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Kampala International University ISSN: *2415-0843*; 4(1): 105–114

M-Learning in Developing Countries: Challenges, Remedies and Benefits in Instructional Activities

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Abstract. This paper attempted to discuss gains as well as weaknesses of m-learning usability in instructional activities in and outside classroom engagements. Hence, it examined its challenges, remedies and benefits in learning activities. Therefore, it is recommended that m-learning should be integrated into teaching and learning enterprise fully; teachers should be trained and retrained to develop maximum skills in Information and Communications Technology (ICT); and teachers should integrate and use m-learning in their classroom engagements.

Keywords: M-learning, Technology, Information and Communications Technology, Challenges, Remedies

1. Introduction

The world is not static but constantly changing and developing as a result of education. Since education is said to be an agent of development, any society willing to develop must give it a priority. Hence, to give those without education the opportunity to be educated is a major concern to many in the educational sector. Innovations brought about by education have been able to cause constant transformations in the society. The way we approach education has also changed from time to time; to meet the current trends. It will be so advantageous to the current educational system when most, if not all the digital platforms that we have in the world today are well utilized to meet the ever growing educational needs of the people.

Globally, digital technology has been seen as the world language and as a tool in transacting business engagements, economy and particularly in education enterprise among others. The developed nations seemed to have deployed digital technology fully into their walks of life; but, not yet to be so in the developing nations. The developing nations are faced with so many challenges and are still struggling to survive them all. The challenges of governance, economy stability, poverty, health and so on might be the reasons of none acceptance or integrating digital technology fully. But, that as it might be, no nation is expected to be left out of the world order in the use of digital technology. Hence, the developing nations ought to key into digital technology to compete favourably and effectively in business, commerce and economy of the world. Importantly, in education industry, all developing countries should comply by integrating and using digital technology of this 21st century to enhance and improve learning tremendously.

United Nations Educational Scientific and Cultural Organization (UNESCO) (2011) recommended that, to solve most of the educational challenges, systematic integration of Information and Communications Technology (ICT) is a chance for improving the quality of

instruction as well as expanding access to learning opportunities. Having in mind that the population of the world is ever growing, therefore, raising the educational needs of the people, getting those who ordinarily were not having the opportunity to be educated and making those with such opportunities learn better are the interests of all. Most especially, those who are stake-holders in the education industry continually struggle to meet up with these challenges. One of such platforms to meet the aforementioned issues accordingly is with the utilization of mobile learning (m-learning).

For instance, taking Nigeria into focus with a large and ever increasing population, her level of educational attainment and the introduction of digital technology into the industry, m-learning is one platform that can be deployed to meet her educational needs. Every stakeholder in education industry should endeavour to key into the integration of m-learning in order to take full advantage of it. So many benefits are accrued to the use of m-learning for education in schools by both teachers and students when it is used appropriately and accordingly.

M-learning is popularly referred to as mobile learning. It is a subset of ICT, the e-learning type. This m-learning is not like traditional learning environments, it is a recent innovation in the e-learning platform. It is introduced to improve learning considerably and available today as smart phones, tablets, handheld computers and other mobile devices that are internet compliance. In its utilization, anyone who is handling it can gain access to instructional materials from anywhere, anytime and whenever she/he wants to (Al-Said, 2015). Any perfect definition of m-learning may not be visible, because, different people see it from different angles and perspectives.

However, m-learning is more than just the combination of mobile and learning. The word mobile can equate to such words as moving, movable, on the move among others. If mobile learning is taken from the surface, it would only mean learning while on the move; but, it is actually far more than just that. Any form of learning that happens when a learner is not fixed to a predetermined location, and where learners make good use of available mobile technologies is m-learning (MOBIlearn, 2003). This means that with the use of mobile technologies, learners can learn anywhere and at any time (Crescente & Lee, 2011). It means, whenever we use mobile technologies to support instructional activities, it is a form of m-learning. Traxler (2005) defined m-learning as an educational platform where the important or most used technologies are handheld or palmtop devices.

The most important characteristic of m-learning is in its flexibility of usage at all times whether in the day or the night to learning at anytime and anywhere (Pisey, Ramteke & Burghate, 2012). Mobile learning in the 21st century is growing both in the formal and informal sectors of our everyday living. In the formal sector, services such as Short Message Service (SMS), WhatsApp, Facebook, and other platforms can be used to meet the growing needs for instructional purposes. The Nokia MoMath project in South Africa, for example uses the SMS features on standard mobile phones to provide students with access to Mathematics content and support (Isaacs, 2012). On the other hand, m-learning has also taken advantage of the informal sector as reported by Nokia Life Tools, which uses, SMS and browser-based subscription service to offer a wide range of information about Health care, Agriculture and Education. That the service is available in China, India, Indonesia and Nigeria; and that over 90 million people used Nokia Life services (Bartlett, 2012).

The trend in this 21st century is the online transactions of all kinds, and particularly the availability of e-books. This means that, so many educational materials can be accessed using mobile devices. This could make information available to those who before now won't be able to access such information. M-Learning has been seen to have the ability to reach people who are living in remote locations where there are no schools, teachers, and or libraries (Ally, 2009). In Nigeria for example, mobile technology is growing very fast, Nigerian Communications Commission (NCC) has it that there are more than 130 million active

subscribers and around 75% of the Nigerian population have access to mobile and smart phones as at May 2014. Umoru and Okeke (2012) posited that 58.5 percent of Nigerians in the rural population have access to mobile phones. With this growing use of mobile device, it should not be so difficult therefore to get information across to any target population anywhere in the country. But, taking advantage of these mobile devices for educational purposes will not come without its own weaknesses. This paper therefore would discuss the challenges of using mobile learning, how they can be remedied and the benefits accrued to it when used properly.

2. Challenges of m-learning in developing countries

The challenges of developing countries in utilizing m-learning for instructional activities are numerous and are discussed hereunder but not limited to the following:

2.1 Curriculum related issues

Every education system globally runs on curriculum at all levels. The tune of the curriculum determines how and extent to which the educational system will go. Therefore, as observed, one of the major weaknesses of m-learning is that of curriculum; that curricula several education systems run on, were not created or have not been modified to accommodate the use of mobile learning. For instance in Nigeria, Adedoja, Botha and Ogunleye (2012) posited that one of the major challenges for adopting m-learning is that it has not been documented into the curriculum for all subjects offered.

Currently, so many countries' national curriculum bodies are yet to fully integrate m-learning as a platform into the policy paper that their educational systems run on. Since the Curriculum is a blueprint on which the education system runs, it means that for mobile learning to be effective, all schools subjects must be well planned to accommodate mobile learning platform appropriately. There are other important curriculum issues which weaken the use of m-learning as a tool for learning. For instance, most of the m-learning platforms available cater for just some specific subjects. There are sometimes no standard way to get un-bias feedback from the learners, making evaluation of learning almost impossible. Passing information to learner through the mobile learning platform is perceived to be weakened, unlike some other platforms. This is because the teacher (instructor) may not be able to eliminate or even reduce distractions on the part of the learner(s).

Remedy: To get the best out of m-learning, all countries and Nigeria in particular should document appropriately its integration and usage into the national curriculum. When m-learning is planned accordingly and placed properly in the curriculum, its integration and utilization could become more effective and efficient by both teachers and learners.

2.2 Lack of awareness of m-learning benefits

What someone do not know, he cannot use or even be interested in how it runs. Awareness of benefits in mobile learning is one of the challenges faced by many persons and how to take advantage of it. Several mobile learning platforms exist today in the society, but some key agents in the education industry may not even be aware of their availability; therefore, they would not use them. Most developed countries in the world are leaving the hard copies (books) to more digitalized books referred to as e-books. The way textbooks are converted and created now are moving away from just printing them to a visually rich way that includes multimedia, interactive and collaborative elements (GSMA, 2011).

As these e-books continue to increase, so is the awareness of their availability to the learners and the teachers. Both teachers and learners are the supposed end users of these e-books, but unfortunately it seems not so. Apart from e-books, there are also many educational applications (apps) that have been deployed to solve educational challenges. This might only be possible if the educational applications are known to those set of people targeted. A study

conducted by McKinsey and Company and GSMA (2012), shows that 270 million apps linked to education were downloaded in 2011. If there is proper enlightenment in terms of awareness about these applications, then, mobile learning could become more effective.

Remedy: Many parts of the world are still in the dark when it comes to taking advantage of mobile learning, this is due to the fact that they do not know much about it. Even with some having a kind of knowledge of it, are not fully aware of how to explore it to get maximum benefits from it. Therefore, those who have created mobile platforms should give it as much publicity as possible, so that people can take advantage of it. Educational engagements in conferences and seminars should be created where discussions on all about m-learning could be thoroughly dealt with.

2.3 People's negative attitude towards m-learning

Sometimes there can be a negative attitude on the part of the end users (teachers and students) of mobile learning. Some of them may not even want to use it at all. This may not be devoid of not being skilled in the utilization of the devices for learning. Kneil-Boxley (2012) stated that teachers do not like to integrate current technologies into their instructional activities, until they are very sure that it will profit their instructional delivery. In other words, until they know that m-learning makes teachers' presentations less tasking; while students learn faster and better in the long run. Also, some of the teachers lack the knowledge of the new technological approach to instruction. Some teachers and students are yet to be conceived on what and how current technologies can make instructional activities more effective. Some are of the view that these available technologies are nothing more than mere distractions to the learners. To some others, they think mobile technologies are useful only for easy and fast communication, therefore, it should be allowed to stay.

Conversely, some are of the view that any attempt to use mobile technology for instruction will not lead to any positive results. Hence, they have poor or negative attitude to the use of m-learning for instructional purposes. Once the teachers are unwilling to integrate current technologies into instruction, it is obvious that it could slow down the utilization of m-learning in schools or might even lead to none being considered or accepted at all. According to Cant and Bothma (2010), the teachers are gamine in the effective delivery of subject contents in schools (especially the universities) and that the successful integration of any current technology can be affected by their attitude towards it. Sometimes, this negative attitude on the part of teachers and students towards mobile learning may be due to fear of change. Some societies are too familiar with traditions and held on to the conventional ways of instructional delivery, that any suggestion for a change technologically, stairs up fears in the teachers and students alike.

Remedy: The cure for negative attitude to anything, often times, it is the knowledge of the truth about that a thing. The teachers and students who are to make use of mobile learning should be given continuous motivation and orientation on the benefits accrued to the used of same. In this wise, their attitude towards m-learning usability could be improved upon greatly for instructional activities.

2.4 Inadequate skills to manipulate m-learning tools

To be skilled in any profession, particularly in teaching, and especially with the use of technology, one has to be able to manipulate gadgets for instructional delivery. As it is a practice in this 21st century, all teachers are supposed to be competent in the use of digital technology. Currently as observed, most teachers particularly in the developing countries are yet to develop their skills to match up with the world order technologically. Many of them are convenient with the conventional way of teaching; hence, their reluctance to shift to digital technology in presentations.

Furthermore, most of the teachers who currently teach in schools were trained before the advent of this digital technology. It seemed there was

no proper training and retraining for those teachers to match up with the current trends, it becomes a setback particularly to mobile learning. As recommended by scholars, to get the best out of mobile learning, there is need for teachers to take up new roles and improve their skills tremendously (Deriquito & Domingo, 2012; Dykes & Knight, 2012; Fritschi & Wolf, 2012; Isaacs, 2012; Jara, Claro & Martinic, 2012; West, 2012).

Remedy: To get the best out of the teachers and learners who are to use the digital technology for instructional purposes, and particularly m-learning platforms, as a matter of urgency and necessity, they should be trained and retrained on how it works. Hence, they would possess digital technology skill adequately to present their lessons with ease and instructional activities could become more meaningful and impactful. Moreover, all other stake holders in education industry particularly those in schools at this twenty-first century, should also be trained to possess basic digital technological skills.

2.5 Lack of trained manpower

No system can run effectively without the proper trained manpower to run it. Hence, in some countries of the world, what is required for the implementation and effective running of mobile learning is availability of manpower that has the required training and skill to effectively run the process. Therefore, one of the major weaknesses bedeviling the smooth running of mobile learning in many societies today is the lack of trained manpower who can professionally manipulate mobile technologies in the educational industry. In a country like Nigeria for example that is largely import based, no matter the amount of equipment that is brought into the country when there is no trained manpower to man these equipment, it will not yield any favourable result. Issa, Ayodele, Abubakar and Aliyu (2011) noted that even when some good learning technologies were brought to the country (Nigeria), just because she had no trained manpower to handle the equipment, although, the technologies were very good, but it didn't profit the country. This is in consonance with Umoru and Okeke (2012), who viewed the unavailability of trained manpower as a major setback to mobile learning in Nigeria. Mobile learning cannot develop above the level of the manpower handling it.

Remedy: There should be the provision in the teacher education curriculum to produce, train and retrain specific teachers and supporting staff to man digital technology in schools. The government should fund everything that has to do with the production of manpower.

2.6 Insufficient infrastructure

Mobile learning makes use of mobile communication gadgets and facilities. Where these equipment and appliances are sub-standard or not available, it would have direct negative influence on mobile learning. In countries where there is no constant supply of electricity, it would be difficult for mobile learning to work effectively since most of the gadgets depend on electricity. Beside the issue of electricity, there are some other potential infrastructure and facilities including software and hardware that must be on ground for mobile learning to run smoothly. It is therefore a challenge to m-learning when the needed infrastructure and facilities are not on ground. In the studies conducted by Folorunso and Ogunseye (2006), Sharma, Osinaike and Adekunmisi (2012) and Shaibu and Mike (2014) the authors all agreed that the unavailability of infrastructure is one of the barriers to utilizing technology in education in Nigeria.

Remedy: Where there are no infrastructure and facilities, there will be no smooth running of mobile learning, hence, such should be put in place so that the mobile learning platform can run effectively.

2.8 Security threats

The main interest of m-learning is on how to take advantage of the modern technologies to enhance students' learning; and perhaps improve the way they learn (Keegan, 2005). This digital technology has not come without some security issues. How to guarantee security to the users of

digital technology, particularly in mobile learning, has been a major question that has been on for a while. This security issue is still a weakness to m-learning implementation and its sustainability. When one uses a wireless internet with or without supervision, there are tendencies for some learners to join groups that might not benefit their learning and might even hamper their safety. The internet itself is full of different resources, why some of these resources could be very educative and informative, but others might be very destructive.

Therefore, the challenge of how to check mate destructive usage of m-learning is still a big one. That is, neglecting or minimizing the negative issues that come with the use of mobile technologies has been a major challenge. Charlesworth (2009) opined that the use of mobile technologies by learners come with some security effects on them in terms of integrity, confidentiality, and privacy. In supporting this view, Osang, Ngole, and Tsuma (2013), they identified negative effect of social media on mobile learning to include; that the learners may join negative groups which can be a big threat to their safety and that of the mobile device.

Remedy: Mobile learning, a very good platform for learning in the twenty first century, but there is the need to make users know what to and what not to do, to ensure their safety. This knowledge could include; web sites could be beneficial to the learners and those detrimental to their learning. The designers of these mobile learning platforms should do it in such a way that there are limitations on the kind of wed pages that can be accessed while using them. Learners who use mobile learning platforms could also be enlightened on the kinds of information they should not let out through technological devices. Doing this could ensure the security of mobile learners with their mobile devices.

3 Benefits of m-learning in instructional engagements

There are lots of benefits accrued to the use of m-learning in instructional activities which cannot be exhausted; the major ones are presented as follows:

3.1 Independent and personalized study

It could be said no two individuals learn at the same pace in an environment, therefore, any platform that would personalize learning for learners should be well encouraged. One of the benefits of mobile learning is that it is a platform of learning that is highly personalized and gives the learners the freedom to express themselves to a large extent. For example, there are some students who will never ask questions in the class, whether they understand the teacher or not. This set of learners will just keep quiet, but with the mobile learning platform, they could express themselves better. Therefore, it could be stated that one of the strengths of m-learning is in its individuality in learning. It also gives learners freedom and independence to select content(s) to learn at a time in their studies (El-Hussein & Cronj, 2010; Olanrewaju, 2005; Olanrewaju & Soetan, 2018). Every learner has the chance to learn at his/her own pace and also personalize their study. To those learners, who do not possess and use the mobile learning platform, they may have to wait for a particular time and place to get information from their teachers (instructor). But the learners who do (use m-learning platforms) could access information regardless of their geographically separation from peers and teachers (instructors) immediately or almost immediately.

This means that on the m-learning platform, learners can access their teachers (instructors) and peers, whenever the need arises with the use of mobile device, not minding distance or time. In mobile learning, learners could choose the learning contents they want, and to some extent, they may choose not to make use of some other contents; hence, it gives flexibility to individuals and it is highly learners centered.

3.2 Fun filled learning

Since the ultimate goal of every educational system is to produce people who are more refined than their predecessors, and for this to be attained, educational activities must be presented with as much fun as possible. This is in making learners enjoy learning rather than seeing it as stressful or punishment. The mobile learning platform makes learning become fun to the

learners. It gives learners alternative to what some may see as their boring classroom. Most learners who make use of the mobile learning platform ordinarily make use of some of these mobile devices for other purposes such as information sharing and entertainment among others. Therefore, taking education to that same platform will make learners learn better because they are learning with fun.

The study undergone by Taleb and Sohrabi (2012), on Learning on the move, showcased the use of mobile technology in supporting learning for University Students. It indicated that, learners who used mobile devices to learn were more charged up to learn than those who did not. This motivation may be due to many other aspects of using mobile learning which includes fate; that, those who use the mobile learning platform, enjoy learning more, because it is more of fun to them.

3.3 Low cost of learning

With the mobile learning platform, there may be no or limited needs for large physical buildings to house all the learners as classroom, therefore, saving the cost of erecting building for educational purpose. As mentioned previously in this paper, most of all the devices used for mobile learning are not specially designed for instructional purposes. Mobile learning takes advantage of existing technologies to meet educational needs. This solely could imply that, where there is enough communicative infrastructural setup, schools and mobile learning administrators might not need to build or buy some needed expensive facilities.

Moreover, it would significantly reduce the cost of running education. There are other salient expenses that are needed to solve educational needs that can be handled or reduced by the use of mobile learning. For example, instead of the students to come to a geographical location in the school to get an assignment done from their teacher (and perhaps, the teacher had pasted information somewhere in the school or class premises), the teacher could use other Social media (digital) platforms such as Facebook, WhatsApp and Imo among others to get that same assignment to his learners at very a cheap cost with no travelling risks. The equipment used in mobile learning is cheaper and affordable. For instance, it is cheaper and common to get mobile phones. It is easy to manipulate and appropriately use them technologically (Olanrewaju, Kareem & Adeshina, 2015).

3.4 Handy and availability of information

With m-learning, information can be sourced any time of the day and almost anywhere. The mobile devices are handy; thus making it easy to be carried everywhere. Therefore, it means that whenever a student would want to access information on the device, he or she could with much ease.

3.5 Getting information across to the previously unreached

One of the major benefits of mobile learning is that it is a very good way to get information to those who might be unreached, due to distance or natural occurrences beyond control. For example there are learners in the rural areas where there are no modern schools. Educational content can be delivered to such learners with the use of mobile devices. There are also some areas of the world today in war situations, learners in those areas too could be reached with ease by exploring mobile learning. The strategies of learning also could be arranged for real time (synchronous) engagements or delayed (asynchronous) to suit learners' needs with the use of m-learning.

3.6 Multimedia nature of m-learning device

On the mobile learning platform, it is easy to use different learning media which ranges from audio, to visual, and to audio-visual. This flexibility is a plus to the education industry for information is passed with the best media to teach contents to be learnt. Multimedia in m-learning could be a great asset for learners to use; they navigate easily and copiously get information to support their learning in various modes.

4 Conclusion

M-learning is what could be referred to as schooling carried about in a device with ease. This 21st century generation is different from those ones previously; one cannot afford to remain in yesterday when others are already looking at tomorrow educationally and technologically. Mobile learning is a very good platform to improve the quality of education in this generation. It is also to improve the quantity of people who should have access to quality education of this century. As promising as this maybe, it might not come without its own challenges, but these challenges could be surmounted. The horns of these challenges as highlighted are related to: curriculum issues, lack of awareness and negative attitude of teachers and learners, inadequate skills by the teachers, and lack of manpower to handle m-learning. Others are; infrastructural deficit, funding and security deficiency.

However what we cannot take away from mobile learning is that, when gotten rightly and used appropriately, it would benefit the educational industry so largely. Major benefits of m-learning in instructional activities are in that; it is capable of being used as independent and personalized study, information is handy, learning is fun filled and could be accessed anywhere and anytime with ease. It is capable of relaying information or contents to study in audio, visual and audio-visual immediately or almost immediately due to its multimedia nature. There is no geographical differentiation or separation to all categories of learners in urban and remote localities.

5 Recommendations

Based on the discussions and conclusion of the study, the researchers recommend that:

- Where there are no infrastructure to drive mobile learning, such infrastructures should be put in place
- Teachers and students should be given orientation on the availability of the suitable m-learning platforms in order take advantage of them
- Teachers should be trained and retrained to develop maximum skills in ICT to fully utilize m-learning for instructional purposes
- M-Learning should be integrated into teaching and learning enterprise by all categories of teachers
- M-learning should be well tailored into the curriculum so that it can run smoothly and be monitored by a special body and
- Government should fund and produce specialists through her agent in ICT generally and particularly teachers to handle m-learning in schools.

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