Innovation diffusion theory (IDT) (Rogers, 2003) is also a well-established theory for user adoption. IDT explains the innovation decision process, the adoption rate factors as well as various adopters' categories, whereas the achievement of diffusion of innovation is by way of users' acceptance and the application of fresh things or ideas (Zaltman &

Stiff, 1973). IDT is also capable in foretelling the possibility and the rate of an adopted innovation. Rogers (1995) reported that 49-87% of the variance in the rate of its adoption is elucidated by the relative advantage, compatibility, complexity, triability and observability of the innovation.

Combination of TAM2 and IDT Models

TAM and IDT are the most popularly used by scholars when they attempt to describe and predict system application and innovation adoption. In fact, these theories have proven its effectiveness in many empirical studies (e.g., Taylor and P. Todd (1995), G.C. Moore and Benbasat (1996) Igbaria, et al., (1997) and Karahanna, et al., (1999)). Thus, these theories will be the underpinning theories in this study. Specifically, TAM has been employed often when examining the acceptance of Internet applications (e.g., David et al., (2000), Gefen and Straub (2000)). As such, both TAM and IDT are fully able to delve into Electronic Commerce (EC) and Internet application adoption. Also, both theories function as this study's powerful base. It should be noted that TAM and IDT do not come from the same domain. However, there are a number of significant likenesses that both share. Wu and Wang (2005) and Tung, et al. (2014) stated that IDT's relative advantage construct is always regarded as comparable to TAM's PU. Meanwhile, IDT's complexity construct is comparable to TAM's PEOU. There are also studies that employ TAM and IDT in combination such as the study by Lee and Suh (2013) which combined the TAM with the compatibility contract in assessing and elucidating consumer behaviour in virtual store. The study by Tung, et al. (2014) is another example; the authors combined TAM2 with IDT. Figure 1 illustrates the basic model for examining the acceptance of students towards m-learning services.
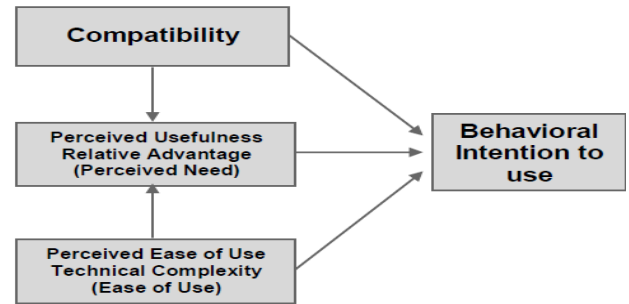

Figure 1. Base Model for Student Acceptance of m-learning.

Research Model Factors

This section looks into the proposed model's constructs.

Service quality

Usually, information on service quality is obtained from the viewpoint of customer attitudes. Meanwhile, quality is about fulfilling the customer's requirements (O'Neill, et al., 2001; Geetika & Nandan, 2010), and the fulfilment of the customer's requirements is dictated by the organization's capacity to identify and satisfy these requirements (Al-Mushasha & Hassan, 2009; El Saghier & Nathan, 2013). The organization believes that it is important to view customers as persons that possess individual requirements. In relation to this, a standard level of service quality should be created in a way that would satisfy these requirements. Thus, organizations that say they offer their customers high-quality services must strive to fulfil their customers' requirements.

Student Readiness

Student readiness is about self-perception of a student about being able to complete learning tasks. There are two concepts in this construct: Mobile self-efficacy and student commitment (internal). The concept of mobile self-efficacy is grounded on the general concept of Bandura's (1982; 1977) self-efficacy. Meanwhile, many scholars have looked into the concept of computer or web self-efficacy (Compeau & Higgins, 1995;

Lopez & Manson, 1997; Park & Chen, 2007). Bandura (1982) explains the concept of self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 122). As proposed by the author, measures of self-efficacy should be altered to certain behavior and psychological functioning under scrutiny. The construct of computer self-efficacy has been described by Compeau and Higgins (1995) as the perception of an individual on his/her capacity in employing a computer in completing a task. A reliable and valid instrument to measure computer self-efficacy has been created by the authors.

Trust Factor

It has been suggested by several studies that lack of trust in online business causes many people to choose not using online services (Hoffman, Novak, & Peralta, 1999; Gefen, 2000; Chen, Gillenson, & Sherrell, 2004). User's trust can be referred as secure and confidence feeling towards depending on certain service. Kaasinen (2007) reported that within the environment of mobile services, trust is an important factor for user acceptance. Trust also imparts a positive impact on positive user intention to use in terms of its development (Chen et al., 2004). Familiarity, which refers to a comprehension of what, why, where, and when other parties do what they do, also impacts trust in e-commerce (Gefen, 2000).

Research Framework and Hypothesis

The factors that could possibly impact users' acceptance of m-learning are examined in this study. This leads to the addition of three more constructs into TAM2 and IDT to allow the scrutiny on the factors that possibly will influence the acceptance of university student of m-learning: service quality, student readiness and trust. The compacted model can explain m-Learning user within this context.
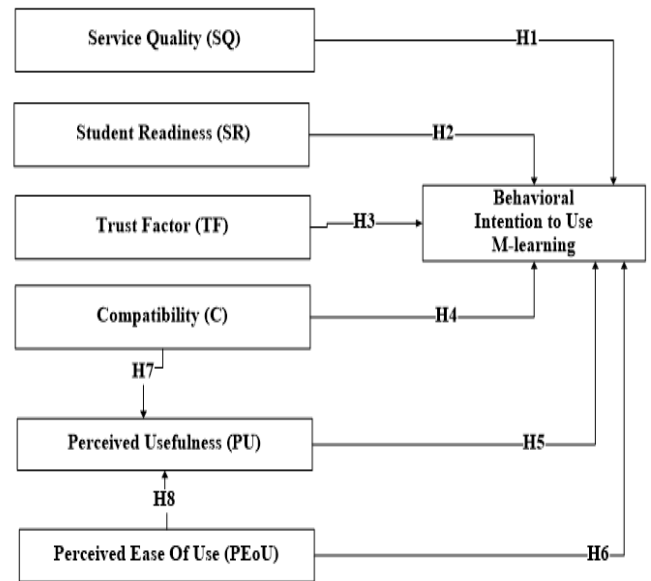

Figure 2. Research Framework

Research Hypotheses

H1: Service quality (SQ) has a significant positive relationship with behavioral intention to use mobile learning.

H2: Student readiness (SR) has a significant positive relationship with behavioral intention to use mobile learning.

H3: Trust factor (TF) has a significant positive relationship with behavioral intention to use mobile learning.

H4**:** Compatibility (C) has a significant positive relationship with behavioral intention to use mobile learning.

H5: Perceived usefulness (PU) has a significant positive relationship with behavioral intention to use mobile learning.

H6: Perceived ease of use (PEOU) has a significant positive relationship with behavioral intention to use mobile learning.

H7: Compatibility (C) has a significant positive relationship with perceived usefulness (PU).

H8: Perceived ease of use (PEOU) has a significant positive relationship with perceived usefulness (PU).

Research Methodology

Four hundred (400) students were selected as sample and 395 completed questionnaires were obtained by this study. Data were collected online, that is, this survey was conducted online to various universities within Doubi. There are two parts in the questionnaire. Part I contains questions that gauge the demographics information of the respondents. This part is analysed in terms of statistic frequency and percentage. Part II contains twenty six (26) items that represent each construct to investigate the relationship between the six primary factors with behavioral intention to make use of mobile learning and evaluate the level of acceptance in terms of its likelihood. The 5-point scale is used for this part and correlation analysis is employed for analysis purpose.

Data Analysis

There are two parts in this section. The first part describes the outcomes of analysis for students' demographic information. As for the second part, it describes the outcomes of Correlation analysis.

Both parts are explained next:

Analysis Result of Part- I

Table 1 below presents the respondents' profile. As shown by the table, more than half of the respondents (59.5%) were females while the rest were (40.5%) males. The majority of the respondents (76%) were from public university while the rest (24%) were studying in private university in Doubi. Also, 44.55% of the respondents were from the business group, 31.15% from the science group, and 24.3% were from the art studies group. Further, the majority of

respondents held Bachelor's degree (90.12%) and the rest held masters' degree and PhD which account for 8.60% and 1.28% respectively. It can thus be said that the levels of education of respondents denote varying student levels.

Table 1: The demographic data of students (N=395)

Measure	Item	N	(%)
Gender	Male	160	40.5
	Female	235	59.5
Type of university	Public	300	76
	Private	95	24
Education	Art Studies	96	24.3
	Science	123	31.15
	Business	176	44.55
Education Level	Bachelor	356	90.12
	Master	34	8.60
	PhD	5	1.28

Analysis Result of Part - II

The purpose of correlation analysis is to assess the linkage between six major factors and behavioral intention to use m-Learning. In a nutshell, the zero-order correlation test on all the hypotheses indicates significance, which means that the hypotheses are all supported at this level. Further, quality of service, readiness of student, trust, compatibility, perceived usefulness, and perceived ease of use show positive indirect associations with the behavioral intention to use m-learning. Also, compatibility and perceived ease of use show positive indirect associations with perceived usefulness. All the correlation outcomes amongst all factors in the proposed model can be viewed in Table 2..

Table 2: Path Coefficients and t-Values of the Hypothesis

The relationship or path	Standardized regression coefficient	Critical ratio or (t-value)	P-value	Significance
SQ & BI	0.455	1.20	0.05	Yes
SR & BI	0.279	2.40	0.001	Yes
TF & BI	0.373	1.50	0.001	Yes
C & BI	0.293	3.01	0.02	Yes
PU & BI	0.301	4.44	0.02	Yes
PEoU & BI	0.243	3.24	0.001	Yes
C & PU	0.123	1.40	0.001	Yes
PEoU & PU	0.234	2.20	0.02	Yes

Conclusion

It is necessary to perform an in-depth study on each m-Learning aspect in the context of Dubai as m-learning in Dubai is still in its infancy stage. The outcomes that this preliminary study has obtained can support the applicable research or create the m-Learning technology to benefit students in the future. This research attempts to look into the acceptance of mobile learning (m-Learning) among the higher education students in Dubai. Factors that positively relate with behavioral intention to use m-Learning are examined. These factors are grounded on the well-established TAM and IDT that have been popularly employed by scholars to elucidate and predict system utilisation and innovation adoption. More than half of the respondents appear to be unfamiliar with m-Learning and yet, their view on m-learning appears to be good. Based on the outcomes, it appears that quality of service, readiness of student and trust are the factors that receive high acceptance level. The outcomes of the survey affirm all the hypotheses. As demonstrated by the outcomes, a positive attitude causes the behavioral intention to use m-Learning. As such, it is important that the university's administration stresses on the system design of m-Learning that fits with the perception of student. Good perception and supportive university policy appear to significantly lead to success in m-Learning system.

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