M-Learning in Nigerian Universities: Challenges and Possibilities

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Abstract

M-learning is constantly opening paths that are transforming our way of living, learning and communicating. M-learning has significantly diminished barriers, especially, of distance and space, as a result of which lectures can now be delivered for the benefit of people across countries and continents. This is what globalization aims at achieving – to bring about increasing relationships of culture, people and economic activity. The university students in Nigeria could pursue the goal of achieving a range of experiences offered by m-learning and become competent. Obviously, the use of mobile and portable devices for learning has capabilities to inspire new approaches to learning. The possibilities are limitless and need to be fully explored. This paper fully exposed the kinds of interactions which students in Nigerian universities could exploit using various mobile technologies that have also been fully treated in this work. Even though the challenges of adopting m-learning in Nigerian universities are enormous, it is expected that the first step for the university administrators and teachers would be the modification of the existing curriculum to cater for the context of learning which refers to the learner and the environment. We believe that the demand for graduates with m-learning skills would increase and this represents a unique way of tackling unemployment in Nigeria.

INTRODUCTION

M-learning, with all its regular innovations, is creating a new environment for training, learning and interactive discussions. M-learning is constantly opening paths that are transforming our ways of living, the way we act, think, learn and communicate. This has significantly diminished barriers, especially, of distance and space, as a result of which lectures can be delivered in far-flung areas for the benefit of people across countries and continents. This is what globalization aim to achieve – to bring about increasing relationships of culture, people and economic activity. The circulation of ideas, language and culture, and most importantly, dissemination of knowledge through

information and technology exchange, is perhaps the greatest revolution witnessed by man yet.

Unfortunately, the challenges of implementing m-learning are enormous, especially, in third world countries like Nigeria. According to Dhanarajan (2009) one-third of the world's adult population – most living in the developing world – has no access to printed knowledge, new skills, and technologies that could improve the quality of their lives. For this reason, new technologies are seen as viable solution to these challenges. After all, Chun Hai (2007) strongly believe that technology innovations benefit most the developing and least developing countries (LDCs) and he cited the advent of mobile phone, as an example. According to Valk et al. (2010) of the many different forms of Information and Communications Technologies, mobile phones are thought, for several reasons, to be a particularly suitable tool for advancing education in developing regions. In Nigeria today, nearly all the university students own cell phones and network is available to support the services of the phones even in the remote areas of the communities. This was what Rheingold (2003) predicted as the beginning of the next social revolution.

The concept of mobile learning (m-learning) is learning facilitated by mobile devices. M-learning, according to Sharples et al. (2002) is an emergent paradigm in a state of intense development fuelled by the confluence of three technological streams – ambient computing power, ambient communication and development of intelligent use interfaces. Quinn (2007) defined mobile learning as the intersection of mobile computing (the application of small, portable and wireless computing and communication devices) and e-learning (learning facilitated and supported through the use of information and communications technology). M-learning is that which takes place via such wireless devices as mobile phones, iPod, MP3 player, personal Digital Assistants (PDAs), USB drive, E-book Reader, Ultra-Mobile PC (UMPC), smart phone and laptop/tablet pc. These digital phones can efficiently process information at a fast rate. This implies that many applications are easily accessible: SMS, cell phone games, video, video conferencing, video teleconferencing, chatting, pod casting and television.

The employment of specific type of technology is the only thing that differentiates m-learning from other forms of learning. Mobility in this regard typifies learning that goes on everywhere and anywhere – at home, inside the bus, plane, farm, at a fixed or predetermined place. Vavoula and Sharples (2002) described the three ways in which learning can be considered mobile: “learning is mobile in terms of space, i.e., it happens at the workplace, at home and at places of leisure; it is mobile between different areas of life, i.e., it may relate to work demands, self-employment, or leisure; and it is mobile with respect to time, i.e., it happens at different times during the day, or working days or on weekends” (p. 152).

The university students in Nigeria could pursue the goal of achieving a range of experiences offered by m-learning and become competent. The ability to rapidly provide context for content is the highest application which this new model offers right now. The capacity of m-learning technologies to present matters, not just in text, but graphics, video and sound, and easy input via many different devices such as mice, joysticks, further heightens the interest and curiosity of the learner.

M-learning in developed countries has taken root. It is now providing learning that is truly independent of space and time. M-learning does so by richly interacting through processing and connectivity with users in far distances thereby dispensing with formal activities of learning. Formal learning, according to McGuire and Gubbins (2010) now plays a greatly diminished role, being supplanted by activity-based and technologically-based learning. Unfortunately, it is not success story all through. As Robert and Kelly (2012) observed, despite the rapid growth of the e-learning industry, most educational institutions lack consolidated and comprehensive curricula for training of learners and professionals. And this is much true in Nigerian universities. All across Nigerian universities, it seems that the cell phones and other PDAs were acquired and used by students for more of leisure than study and this calls for change so that interaction by exchange of ideas in an organized way will foster learning.

Classification of mobile technologies used of learning

M-learning by students across Nigerian universities is possible as it creates ways for learners using mobile phones to respond to, and engage in, learning. The range of digital technologies that can be used for learning can be classified into two orthogonal dimensions of personal versus shared and portable versus static (O'Malley et al., 2003).

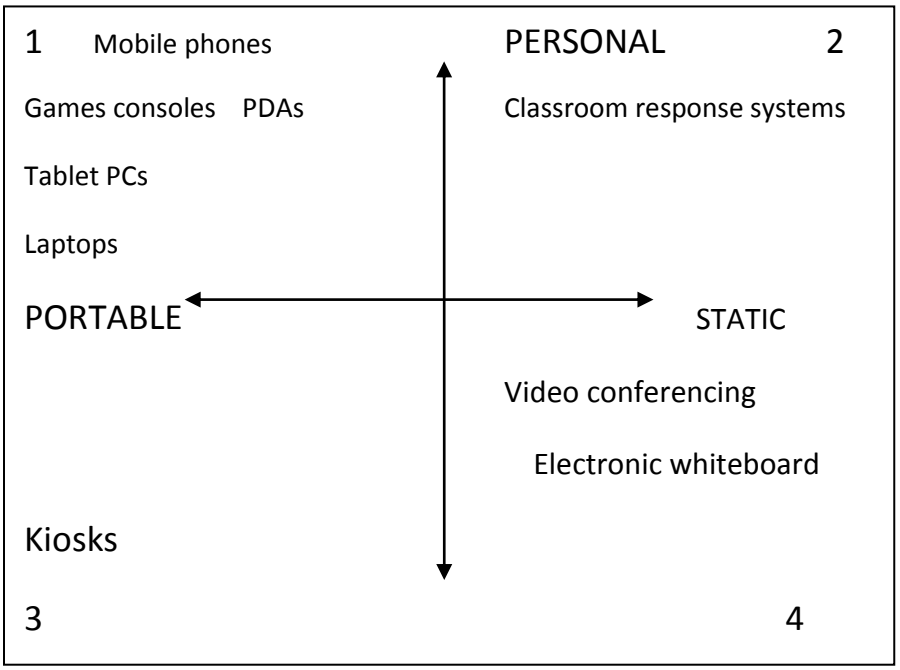

Fig I: Classification of mobile technologies. Adapted from O'Malley et al. (2003)

Clearly, quadrant 1 above shows devices which can be classified as personal and portable and most people view these as mobile technologies: mobile phones, PDAs, tablet PCs, laptops and game consoles. These devices are personal since they support a single user though information they contain can be shared. These devices are portable because they can be carried from place to place. In quadrant 2, classroom response systems are less portable than devices on quadrant 3 but can also offer personal interactions among the learners. This technology is static because it is used in a location by students to respond anonymously to multiple choice questions administered to all the students by the teacher. In quadrant 3, the devices such as kiosks and interactive museum displays can provide learning experiences to learners who are portable but the kiosks themselves are static. These kiosks are large and good

for sharing between multiple users. Quadrant 4 shows large devices that can be shared by multiple users such as interactive classroom whiteboards and video conferencing facilities which are not necessarily classified as mobile technologies.

Mobile device purposes: Challenges and possibilities

The use of mobile or portable devices for learning has capabilities to inspire new approaches to learning. But in Nigerian universities, evidence of application of these devices to learning is lacking, at least, formally. However, the possibilities are limitless and need to be fully explored. In Fig. 2 below, we expose these possibilities and the kind of interactions which students in Nigerian universities can exploit:

Type of mobile technology	**Learning purposes**	**Possible learning benefits**	**Challenges**
iPod	• To download music, podcasts, photos and video. • It can store information.	• Lectures can be downloaded in audio and video. • Exchange of information between students on course work, project and revision. • Teachers can provide visual directions to students.	• Very costly. • Screens are too small. • Not interactive.
Smart phones	• Combines telephone capability with camera, video, PDAs, MP3 player, Internet access, storage and networking features.	• Students can download lectures in audio, video and podcasts formats. • Students can play audio, video and flash movies. • Access e-mail and Web. • Display and edit	• Screen too small. • Keyboard too tiny for efficient inputting. • Very costly.

		texts. • Send IM and text messages. • A mass storage device. • Interactive learning possible.	
MP Player	• Plays music and audio files. • Has integrated voice recorder and line-in recording.	• Students can download podcasts and lectures to listen. • Review of course materials. • Read and listen to audio books. • Lectures can be recorded.	• No interactivity as one-way communication only is possible. • Encoding and transferring of file is time-consuming. • Very costly.
E-Book Reader	• Download text-based materials. • Mass storage of e-books, magazines and newspapers. • H as full-text search facility.	• Student can conduct research. • To download and store text-based instructional materials. • To read resources.	• It has limited computing capability. • Not yet available in large quantity.
MSB Drive	• Mass storage device. • Can easily be attached to computers.	• Mass storage of course work and audio/video files. • Students can collaborate by sharing files. • Transfer, save, and submit work.	• A single purpose device. • Other devices can also store files.
Personal Digital Assistants (PDAs)	• It is programmable. • It can combine Internet, computing and networking capabilities. • It has calendar, address book, notepad and	• Students can use to play audio, video and flash movies. • It can be used to edit text documents. • Students can use to access e-mail and Web sites.	• Bulky and may not be carried in the pocket. • Not efficient for long e-mails and text messages.

	productivity tools. • It has Wi-Fi and Bluetooth. • It has pen/stylus as input interface device.	• It can be used to send IM and text messages. • Use as mass storage device. • Use to support interactive and collaborate learning. • Can be used to present projects. • Can be used for research. • Students can use for taking notes in class.	
Ultra-Mobile PC (UMPC)	• It has all major features of a standard PC. • It supports audio, video and gaming. • Internet support. • Bluetooth, Wi-Fi and Ethernet enabled	• Student can download audio, video lectures and podcasts. • Create and edit assignments. • Surf the Web. • Send e-mails, IMs and text messages. • Students can log on to the course work from a distance. • Global information sharing is possible. • Interactive learning is possible.	• Very costly. • Very small keyboard.
Laptop/Tablet PC	• It has Wi-Fi, Bluetooth and Ethernet. • Can recognize hand writing. • Voice-to-text conversion is possible.	• Students can download audio and voice lectures. • Students can create and edit assignments. • Students can send e-mails,	• Very costly. • Students cannot use it while walking.

		SMS and IM. • Surf the Web. • Students can log on to course Web site on motion. • Interactivity is possible. • Students can conduct research.	

Fig. 2: Possible learning purposes of mobile technologies.

Mobile technologies have characteristics which the learner and the teacher must understand. Kopter et al. (2002) identified five properties of mobile devices, especially the PDAs, that produce unique educational affordances. According to them, portability, social interactivity, context sensitivity, connectivity and individuality are immeasurable. Portability implies that mobile devices can be moved about to different sites due to their small size and weight. Social interactivity is indicative of the fact that exchange and collaboration with other learners can happen face to face while they explained that context sensitivity implies that mobile devices can both gather and respond to real or simulated data unique to the current location, environment and time. On connectivity, a shared network can be created by connecting mobile devices to date collection devices, other devices or to a common network. Finally, they insisted that scaffolding for difficult activities can be customized for individual learners.

The best way to make m-learning possible is by adopting the observed properties of learning to the theories of learning which relate to mobile technologies. The theories that readily come to mind are behaviourist theory which sees learning as a change in observable action. Example is the drill and feedback activities and other classroom response systems. The constructivists believe that learning takes place when the learners can construct new ideas – participatory simulations – from both past and present experiences. The collaborative believe in social interaction for learning to happen. This can be seen when students use mobile computer-supported collaborative learning. Situated learning refer to activities that promote learning within the authentic context and culture which Perry (2003) referred to as the problem and case-based learning and context awareness. Educators who believe in the informal and lifelong activities, do not agree that learning can happen only when it takes place in the context

of school and curriculum. In fact, they encourage activities which promote learning outside a dedicated learning environment and formal curriculum which Perry referred to as supporting intentional and accidental learning episodes. Mobile learning is strongly one of such out of school context learning. Learning and teaching support is believed to be necessarily a component of any king of effective learning. Here, activities that help coordinate learners and resources for learning to take place, are encouraged, e.g. personal organization and support for administrative duties. Digital technologies when handled properly have far too many advantages to be ignored. According to Tubman, et al. (2006) m-learning is often credited for saving money, reducing travel time, increasing access to experts, and enabling self-paced learning which eliminates barriers of time, distance, and socioeconomic status.

Utilizing mobile technology for teaching and learning – Implication for Nigerian Universities

Teaching and learning with mobile technologies has been going on for two decades in Europe and the USA. Organizational training programs increasingly use technology-based training methods such as online simulation, mobile learning, social networks, and podcasts to complement traditional methods (Bell et al., 2004; McGuire and Gubbins, 2010; Patel, 2010). Furthermore, academic programs commonly associated with e-learning careers include business, education and social sciences (Anon., 1955). Similarly, according to Fisher (2005) the profession of training and development specialists in e-learning is one of the 20 fastest-growing professional jobs in the next ten years with an increase of over 20%. This is good for the purpose of professional development and combating of unemployment in the country. Students may not have to be deep experts en every dimensions of m-learning-related training but having an operational understanding of m-learning fundamentals which underlie business activities globally, would help them better communicate to meet objectives of business.

The very first issue that both learners and teachers must consider is that of the context of learning which refers to the user and the environment. From the onset, we must understand that digital technologies do not do the learning, we do. But creation of

application soft ware locally is very vital. Sometime in March, 2010, a workshop was held in Nigeria in collaboration with ICT researchers from the London Knowledge Laboratory, UK to look for means of creating local applications that would enable mobile learning in Nigerian universities and polytechnics. Most universities in Nigeria have initiated digital technology which can support m-learning, but the resulting applications may not be appropriate, nor can it be effective in the school context. Technical experts need to be engaged so that specialized attention could be paid to the development of the right kind of gadgets to enable delivery and tracking.

The issue of mobility must be considered. The learner should not only know but appreciate the fact that learning can take place anywhere outside the teacher-managed classroom and that the devices are capable of providing him with the capability to link activities which most often can be outside the curriculum and the teachers plan. Learning over time is a key issue and the student should understand that they need mobile technologies to support this. According to Vavoula (2004), lifelong learners will need effective tools to record, organize and reflect on their mobile learning experiences. The majority of the students already have mobile phones but emphasis need to be made that ownership of mobile phones is not enough, devices that will make such cell phones work in the context of the learning activities. Teachers and learners should not lose sight of the fact that there is benefit for informality. Students do like to l earn when formalities are relaxed and learners could find their way through activities.

To effectively implement a mobile learning model, teachers should deal with very obvious issues. These issues include the following: The cost of acquiring devices and networking equipment must be carefully undertaken. While students could easily own their cell phones and any other PDAs, the teacher together with the school authority should ensure that networking equipment were provided while technical support is engaged on contractual basis if they cannot be engaged full time.

Both the teachers, learners and those who may be involved in creating the content of what is to be learned must ensure that all requirements are understood and accepted by all who are to use mobile applications for teaching and learning. Furthermore, the technologies to be used should be assessed to ensure their suitability

for the learning tasks and ensure that ones with highest advantages are used. The designers could be very helpful in determining this. Teachers can take the bull by the horn by initiating the m-learning program and thereafter ensure that it is supported. Lack of competence can derail mobile learning programs because teachers in Nigeria are known to lack adequate skills and competence to support mobile teaching. In this regard, teachers need continuous technical support so that they can competently handle instructional strategies. For mobile learning to succeed, teachers should seek suitable applications that fit into the need of the students and map directly to the curriculum.

Conclusion

Mobile technology is becoming ubiquitous. It is vital that teachers and students in Nigerian universities should indulge in new ways of teaching and learning. Technology is opening the people's mind to the idea that they can take control of their technological environment. The best step would be to make a shift from consumer mentality and show the capacity to inspire change by creating what we need. Furthermore, slight modification to the existing curriculum in Nigerian universities is required to expand career opportunities in m-learning for university graduates. This will enable them use their business knowledge, project management skills and m-learning system to improve business process. Thus the graduates would be able to find jobs easily and also play effective role in the global market.

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