
**CHALLENGES OF INTEGRATING AND IMPLEMENTATION
OF MOBILE LEARNING FOR SUSTAINABLE ECONOMIC
DEVELOPMENT IN NIGERIA**

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Abstract

Mobile learning (M-Learning) is gaining much importance among the new generation. Mobile learning enhances students thinking and motivates them for deep learning and thus leading to meaningful creation of knowledge. Among the advantages of mobile learning, few important ones include; mobile learning is an additional or supporting source of learning that are available any time; anyplace; any network; on any wireless device, etc. Mobile learning raises the learning interest and communication of learners as it provides learning material in different formats that are accessible at any time. Mobile learning supports new ways of learning through mobile devices, such as mobile phones, smart phones and MP3 players. It was concluded that the challenges hindering the integration and implementation of mobile learning are technological, technical and the infrastructural problem. There are challenges of using m-learning as the driving force for sustainable development. There is need for infrastructural development and increased awareness about the benefits of m-learning to people in remote areas and for sustainable economic development. Therefore,

competent and experienced ICT experts should be recruited by the state and federal government as instructors to sustain and make the programme sustainable. Also, government policies should be geared towards indigenous firms/entrepreneurs and encourage her citizens to invest in Information and Communication Technology (ICT)

Keywords: Challenge, Integrating and implementation, Mobile-learning, Sustainable economic development.

Introduction

One of the major challenges today in developing countries of which Nigeria is one is sustainable development. Government is faced with the challenge of transformation, a paradigm shift necessitated by the age of network intelligence. Internally, the government is called to improve the efficiency and effectiveness of internal functions and processes within government departments and institutions through internetworking while externally government are called to be more transparent and give citizens access to government information. According to Ayodele (2007), sustainable development can be broadly defined as the ability of the economy to support the needs of the people of a country over a time, taking into consideration the economic, social and ecological constraints of the country. Amodu (2008) states that sustainable development is a process rather than an end goal. He further noted that this process requires constant evaluation and analysis of the emerging trend in the discussion so as to take the issue of sustainable development to the next level. Sustainable development simply put is developing for the present and future, the process of ensuring that the present development is sustained and maintained in the future. Plans, projects and programmes have been formulated by successive governments in Nigeria to improve the lives of its citizens which are the main aim of development and empowering the citizens not only for the present but for the future.

Mobile learning (m-learning) is considered to be the simplification of learning and access to educational content through

the use of mobile devices (Litchfield, Dyson, Lawrence&Zmijewska, 2007). The advent of mobile and Wi-Fi technologies has abetted innovations in m-learning, and Ting (2010) has enumerated different mobile communication devices that support the multi-purpose facets of m-learning. New digital learning environments are created to support these advances in order to make learning more flexible and engaging, potentially by anyone, anytime and anywhere. Learning materials are designed and compacted into chunks and consumable formats before releasing them to learners. The convergence of audio, visual, web, internet and mobile technologies into a single platform shows the strength of m-learning. Facilitation of learning through mobile devices has many advantages including supporting communication and increasing learner-to-learner interactions (Ting, 2010). Also, large number student intakes, poor infrastructural facilities, inadequate time and opportunities for staff due to tight working schedules are reasons for developing nations to implement m-learning (Asabere, 2013). In addition mobile devices are more easily accommodated in the classroom than desktop computers. The lightweight nature of mobile devices in comparison to computer science textbooks is a huge source of attraction to learners.

Thus, m-learning offers exceptional possibilities in the field of ICT education specifically in African context. The Nigerian government has put in place several ICT (Information Technology & Communication) initiatives to make m-learning accessible to students. Nigeria being the most populous African nation has the highest number of mobile network access subscribers in Africa, which contributes massively to its potential for managing m-learning facilities. According to The Nigerian Communications Commission 2014 online statistical editorial on mobile markets, Nigeria is listed among the world top 8th mobile markets with over 170 million mobile subscribers (Nigerian Communications Commission, 2014). The reasons for m-learning expansion in Nigeria include, for example, low cost of devices, availability/accessibility, cheaper maintenance cost, lower energy requirement, and easy mobility. However, the paper explored the challenge of integrating

and implementing mobile learning for sustainable economic development in Nigeria.

Conceptual Issues

Mobile learning is the capability to attain or provide educational content on individual pocket devices such as PDAs, smart phones and mobile phones. Educational content in this context refers to digital learning resources accessible on any individual electronic device. Dikkers (2012) states that Mobile learning (M-Learning) is when the learning experience that you're trying to design happens to be out and about in the world. Mobile learning allows flexible learning and is a mixture of Information and Communication Technologies (ICT) providing education anytime and anyplace. In mobile learning learners can use mobile devices to access educational resources, share with others, or produce content, both inside and outside classrooms. Mobile learning also takes care of administration of educational systems and helps in enhanced communication between institutions and families.

Sustainable development is an approach to economic planning that attempts to foster economic growth while preserving the quality of the environment for future generations. Sustainable economic growth is economic development that attempts to satisfy the needs of humans but in a manner that sustains natural resources and the environment for future generations (Amsalu, Namrata, & Surender, 2011). An economy functions in the ecosystem. We cannot separate the economy from it. In fact, an economy cannot exist without it. The ecosystem provides the factors of production that fuels economic growth: land, natural resources, labour, and capital (which is created by labour and natural resources). Sustainable economic growth is managing these resources in a manner that they will not be depleted and will remain available for future generations.

Characteristics of Mobile Learning

Mobile learning has different characteristics. The chief characteristics of mobile learning are; spontaneous, transferable size of mobile tools, combined, private, communicating, collaborative and

immediate information. The core characteristics of mobile learning enable learners to learn at any place and any time according to Aboderin (2015) are as follows: Ubiquitous/ Spontaneous: Mobile learning is more spontaneous than other types of learning. It is this spontaneity that is probably the most defining characteristic of mobile learning. Mobile learning is context aware, meaning that students can learn everywhere. Wireless technologies such as laptop computers, palmtop computers, and mobile phones are revolutionizing education and transforming the traditional classroom-based learning and teaching into anytime and anywhere education.

Portable size of mobile tools: Mobile learning tools are small and portable. Students can use it anywhere for their learning activities. Blended: Teachers can use mobile learning as a blended learning approach. Students can use mobile tools for completing homework, projects, etc. Blended learning, which combines classroom instruction with m-learning, can maximize the benefits of both face-to-face and online method. Private: M-learning is private. It means that only one learner at a time usually has access to the mobile tool and that when students want to access information they connect and download independently from other learners. Interactive: M-learning environment utilize the latest technologies to create an interactive learning environment for learning.

Students are not passive; the functions of mobile tools and learning environment allow students varying levels of interactivity. The technological layer represents learning as an engagement with technology, while tools such as computers and mobile phones function as interactive agent during the process of learning. Collaborative: Mobile technologies support communication between students and teachers. So, mobile technologies may be used for collaborative learning activities during learning. Instant information: Using a mobile tool is all about immediacy. According to Cohen (2010), “the need is for quick answers to specific questions”. Learning content must reflect the requirement by providing material that enables a learner to quickly zoom into information.

Benefits Mobile Learning of Integrating and Implementation of Mobile-Learning for Sustainable Economic Development in Nigeria

M-learning offers countless benefits and advantages to education, particularly the higher education sub-sector of developing countries most of which hitherto, are stymied by hydra-headed challenges. At the broader scale, for instance, it has contributed greatly towards meeting the human capital development needs of developing countries and by extension, towards their socio-economic developments (Bawa, 2016). It is one innovative mechanism by which the 'the education for all' goal and inclusive education can be achieved, because it has the power to widen access to educational services and at the same time breaks down other barriers like disabilities (physical impairments), distance and finance. Anybody can learn from anywhere, irrespective of time and distance. The quality of education generally can be improved with the implementation of an M-learning system.

For instance, m-learning and other innovative open learning multimedia instructional delivery modalities potentially hold limitless benefits for students and the learning process. It serves as a useful tool for improving quality teaching and learning (Coopasami, Knight & Pete, 2017) by increasing the teachers' motivation to teach and students' motivation to learn (Bates, 2009) and by playing the crucial role of preparing a new crop of teachers, and up-skilling existing teachers to meet twenty-first century pedagogical expectations (Oye, Salleh & Iahad, 2011). M-learning fosters active learning, empowers learners to study at their own pace, and enables cooperative and collaborative learning activities among students. This enhances students' higher order thinking skills and ultimately improves learners' retention of knowledge. It also results in better academic goal achievements or learning outcomes. For example, Obuekwe and Eze (2017) noted that m-learning environments enrich and deepen skills, promote individualised learning, strengthen teaching by drawing the world closer to the classroom, and relating learning experiences to the real world of work, as well as creating economic viability for workers of the future.

With the integration of m-learning into HEIs, governments, institutions, and individual learners will be saving a lot of cost. The need for physical infrastructure by way of classroom facilities will be reduced. Likewise, students do not need to travel to faraway places to enrol in programmes and courses of their choice if they are available online. Indeed, the literature is replete with numerous benefits of m-learning that can be derived by individual learners, the university, and governments as well. It is claimed that m-learning ensures the following: greater access to information; better communication; increased cooperation and collaboration; synchronous learning; improved pedagogy through simulations; virtual experiences, and graphic illustrations (Aboderin, 2015); diversity of lectures; enhancing students' active engagement and learning, and impacting academic goal achievement (Aminu & Rahaman, 2014), and by helping to meet the needs of the knowledge based economy.

M-learning is beneficial in several ways because it meets the diverse needs of students, by providing support to differently abled persons, engaging learners who do not respond well to conventional educational settings, providing opportunities to enhance learning by the gifted and talented learner, and by developing independent learning skills through professional learning experiences (Malale, Gomba & Dichaba, 2018; Meskhi, Ponomareva & Ugnich, 2019). Most especially, by enabling self-study at one's own pace and personalized learning, m-learning helps older learners overcome the learning challenges posed by physical disabilities and coping with one's numerous roles as an adult (Chu & Tsai, 2009). It also enhances face-to-face interactions during teaching and administration in HEIs, and creates room for integration into the work place (Ibezim, 2013; Malale, Gomba & Dichaba, 2018).

With respect to lifelong learning, (Casquero, Portillo, Ovelar, Benito & Romo, 2010) view m-learning as being capable of making learning a proactive learner-centred process, since learning is supposed to take place for the entire life of an individual, in geospatially dispersed places, with an admixture of formality and informality in the content and in the organizational structure that involve different people. They added that the proactive nature of

lifelong learning enables learners to develop new competencies through learner-centred experiential learning activities. The benefits have started trickling down to the Nigerian higher education sub-sector since most universities in the country have implemented m-learning at different scales. NOUN is addressing the challenge of inadequate admission spaces as it has already accommodated over half a million students and has the capacity to absorb at least a million more students. Additionally, with the introduction of m-learning, the visibility of Nigerian universities in the global educational arena has been boosted.

Challenge of Integrating and Implementation of Mobile-Learning for Sustainable Economic Development in Nigeria

The challenges range from technological, attitudinal, curriculum and pedagogy, institutional readiness, teachers/learners competence, maintenance to sustainability. Though, the attitudinal reasons were consequential in the sense that some of the current operators of the education sector are “Digital immigrants” (Prensky, 2001) and 21st century illiterates, which according to Alvin Toffler as cited in (Victoria, 2003) “will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn”. A good number of current operators in the education sectors are not comfortable with new technologies. According to (Martinez, 2004), “the older people feel more threatened by new technologies”. Some have computer phobia while others might be looking at the retirement age being closer hence learning new skill is not worthwhile. So in order to be relevant while still in service, such group would try all they could to maintain the status quo.

Other challenges to the implementation of m-learning are the technological, technical and the infrastructural problem. This is because, as the management struggles to get the unwilling pal to embrace the technology, soon they realized that the platform itself is having technical hitches. Or that it is becoming too expensive to manage the infrastructure. Since the initial capital for Information Technology projects in this part of the world are usually via statutory

budget of government, donation or foreign intervention by the World Bank, UN, USAID and so on (Osofisan & Osunade, 2006). However, the advent of Mobile technologies – the 2nd and 3rd generation Global System for Mobile communication (2G/3G GSM), General Packet Radio Service (GPRS), Wireless Application Protocol (WAP), Infrared Data Association (IrDA), Bluetooth, IEEE 802.11, Wi-Fi, WiMAX and so on, which together with its corresponding mobile devices, are being adopted in Africa at a rate that is among the highest globally (Brown, 2003). Mobile technology have the power to make learning even more widely available and accessible to learners across Africa, especially the vulnerable populations that could not benefit from m-learning projects due to lack of infrastructure and other factors.

The depth of penetration of Mobile technologies globally is well captured in the following words of Ellen Wagner, in May 2005, as quoted in (Brown, 2003): “Wherever one looks, evidence of mobile penetration is irrefutable: cell phones, PDAs, MP3 players, portable game devices, handhelds, tablets, and laptops abound. No demographic is immune from this phenomenon. From toddlers to seniors, people are increasingly connected and are digitally communicating with each other in ways that would have been impossible only a few years ago. Lawn, Zhi and Morello (2017) listed: poor study habits, learners’ feeling of isolation, lack of peer-to-peer engagements and learning, absence of quick response from instructors when issues arise, especially within asynchronous contexts, and instructional contents that are standardized and are likely to reduce the ability to either rework or improvise. Earlier work by Borotis, Zaharias and Poulymenakou (2008) indicated the following issues as demotivating to learners and could potentially hinder the acceptance of m-learning by students: learners’ feel a sense of isolation, find it difficult to navigate through and within online courses; instructional learning tasks seem to be confusing; irrelevant instructional materials/resources; and technical glitches. Similarly, authors like Mao (2014) listed rigid school networking policies, hardware availability, and the complexity of effective technology integration as having the tendency to hamper the effective implantation of e-learning programmes in schools. Lawn,

Zhi and Morello (2017) list poor writing, computer, and communication skills.

Conclusion

Technology is changing everyday and new devices are being developed at a faster rate. Even this is true in the case of mobile phones. If well implemented, m-learning-enhanced blended learning will improve the quality of education in the developing world, as it provides the required supplement to what is obtainable with the traditional system of learning. It will as well leverage on the students' non-academic usage pattern, teach and actualize the goal of the curriculum. There are challenges hinders the integrating and implementation of mobile learning such as technological, technical and the infrastructural problem. There are challenges to using m-learning as the driving force for sustainable development. There is need for infrastructural development and increased awareness about the benefits of m-learning to people in remote areas and for sustainable economic development.

Suggestions

Competent and experienced ICT experts should be recruited by the state and federal government as instructors to sustain and make the programme sustainable. Government policies should be geared towards indigenous firms/entrepreneurs and encourage her citizens to invest in information and communication Technology. From the primary to the tertiary education level, ICT and other related courses should be encouraged that will prepare the teeming graduates to be job creators and not job seekers. To make the ICT programme more sustainable, rural areas, children, youths and adults should be identified and trained to bridge the gap. Government and Management in the education sector could concentrate on building m-learning platform for other components such as authoring, publishing and content development which are the backend components to be handled by the teachers.

For effective teaching and educational objective to be achieved, curriculum developers need to include critical thinking learning

and assessment strategies in order to develop critical thinking skills of students. Workshops and Seminars should be organized to train teachers on the critical thinking approach as well as the procedure for using it. Teachers should be allowed to involve in the curriculum planning and implementation, in order to make them bring in critical thinking approach as it is more likely to produce self-reliant students than the traditional approach. Also, it is necessary for measurement and evaluation experts to develop tests for critical thinking skill acquisition at all levels of education while science teachers should deploy learner-centred pedagogical practices and strategies capable of improving students' critical thinking skills for the teaching in Nigerian schools. This is important because critical thinking is essential to general needs and individual accomplishment.

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