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Some Issues Pertinent to Now days Mobile Learning

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ABSTRACT

This paper is intended to touch on some issues related to the new direction of learning, mobility. This paper also will generally go over some issues pertinent to mobile learning and devices where the learners obviously are intending, intentionally or unintentionally, to utilize mobile devices for learning purposes. In addition, it is explicit that the use of ubiquitous devices is increasing among learners and, indeed, some studies show increasing numbers of portable devices users in K-12, postsecondary schools, and training centers. This proliferation of using portable devices (mobile devices) may be referred to the advance of mobile applications programming and affordance. It might be referred to the life demand where the people would exploit their time and learn ubiquitously.

Keywords: *Mobile Learning, Educational Technology, Education, Ubiquitous Learning, Non-Centralized Learning.*

1. INTRODUCTION

It is undoubtedly difficult and challenging to catch up the accelerated development of technology, and this would be only for professionals to be on top of the rapid technological innovations. People in our field, Educational Technology, are working desperately to regulate the incorporation of technology into the field of education, and other fields as teaching and learning means. However, since the beginning of starting to think about being specialized in my favorite field, Instructional Design and Technology, in 2006, it got explicitly appeared that the field of a very thorough field, which turned out that it is a very broad arena and each player in the field should deepen in one specific topic. Indeed, the new scholars in the field should find themes that are newer so that we can invest and investigate to align with the rapid emergence of technology. After starting my doctorate at Northern Illinois University (NIU), I found myself inclined to the mobile learning, the topic that is rapidly developing and invading the educational technology, and the education in general. After conducting some overarching readings in mobile use for learning purpose, I found out that this field is still in its beginnings, this might justify why I was struggling to find pertinent writings that would mobile learning theoretically and practically. In fact, I barely collected some articles related to the mobile learning and most of them are general articles and some are specific. After reviewing these articles, it is possible to divide them into two main tracks, articles study the field theoretically and articles study the field technically. This paper, however, will touch on: mobility, accessing electronic repositories, connectivity to the Internet anytime and anywhere, universities initiated using mobile devices in curricula, social network apps in mobile devices, improving society safety by using mobile devices, learning theories for mobile learning, six-sense technology for mobile learning, Augmented Reality, content standardization in mobile devices, Instructional Design model for mobile learning, the feature of Automatic Speech Recognition (ASR), Ubiquitousness, creating apps for Android, and designing messages for mobile devices for learning purposes.

Although the mobile learning field has slightly different meanings and definitions, it has only one general

concept. The concept is that “mobile learning as an educational activity makes sense only when the technology in use is fully mobile and when the users of the technology are also mobile while they learn (El-Hussein & Cronje, 2010, p.3).

After surfing articles and writings about mobile learning, it has been found that the core concept of it is the mobility. Truly, this is the eminent distinct of mobile learning and what distinguished it from the other Electronic Learning tools and topics. Using portable devices that fit in the pocket is proliferating rapidly in the world, especially among educators and young people. And students in the universities and colleges are most likely using mobile devices for the purpose of learning. This may be because nowadays there are usually more specialized people in educational technology in the universities.

“m Learning is at an early stage, but it is already drawing a great deal of attention in the US, Europe and Asia” (Wang & Shen, 2011, p.2). The world in recent years became a village where everyone can reach the farthest point within a second. Learning has privilege too, no boundaries in the schools that could preclude learning. Accessing electronic repositories of knowledge became easy and efficient and the modern mobile devices are offering the total ability to access those repositories. Not only accessing, but also they offer a huge memory to save documents with customizable view. In fact, “citizens in developing countries do not have desktop computers to access information and learning materials; however, they have mobile devices” (Ally & Samaka, 2013, p.3). In mobile learning, the learners can heavily depend on themselves for pursuing the knowledge they need. According to Ally and Samaka (2013), “with mobile learning, the learning can be more learner-centered since students are the ones who have control of their learning” (p.4).

Regarding the library, this is completely true and evident that accessing on-line electronic libraries is easy, or getting easier, although they might require some cost. In addition, most of the universities around the world

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offer, in their libraries, millions of electronic articles and books that could be used for learning and research, and definitely the learner does not have to come physically to the library. Furthermore, in most universities, the libraries offer a certain engine for searching a specific field, for example Counseling, Adult and Higher Education's page in the library of Northern Illinois University.

One of the most prominent advantageous of mobile learning is the learning anytime and anywhere. In other words, the connectivity to the Internet offers the learning possibility all the time. "Because learners are connected to digital media devices at all times of their day, and are comfortable accessing information through these devices, they [students] no longer require a particular location or environment to review educational material (Gaudill, 2007, p.6). In this case, the learners usually will be working alone, away from assistance office or team. Thus, they might need different types of assistance, uploading, downloading, or fixing texts for example. This assistance could be offered in portable mobile devices with the assistance team or collaboratively with other mobile devices users.

Ubiquity is definitely an important service that is needed in mobile learning to be succeeded and to make it work for teaching and learning. As mobile learners, we are usually sitting in a bus or taking a fresh air outside where we cannot reach the assistance team physically or at a proper time, during working time, if we encounter a problem. As a solution to this possible trouble, the PDA is the best path of receiving help and solving problems personally.

There are numerous universities that are initiated the use of advanced portable and mobile devices, such as iPod, iPad, and iPhone. For instance, Duke University's Digital Initiative program lends iPods to students and staff, or sells them at about a third of the market price (Hlodan, 2010). Rural students in Arkansas riding three hours to school in the Sheridan school district are given iPods or laptops to study science on school buses that are equipped for wireless Internet access (Hlodan, 2010). Indeed, there are a plethora of examples of universities and schools that have initiated using the mobile devices to enrich the curriculum. In educational technology, this is the main goal of integrating the portable mobile devices into the field of education in particular, or into teaching and learning in general.

Social network apps, such as Blogs and Face book, in mobile devices could be used collaboratively to enrich learning and spread knowledge. "The mechanism of socialized Internet improves close interpersonal relationships and provides nonverbal communication media such as multimedia audio-visual objects, images, pictures, and other diverse media (Huang, Yang, Huang, & Hsiao, 2010, p.1). Blogs, for example, can be used to share articles, videos, pictures, related websites, and other media to spread knowledge. However, those on-line apps on mobile could create an appropriate environment to

work collaboratively to enrich the content of a specific course, training, or sharing experiences. This is certainly visible in our field to have blogs, website links, educational videos, and other media to help us understanding the content as well as offering a way to collaborate with other people inside and outside the course.

There are too many benefits of utilizing mobile learning. Lan and Huang (2012) suggested some additional activities for using mobile devices, beside learning activities, "these include the ability to: (a) improve communication and collaborative interaction, (b) provide more learning opportunities for geographically dispersed persons, (c) encourage active learning, (d) enhance the learner's feedback process, and (e) acquire content quickly" (p.1). Also, using mobile devices could enhance societies by spreading the safety. The good example to illustrate this benefit is using the mobile devices to enhance safety in a society by sharing photos, spreading the knowledge, alert, or notification instantly.

In using learning theories in mobile learning, Vygotsky's Scaffolding concept, Berge's Learner Support strategies, and Siemens' Connectivism approach are suggested to be an effective method to support and succeed mobile learning (Ozan, 2013, p.4). Scaffolding concept offers learning specifically for each learner individually, which would be a professional strategy to focus on each learner separately. Ozan (2013) mentioned that "there are four types of scaffolding in this study: Instructional, social, technical and managerial" (p.4). Each type has a different service to offer. Ozan (2013) described the goals of those types. The goal of Instructional type is to support people to learn via technological tools. The goal of social type is to help learners express their thoughts and promote relationships in technological environment. The goal of technical type is to create an appropriate environment where learning occurs. Finally, the goal of managerial type is to allow learners to manage their environment during learning. In addition, Scaffolding concept is usually proper to mobile learning because it gives instant support and communication which absolutely would fit the eminent advantage of mobile learning, anywhere and anytime.

Mobile devices could be used in learning as well as in training. If new staff needs training to learn about the company's products, they can use mobile devices with the barcode reader installed in the mobile devices so that they can scan any product and, thus, its information pops up. I believe this is also considered one of the impressive features of mobile learning. In this example, the trainees would take their time to freely look at the products' information. Another example is the innovation of the six-sense machine invented by Pranav Mistry. This mobile innovation allows its users to scan any product's barcode to look up its information including the ingredients, company information, rating the product by people, recommendation of the product, etc.

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Mobile learning presumably provides an extremely vital learning by using the new technological application; it is called Augmented Reality (AR). This is absolutely a great way of technology that could be used to enhance learning with an integration of technology. To run the AR, the mobile device must be provided with camera, Internet connection, a program installed to function this service. In addition, this pioneering technology allows people with smart phones, Personal Digital Assistants, iPads, small laptops, and other mobile devices to point out the camera in their devices to the any place, or product, that they are interested to get instant information. In other words, the function of Augmented Reality is based on providing immediate information, could be real life, by pointing the lens of the camera to a particular place, and then the place information will be showed up. This advanced technology can be used to explore museums or other educational places. Therefore, the learners, by themselves, can discover educational places, learn products (for training purpose for example), conduct visits, etc. For instance, if we are visiting an interesting place that we would learn about, a museum for example, we used to point the camera towards the building, and information about it shows up on its picture. This powerful technology existed easily only in mobile devices, and it can be used for school visits and explorations.

Mobile learning is implemented by using varieties of portable devices. These devices could be from different companies and brands where the learning objects can be used and reused in some devices and cannot in others. "Standardization of content will explore reuse in a multitude of other tools implementing the same standards" (Kinshuk & Jesse, 2013, p.3). Standards, such as IMS by Global Learning and SCORM (Sharable Content Object Reference Model), must be very helpful to enhance mobile learning without distractions or encountering difficult issues. In addition, this would allow the authentic media to be transferred between mobile devices so that the accessibility will be applied and asserted. Global Learning organization has set standards for the mobile learning devices, and created an app that is used to transfer learning objects for the Blackberry device, in some of its versions. The MAAIMS, Mobile Authentic Authoring in IMS, is an application that can be installed in the Blackberry mobile device in order to share learning objects, specifically to work with Learning Management Systems.

Mobile learning is evolving rapidly and "unfortunately, at the present time many individuals enter this field with no pedagogical guidelines, and based on existing research findings this has become a major issue" (Shih & Mills, 2007, p.2). Shih (2007) invented an instructional design model that fits mobile learning, Shih's Mobile Learning Model. This new mobile learning model based mainly on ARCS model (Attention, Relevance, Confidence, and Satisfaction). This model, proposed by Keller, depends heavily on motivation, which seems to be suitable to motivate

learners in mobile learning environment by using interactive collaboration. "Shih's mobile learning model draws on the philosophy of social constructivism through use of collaborative discussion and a learning styles theory based on digital story telling (Shih, 2005). According to Shih, this model is mainly suitable for blended learning, which is a combination of traditional classroom and online learning albeit it could be used in fully online learning. An experimental study conducted by Shih and Mills in 2007 to see the effectiveness of using mobile learning in a designed learning environment. The intention was to enhance learning environment by pushing learners to utilize mobile devices to participate in discussions, take quizzes, and participate in storytelling. Furthermore, the SMS (Short Message Service) was used to send notifications to the assigned learners and engage them in the content (Shih & Mills, 2007). This study started with looking at the readiness for using mobile devices for learning purposes, which is very logical process before starting piloting and requiring the mobile devices in learning. The results of this study were interesting and although most of the learners do not own smart phones, tablets, or any other portable devices to participate in the required assignments, which are considered to be a deficiency to implement mobile learning, it turned out that the students found it useful and helpful in improving learning. Also, a big percentage from the participants in this study found mobile learning very useful for teamwork, and motivationally interacting with other members as well as interacting with the instructors. According to this precious study, the participants found mobile learning more flexible and convenient and the connection with the instructor is easy and stronger. In addition, the instruction in this experiment is attractive and the quality of learning is "good or better" (Shih & Mills, 2007). One of the crucial findings in this study is that the instructor in mobile learning is facing more challenging time while receiving his/her students' responses in mobile devices (Shih & Mills, 2007). This is clearly a critical hint that we, as educational technologists specialized in mobile learning, should start from the instructors when we have an intention to activate and implement mobile learning in the postsecondary level before requiring learners to use mobile devices in learning purposes. Preparing the instructors for mobile learning is an extremely important to achieve better outcomes. This preparation should be by teaching them the advantages of using mobile devices in learning and what types of devices they can use. In addition, they should be trained how to utilize those devices effectively and purposefully in order to reach the highest potential of positive outcomes. Using mobile learning must be persuasive to the instructors in order to be applied successfully.

One of the features that made the mobile learning more accessible and attracting is the Automatic Speech Recognition (ASR). "Speech is the most natural human form of communication" (Pocatilu & Pocatilu, 2010, p.4). Therefore, mobile device is definitely easier to carry out than the Desktop PC or laptop. It is also convenient to input data into laptop or Desktop PC with wireless mouse

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or any ergonomic machines. With the advanced mobile devices, inputting the data is more convenient and amazing by using ASR where the voice is recognized and used to reach the needed information. The communication always is human-to-human, and “extending this form of communication from man-man to man-machine has been a major breakthrough”(Pocatilu & Pocovnicu, 2010, p.4).Pocatilu and Pocovnicu (2010) mentioned that there are main paradigms in ASR, one is by using phonetic content, phonemes, and the second is by using syllables. The speech production system consists “the lungs, larynx, vocal tract cavity, nasal cavity, teeth, lips, and the connecting tubes” (Pocatilu & Pocovnicu, 2010, p.4). In addition “the combined voice production mechanism produces the variety of vibrations and spectral-temporal compositions that form different speech sounds” (Pocatilu & Pocovnicu, 2010, p.4). This is a very advanced scientific exploration that is used to enhance the use technological devices in learning purposes. Using ASR could be used to search for words, sentences, topics, type words (writing), translation, and talk (Siri in iPhone and Voice talk in Android).

With the revolutionary technology in mobile devices, the social communication is truly changing. Furthermore, “the communication and data transfer possibilities created by mobile technologies (m-technologies) can significantly reduce dependence on fixed locations for work and study, and thus have the potential to revolutionize the way we work and learn” (Peters, 2007).In mobile learning, there are too many unique features that allow learning to be easy, effective, and efficient. Ubiquitousness is the most prominent trait that the mobile devices offer for learning. This easiness feature allows learners to be connected to the knowledge sources everywhere, such as libraries, Learning Management Systems, electronic mails, websites, articles, personal data, blogs, wikis, etc., which absolutely supports life-long learning. Customization is also another feature in mobile devices. Usually, all the mobile devices offer a way, internally or externally, to store documents, usually all types of documents, such as PDF and Microsoft Office documents. If the storage on the mobile device is not enough to store data, the mobile company always offers on-line spaces to save more data and documents. For instance, Apple products offer iCloud, an on-line space where Apple customers can upload, download, and share documents. For Android customers, Google offers Drive service, an on-line storage where Android clients are able to upload, download, share, and editing-share documents.

One of interesting articles related to mobile learning is how to create mobile applications in Android system. A recent article by Dr.Pocatilu(2010) on how to program applications for Android to support mobile learning was really interesting for me because I am an Android user. He started his article by mentioning the components that are consisted for each mobile learning system: mobile learning device, mobile learning software, and mobile learning content.“Android

operating system is a project initiated by Google through the Open Handset Alliance, which includes over 30 companies in ICT” (Pocatilu, 2010, p.2). Google evidently is a dominated company that offers huge on-line content and services. Android system is one of its well-known tangible products that offer attracting content and useful applications. “Android platform is an open source project, allowing its amendment by any manufacturer of mobile devices” (Pocatilu, 2010, p.2). Moreover, the Java programming language is used for creating applications to be used in the Android system.

Message design in mobile learning is a critical for communication between instructors and learners. In general, “Some content is better suited for images while other content is best conveyed through text or audio presentation” (Wang &Shen, 2011, p.3).The message in a learning environment should be stimulus in order to stimulate responses and prompt interactions between instructors and learners. Furthermore, the message in mobile learning could contain text, picture, audio, and video. In addition, “message design is analogous to the use of building blocks, with the whole picture being composed of smaller but well specified elements such as language, images, signs and symbols” (Wang &Shen, 2011, p.9).Indeed, the message in mobile devices must be accurate and precise in order to convey the meaning of the message, and “the goal of message design is to coordinate these elements so that they work together in our brains to provide better accessibility, usability and learning” (Wang &Shen, 2011, p.9).

The audio component is a very critical tool that can be used in mobile devices to enhance learning meaning because the affordance of easy-to-carry headphones and the possibility of listening to lectures while driving or walking.

In conclusion, the future of mobile learning, as related to educational technology, is hidden with lots of improvements that we, as concerned about education and technology, have to integrate into learning and regulated and design the processes. With the mobile learning, six-sense innovation for example, the knowledge is on demand anytime and anywhere. No boundaries that could cease learning or preclude people from reaching their pursuit knowledge. The goal of this paper is to touch on general topics in mobile learning, the themes that I found in some of the informative articles I have read. These topics are mobility, accessing electronic repositories, connectivity of the Internet anytime and anywhere, universities initiated using mobile devices in curricula, social network apps in mobile devices, improving society safety by using mobile devices, learning theories for mobile learning, six-sense technology for mobile learning, Augmented Reality, content standardization in mobile devices, Instructional Design models for mobile learning, the feature of Automatic Speech Recognition (ASR), Ubiquitousness, creating apps for Android, and designing messages for mobile learning.

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