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MOBILE LEARNING – AN ALTERNATIVE APPROACH IN HIGHER EDUCATION

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Abstract:
Due to the swift proliferation of mobile technology, the use of mobile devices, like notebook computers, and mobile phones, as learning tools has offered people the flexibility and convenience to acquire new knowledge anytime and anywhere. In light of this, growing attention has been paid to the critical roles of perceived flexibility advantages in mobile and online learning (Huang et al, 2014). And because of the increasing use of mobile technologies in society and by the younger generation, learners will demand course materials be delivered on mobile technologies to be accessed from anywhere and at any time. At the same time, today's and tomorrow's learners will be nomadic and continuously on the move. As learners move from one location to the next, they must be able to use the infrastructure in the different locations to access learning materials. Hence, learning materials must be designed for easy access by the nomadic learners using mobile technology regardless of where they are located and which network infrastructure they are using to access information (Ally, 2007). This paper discusses the following issues: mobile learning and higher education, issues in mobile learning, misconception about mobile learning, and mobile technology and education.

Keywords: mobile learning, technology, higher education

1. Introduction

E-learning can be broadly defined as content designed for access through electronic communication, such as the Internet, intranets, digital versatile discs, and synchronous

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and asynchronous modules. M-learning carries the idea of e-learning a step further by adapting its content to handheld devices such as iPods (a digital audio and storage device from Apple Corporation), personal digital assistants, and smartphones. The main objective of m-learning is to provide the learner the ability to assimilate learning anywhere and at any time. In the 90s, mobile learning was part of what defined e-learning. Electronic devices supported the instruction. As technology becomes more sophisticated, smaller, and increasingly portable, and learners increasingly adept at mastering it, the relevancy of m-learning in the world of education has increased. M-learning has now evolved into a discipline of its own. Corporations and educational facilities have recognized the need for this emerging method of instruction (Crescent, Lee, 2016).

As mobile devices are becoming increasingly ubiquitous, many researchers and practitioners have incorporated the technology into their teaching and learning environments. As Keegan, 2002, anticipated, "*mobile learning is a harbinger of the future of learning*". The applications of mobile learning range widely, from K–12 to higher education and corporate learning settings, from formal and informal learning to classroom learning, distance learning, and field study. Despite the many forms of and increasing services offered by mobile learning, it is still immature in terms of its technological limitations and pedagogical considerations. And although some researchers offer a framework for theorizing about mobile learning with conversation theory and activity theory, instructional designers and teachers need a solid theoretical foundation for mobile learning in the context of distance education and more guidance about how to utilize emerging mobile technologies and integrate them into their teaching more effectively (Park, 2011).

2. Mobile learning and higher education

Mobile learning, the use of portable electronic devices to access and share information, is a trend in higher education, and is redefining the manner in which learning takes place and how instruction is delivered. Mobile learning presents students and professionals with the unique opportunity to access information instantaneously regardless of location. This means that learning can occur anywhere at any time through the use of these devices (Foti & Mendez, 2014). The unique capabilities of m-learning have the great potential to enrich the teaching and learning experience (Berking et al, 2013).

For many educators, mobile learning is still something of a novelty. Yet there is a rapidly growing body of evidence, from both research and practice, showing that mobile technologies can be used very effectively as learning and communication tools

by a surprisingly broad range of learners in a variety of settings. With its strong emphasis on learning rather than teaching, mobile learning challenges educators to try to understand learners' needs, circumstances and abilities even better than before. This extends to understanding how learning takes place beyond the classroom, in the course of daily routines, commuting and travel, and in the intersection of education, life, work and leisure. It also extends to understanding learners' previous experiences with mobile technologies, be it at school, in the home, at work or for entertainment, since those are formative experiences that may shape learners' expectations of what can be done with a mobile device or what constitutes mobile learning (Hulme, 2010). Instructors and technology play important roles in education. Human factors are essential in the integration of Information and Communication Technologies. Many of these factors are related to instructor age and gender. Mobile devices form the foundation of ICT that is currently reshaping and revolutionizing global communications. The ubiquity of mobile technology makes it a valuable tool to access online learning resources anytime, anywhere. Mobile learning is defined as a learning medium that allows learners to use mobile devices to search and obtain learning materials anytime anywhere (al Hunaiyyan et al, 2017).

Using mobile technologies in instructionally sound ways offers two advantages. Mobile technologies can effectively bring community instructional resources and activities from the outside into the classroom, bringing similar benefits to those that were seen when computer technologies were first integrated into classroom settings. Mobile technologies, because of their portable and connective nature, can also easily provide learners with resources and new types of instructional activities out of the classroom and in the community. Both advantages can benefit distance learners (Koszalka, Kuswani, 2010).

Hulme believes that Learning is open to all when it is inclusive, and mobile technologies are a powerful means of opening up learning to all those who might otherwise remain at the margins of education. Mobile learning can reach those who have missed out on the opportunity to learn, and those who have been disappointed in their previous experiences of learning that did not seem to be compatible with their personality or that did not fit in with other priorities or busy schedules. Mobile learning can contribute to the global commitment to provide quality education for children, youth and adults (Hulme, 2010). Therefore, educational institutions may encourage instructors to play a significant role in integrating mobile technology into teaching and learning (Al Hunaiyyan et al, 2017). Rajasingham, 2011, thinks that Universities face new challenges. Exponential growth in the demand for higher education, significant decreases in government funding for education, the changing nature of knowledge, changing student demographics and expectations, and global competition, in the

provision of higher education and rapid advances in information and communications technologies demand a reexamination of how universities fulfill their core functions of storage, processing, dissemination, and application of knowledge to real-life problems (Alsaadat, 2017).

3. Related works

Kinshuk and Jesse, 2013, e-learning technologies have allowed authoring and playback of standardized reusable learning objects (RLO) for several years. Effective mobile learning requires similar functionality at both design time and runtime. Mobile devices can play RLO using applications like SMILE, mobile access to a learning management system (LMS), or other systems which deploy content to mobile learners. However, implementations which author content in a mobile context do not typically permit reuse across multiple contexts due to a lack of standardization. Standards based (IMS and SCORM) authoring implementations exist for non-mobile platforms. However, this paradigm precludes capturing learning where and when it occurs. Consequently, RLO authored for e-learning lack learner generated content, especially with timely, relevant, and location aware examples.

Dennen, Hao, 2014, increasingly, the education world finds itself working in an environment that is full of mobile devices and tools. Students are likely to own smartphones and tablets and instructors are faced with the challenge of integrating mobile devices into their course activities, whether as a full delivery medium, an enhancement or an optional tool. The M-COPE framework prompts instructors to consider five critical areas related to mobile learning: Mobile affordances, Conditions, Outcomes, Pedagogy and Ethics. This framework can be integrated with any instructional design process to help instructors engage in the informed design of mobile learning activities. This paper presents the framework and how it can be used with the ADDIE model of instructional design, and provides two case examples of how M-COPE influenced the success of two mobile learning activities.

Schuck, Kearney, Burden, 2016, Mobile learning is enabling educators and students to learn in ways not previously possible. The ways that portable, multi-functional mobile devices can untether the learner from formal institutional learning give scope for learning to be conceptualized in an expanded variety of places, times and ways. In this conceptual article, the authors articulate this notion by using the metaphor of the Third Space to envision what can be achieved with mobile learning. They outline their use of the metaphor, consider how it extends notions of twenty-first century learning and use a previously established Mobile Pedagogical Framework to provide a context for the discussion. They conclude with implications of learning in the Third

Space for teachers and students. These implications suggest that roles of teachers and students and structure of the curriculum need to change to ensure we leverage the potential of mobile learning.

Pimmer, 2016. This study examines digital and mobile learning that goes beyond bounded communities and closed domains. While recent work from the field of mobile learning has emphasized the importance of learning across "contexts," little analytical attention has been paid to the underlying dynamics of this phenomenon. To illuminate this, the four learning mechanisms of identification, coordination, reflection and transformation from the framework of boundary crossing are linked with mobile learning practices. It is argued that mobile phones and specifically mobile social media serve as boundary crossing tools: tools that are used by learners to generate multimodal representations that reflect their experiences and identities, and to share them across their digital and non-digital social networks. The four learning mechanisms are facilitated by the learners' engagement with more heterogeneous and peripheral spaces of their social networks in ways not previously possible.

Wen Shen, et al, 2017. Educational practitioners have adopted social media to their online or mobile communities; little attention has been paid to investigate the social media messages related to online or mobile learning. The purpose of this research is to identify social media influencers and trends by mining Twitter posts related to online learning and mobile learning. They identified the influencers on Twitter by three different measures: the number of tweets posted by each user, the number of mentions by other users for each user, and the number of retweets for each user. They also analyzed the trends of online learning and mobile learning by the following perspectives: the descriptive statistics of the related tweets, the monthly and hourly line charts of the related tweets, the descriptive statistics of the related retweets, the volume trends of the most retweeted tweets, and the top 10 hashtags of the related tweets. The results of this study can provide educational practitioners different ways of understanding and explaining the public opinions toward online learning and mobile learning.

Miftachul, et al, 2017. Cyber counseling or e-therapy has widely been adopted as the new approach to give an insightful guidance into the clients. In higher education level, this initiative seems to have rarely been involved due to some technical requirements and preparations. This paper aims to present the approach of e-therapy using mobile application design. The finding illustrates that promoting this model application can theoretically assist the transmission process of counseling in the academic circumstance where both students and advisors may have a continuous engagement with more convenient quality in solving the issues surrounding the academic purposes. The attainment of this paper is expected to contribute in enabling

the process of academic counseling in the context of higher education. Strengthening practical and relational value maintaining connection to facilitate the sensitive issues disclosure is expected to help students solve their academic issues, such as reflecting the learning achievement.

4. Issues in mobile learning

Peng et al discussed a number of issues that are associated with mobile learners and the upcoming wave of ubiquitous computing in education. Their ideas were taken from different writers, which are educational digital divides, classroom-management issues, issues of network literacy, and the need of building partnership for pedagogically sound educational tools .they reported them as follows:

A. Educational digital divide*:* the digital divide separates those students who are in the wealthier schools from those who are from the poorer ones. However, the hardware digital divide is a temporary phenomenon. As the cost of portable wireless access to the Internet becomes affordable for everyone, the concern will be about the educational digital divide that separates those students who are taught by technology-savvy teachers from those who are not. The development of these ubiquitous computing environments for students presents exciting challenges for teacher education programmes. It seems reasonable to provide programmes or training that focuses on both competencies and visions for both pre-service and in-service teachers.

B. Classroom-management issues: the ubiquitous computing will be a disruptive cultural force that has great potential for good or ill. The widespread and applicative character of computing technologies may result in problems for teachers and students. Many problems are essentially related to a lack of student knowledge and skill in the management of computers, as well as to a lack of teacher experience in classroom management. It could be difficult for teachers to monitor the current learning status of each student. With the wireless environment, students might be easily distracted by off-task behaviors. Researchers have found that students browse irrelevant online resources in class, exchange instant messages with others, or play illegal computer games installed in the mobile devices.

C. Network literacy: as the Internet becomes a primary source of information in mobile learning settings, an increased number of activities are taking place online. The Internet itself is a neutral resource originally designed to facilitate communication. However, the growing obsession with the Internet has also triggered certain negative effects on education. Recently, researchers, school teachers, and parents have become aware that these effects are taking place in high school settings. Issues of network

literacy will need to become a priority across disciplines, and educators will need to promote appropriate and safer use of the Internet.

D. Building partnership for pedagogical educational tools: educators should take a proactive stance towards emerging technology and become integrally involved in the development, as well as the evaluation, of pedagogically sound educational tools. A partnership should be established among schools, corporations, universities, and professional organisations. By becoming involved early in the process, there is a greater chance that hardware and software may meaningfully improve teaching and learning (Peng et al, 2009).

Mobile devices are becoming ubiquitous. This ubiquity and ease of access suggests that their use for mobile learning would be valuable for both students and teachers. In general, information and communication technologies (ICT) have the potential to enhance teachers' professional learning by optimising opportunities for access to current educational information and experiences as well as providing opportunities for teachers to analyse, and collaboratively reflect on, their own practice. In particular, new technologies for collaborative learning provide rapid access to other viewpoints and balance the isolationist tendencies of the profession (Aubusson, Schuck, Urden, 2009).

5. Myths and misconception about mobile learning

Brown and Mbati displayed many point of views about myths and misconception associated with mobile learning, here they are integrated and cited from their study:
Learning while mobile:

This misperception could also be based on the assumption that "mobile" refers to mobility – in other words, learning while "on the move". Interesting in this regard, as pointed out by Parsons (2014), is that we rarely learn while physically moving. He continues by confirming that we tend to take our learning tools with us to the appropriate places. We need to acknowledge though that many learners making use of public transport do in fact participate in mLearning activities while on the move. That is not the misperception though; the misperception lies in the fact that mLearning can take place while the learner is static. The learner need not be physically on the move.

Learning with mobile phones:

A. Mobile phones are of course not the only type of mobile device that can be used for mLearning. This then does open up the discussion about what types of mobile devices should be regarded as mLearning devices. Some researchers include laptops in their definitions; while others feel that a laptop restricts the 'mobility' of a learner and that a mobile device would be those devices that could be operated in a learner's hands.

In other words, that it should be handheld devices. The important issue here is that the misperception is around mobile 'phones' as the distinctive device for mLearning

B. All about the mobile devices: technology should always be regarded as the enabler and not as the driver of our teaching and learning activities. The primary purpose of integrating technology into teaching and learning contexts is to enhance the learning experience. Unfortunately, a large body of pilot studies and trials in the use of technology for enhancement of teaching and learning experiences and outcomes are without explicit educational foundations. The use of technology does not automatically result in effective teaching practices and deep meaningful learning unless effective pedagogical use of the technology is practiced.

C. E-learning accessed through mobile devices: mLearning has been defined by some researchers in the field as eLearning using mobile devices. Some skeptics refer to mLearning as "e-learning lite" as they believe it can only offer snippets of content. It has also been defined as a subset of eLearning and/or as an extension of eLearning (Crescente and Lee, 2011). Although this is true to an extent, Parsons (2014) correctly points out that this view does not take into account any of the additional affordances of the mobile device, for example location awareness and both synchronous and asynchronous collaborative communication.

D. Applicable to distance learning and not to face to face classroom activities: it is needless to point out that there are excellent examples of successful mLearning activities taking place in both distance learning and face-to-face classroom environments. In one example, learners can extend their formal face-to-face learning to homework, field trips, and museum visits by reviewing learning material on mobile devices or collecting and analysing information using handheld devices. mLearning is very suitable for distance learning, but is most definitely not solely applicable to distance learning.

E. Accessing and completing all coursework on a mobile device:

The misperception here is that it should be "fully/totally mobile" similarly to the concept of "fully online" in cases of eLearning solely delivered online. The important point we need to understand here is that mLearning opportunities can be small components, activities or events within any mode of delivery. The key would be in the value that the mLearning component adds to the success and quality of the teaching and learning.

F. Uses existing learning environment design and current teaching and learning methods: Much has been researched and written about the fact that the transition from face-to-face education to eLearning is not a case of merely converting learning materials to distance learning and electronic format, and making it accessible through the Internet. It is now an accepted "no-brainer" that eLearning provides new and unique

affordances to the teaching and learning environment in terms of, for example, resource-rich multimedia learning materials, interactivity and communication. The same goes for mLearning. We cannot merely use our existing eLearning or ODL environment designs and teaching methodologies. It is essential to (re)design our teaching and learning activities to be able to optimise our mLearning environments and to exploit the new and unique affordances, that mLearning provides (Brown, Mbati, 2016).

6. Mobile technology and education

Park conducted a study to review and classify a variety of educational applications with mobile technologies. He generated a conceptual and pedagogical framework that was based on high versus low transactional distance and individualized versus socialized activity. The four types of mobile learning generated in the context of distance education include (1) high transactional distance socialized m-learning, (2) high transactional distance individualized m-learning, (3) low transactional distance socialized m-learning, and (4) low transactional distance individualized m-learning. He stated them as follows:

A. High Transactional Distance and Socialized Mobile Learning Activity: a mobile learning activity is classified as this type when 1) the learners have more psychological and communication space with their instructor or institutional support; 2) the learners are involved in group learning or projects where they communicate, negotiate, and collaborate with each other; 3) learning materials or the rules of activity are delivered from the predetermined program through mobile devices; and 4) transactions mainly occur among learners, and the instructor or teacher has minimal involvement in facilitating the group activity. This type might replace the traditional technology-mediated classroom group activity where students in a group or pair conduct given tasks or assignments.

B. High Transactional Distance and Individualized Mobile Learning Activity: mobile learning activities are classified as type 2 when 1) the individual learners have more psychological and communication space with the instructor or instructional support; 2) the individual learners receive tightly structured and well organized content and resources (e.g., recorded lectures, readings) through mobile devices; 3) the individual learners receive the content and control their learning process in order to master it; and 4) the interactions mainly occur between the individual learner and the content. This type demonstrates an extension of e-learning which allows greater flexibility and portability. Individual learners fit this flexible learning into their mobile lifestyle. This type is mostly influenced by the context regarding when and where to

learn. It also includes mobile learning that makes access to the educational system possible for students in rural areas.

C. Low Transactional Distance and Socialized Mobile Learning Activity: in this type, individual learners interact both with the instructor and other learners as they use mobile devices. They have 1) less psychological and communication space with the instructor; and 2) loosely structured instruction; but (3) work together in a group as they solve the given problem and try to achieve a common goal; and (4) engage in social interaction, negotiation, and frequent communication naturally. This type demonstrates the most advanced forms in terms of the versatility of mobile devices and learners' social interactions.

D. Low Transactional Distance and Individualized Mobile Learning Activity: this last type of mobile activity refers to 1) less psychological and communication space between instructor and learner and 2) loosely structured and undefined learning content. On this basis, 3) individual learners can interact directly with the instructor, and 4) the instructor leads and controls the learning in an effort to meet individual learners' needs while maintaining their independence. This type shows characteristics unique to mobile learning that support blended or hybrid learning (Park, 2011).

7. Conclusion

M-learning has the potential to transform educational practices for a more enriching and personalized experience. With m-learning, learners have the ability to personalize the how, when, and where that they will learn. At their disposal are a variety of applications, information tools, and communities of practice that share the same interests, though not necessarily the same geography. The combination of these elements produces a dynamic educational experience that has not been recognized in the past (Crescent, Lee, 2011). The popularity of mobile and wireless communication technologies has had a great influence on the design concept of learning activities. Hand-held devices, with a high degree of portability, have played an important role in both outdoor activities and indoor activities. Mobile learning integrates digital resources with authentic learning contexts. Such a learning environment not only enables students to learn in real contexts but also provides them with support from the digital world in the right place and at the right time (Hwang et al, 2013).

The role technology can play in the enhancement of the learning experience cannot be overstated. Mobile phones for example have evolved from slow and bulky devices to smaller, sophisticated and ubiquitous smartphones. Contemporary mobile technologies now include various types and sizes of mobile devices, as well as complex and sophisticated systems, software and applications. These mobile technologies have

started to make significant contributions to distance teaching and learning by providing personalised contextual learning experiences. The role technology can play in the enhancement of the learning experience cannot be overstated. Mobile phones for example have evolved from slow and bulky devices to smaller, sophisticated and ubiquitous smartphones. Contemporary mobile technologies now include various types and sizes of mobile devices, as well as complex and sophisticated systems, software and applications. These mobile technologies have started to make significant contributions to distance teaching and learning by providing personalized contextual learning experiences (Brown, Mbati, 2015).

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