Exploring Mobile Devices Usage in Education: Challenges and Way Forward

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With the power of portable computing in the hands of people, the time has come to consider using mobile devices for education. There is a need to consider the use of Mobile devices in education because of its popularity among both the trainers and learners in Nigeria especially being one of the ICT devices. This paper explores the impact of using mobile devices in education system by looking at how the stakeholders (such as the education providers, the trainers, the learners, parents, and ministry of education) can benefit from successful deployment of mobile devices into classroom environment. The paper also highlights the benefits of using mobile devices in delivering education. Challenges of using mobile devices in education are discussed and possible ways forward are also recommended such as trainers should be provided with sophisticated mobile devices with rich functionalities to adequately provide satisfactory usage in the classroom environment. However, it is to be noted that full realization of any mobile device in education is entirely dependent upon skilled trainers, network connectivity and user competency.

Keywords: education providers, classroom environment, mobile devices, delivering education, trainers

Introduction

Computers have been used for some time to do almost everything possible and came up with many innovative ways to use computers for teaching and learning in education. Portable computing power came in the form of laptops, notebooks and tablets as microcomputer that could be used for three to ten hours maximum before it required connection to electrical power supply. Likewise mobile device s, once fully charged, can provide the same for 48 to 96 hours. Microcomputers require connection to a network for Internet access, which is available at fixed locations in buildings or wireless access points, again at fixed and confined locations. Mobile devices have a network connection available at all time in almost every part of developed countries. Almost everybody own a mobile phone in Nigeria and if introduced into our educational system, learning and teaching would be able to take place anywhere whenever the learner and the trainer are ready. With such flexibility in the provision of education, there is a possibility of getting everyone educated once the constraints of attending classes at confined time slots and locations are removed.

According to research carried out by Warschauer (2011), to investigate the use of iPads in K-12 schools in the US, the following observations were made: In one private school in California, students had daily access to laptops and frequent access to iPads, thus allowing the researchers to compare the use of the two. In a science class that was observed, students unanimously stated that they prefer using the iPads to the laptops due to the tablet's light weight, mobility, touch screen, and apps. Students used the iPads to read free open source Earth sciences textbook, investigate the elements and the composition of the Earth and galaxy via interactive apps and access the school's e-learning platform (Gounder, 2011). Kumar, A., Tewari, A., Shroff, G., Chittamuru, D., Kam, M., and Canny, J. (2010) argue that mobile devices like cell phones are perfect vehicle for making educational opportunities accessible to rural children in places and times that are more convenient than formal schooling. They conducted a 26-week study to investigate the extent to which rural children will voluntarily make use of mobile devices like cell phones to access educational content. Their results show a reasonable level of academic learning and motivation. According to Kam, M., Kumar, A., Jain, S., Mathur, A., and Canny, J. (2008), cell phones are increasingly adopted in the developing world, and an increasing fraction of these phones feature multimedia capabilities for gaming and photos. These devices are a promising vehicle for out-of-school learning to complement formal schooling. In particular, they believe that learning English as a Second Language (ESL) by playing games on cell phones presents an opportunity to dramatically expand the reach of English learning, by making it possible to acquire ESL in outof-school settings that can be more convenient than school.

If we are going to use technology to learn, then, what is the point of investing in new technology when we already own mobile devices? As pointed out by Ally (2009), rather than acquiring another technology to receive learning materials, people throughout the world will want to access learning materials on their existing mobile devices. As a result, educators and trainers must design learning materials for delivery on different types of mobile devices. The nomadic learner and worker who travel frequently from place to place will similarly use mobile technology to access information and learning materials from anywhere and at anytime. A major benefit of using wireless mobile technology is to reach people who live in remote locations where there are no schools, teachers, or libraries. Additionally these remote locations have geographic terrains that are difficult for normal networking and cabling infrastructure. Can mobile technologies support teaching and learning? This was one of the core issues examined by Gaskell and

Mills (2010), in their research paper titled ―Can we really learn from mobile handheld devices? They concluded that there is much evidence that mobile technologies are playing an increasing role in education and the use of mobile technologies is increasing in the developed world in a number of areas, for instance in context related education, and how hand-held devices can be used for basic language, skills, numeracy and health and safety training and some aspects of teaching and learning across the developing and developed world.

The use of handheld technologies provides a major opportunity to enhance access to learning and will enable many institutions to develop learner and administrative support and learning opportunities in ways which will build on current methods. According to Prensky (2005), mobile phones are not just communications devices for interaction between people; they are in fact computers that fit in your pocket, are always with you, and are always on. Like all computing devices, mobile phones can be used to learn. So rather than fight the kids coming to school carrying their own powerful learning devices—why not use the opportunity to their educational advantage?

Mobile Devices in Education and its Impact on the Stakeholders

There are many stakeholders in the education system, namely the education providers (schools, colleges, teacher training institutions and universities), the trainers (class teachers, subject teachers, heads of departments, and principals), the learners (primary, secondary, and tertiary), their parents (as individuals, in school boards, and in school management committees), the ministry of education, the ministry of science and technology, the government (politicians and their policies), and funding agencies (Gounder, 2011). All stakeholders need close collaboration if they want to benefit from successfully deploying classroom curriculum via mobile devices. Gounder, (2011) looks at what is required of them and how they are to be supported if mobile devices are going to be used in delivering education.

a) *The Education Providers.* When stakeholders move from using computers in educationto using mobile devices in education, there will be many economic advantages for the education providers. Education providers can also expect improved student learning outcomes, satisfied teachers - with technology for support and assistance, and happy parents. For instance, there will be no need to have dedicated computer labs, specific computer desks, chairs and computer lab space – which also means no IT support required, no IT staff needed, no servicing, repairs and maintenance of computers required. All other associated costs like networking equipment, ISP connections, air conditioning and huge power bills will be saved. However, subscription will be paid to the mobile

phone network provider, which in many cases will be insignificant when compared to computer networks to the Internet. In many cases students with mobile devices will already be subscribed to a network service provider, if not, then schools normally get subsidized packages or are totally subsidized by their governments. Mobile devices, now available in abundance, are cheaper and simpler to use. For those education providers that were constrained by funds and expertise to use computers in education – using mobile devices in education seems like their savior.

Nalder (2011) argues that education providers using mobile devices may now be able to:

a. Spend staff training time on improving pedagogy.
b. Spend valuable student lesson time on using technology instead of wasting time learning to use technology first and then the lessons.
c. Spend less money on supporting existing technology and more on supporting its use in classrooms.

Many developing countries do not have or cannot afford the level of electricity supply required by computers, or the money to buy enough computers for their students and to subscribe to the Internet such as Mali, Niger, Gambia and so on. Given such constraints, they readily embrace cheaper mobile devices such as mobile phones which require less infrastructure, support and skill. Mobile devices are on track to become the main technology for use in education in the future. It is going to advance, improve, and become enhanced with each generation of students learning with them. Students who are learning with mobile devices today will become teachers in time to come.

b) The Trainers. Teachers are probably the most important and critical factor at the moment of movement towards using mobile devices in education. What is lacking today are the skilled teachers that can take a mobile device and incorporate it from the paper-based or chalkboard based classroom lessons, into student-centric learning deployed via mobile devices. Are our teachers training institutions and universities teaching our future teachers on how to use mobile devices for teaching in the classroom or are we going to burden them after they graduate and start teaching. As suggested by Weinberger (2011), add no burden - the failure of almost all educational technology initiatives can usually be traced to the additional burden placed on the teacher. Ideally, teachers' burden should be reduced by technology. Teachers require training to understand how to teach differently. How methods like student-centric learning can be applied to the classroom, and shown how this learning style will increase educational outcomes. So regardless of how amazing the mobile

> device technology is, until we invest in trained teachers who know how to use technology to improve their teaching activities, we are not going to make much difference with the current generation of teachers and learners. We also need parents and politicians who are focused on learning outcomes and not the new mobile device technology and what it can do, because regardless of how many applications or how easy the technology is, I fear that using mobile devices in education initiative will be wasted (Vota, 2011).

c) The Learners. Mobile devices are undoubtedly an exciting way to interact with technology, especially, when they are touch screen enabled. This ease of use is exciting technologists and educators, both of whom are thinking of new ways to use technology like the mobile devices in educational systems of the developing world. Ison *et al*. (2004) initiated a project aimed to test the hypothesis that mlearning strategies and mobile phone technology could motivate and support the retention of disengaged youth in learning programs and aid the development of lifelong learning skills through supporting collaborative, networked learning environments. It aimed to include m-learning strategies in a blended approach, incorporating learning delivery in community, workplace and/or institutional contexts. This project targeted 15–19 year-old students who have not previously succeeded in traditional classroom-based learning, and examined the option of mobile learning (m-learning) for Vocational Education and Training (VET) providers. The project recognized that mobile phone use has become a pervasive communication tool among youth culture, and created recommendations and guidelines for VET providers on using this communication technology to support a sustainable learning culture with disengaged youth. Mobile phone Short Message Service (SMS) prompting was found to be very successful in both enhancing student participation and motivating them to meet deadlines for assessment. Both of these contributed to improved learning.

Benefits of Mobile Devices in Education

Mobile devices offer a number of benefits for education in comparison to other microcomputers. Some of them can be enumerated below;

a) Lighter in weight and flexible to make them far superior for digital reading or accessing of content.
b) Instant-on capability and fast switching among applications allows learning activities to proceed with less delay.
c) Touch screen interface allows a high degree of user interactivity.

d) Much more mobile than laptops, as students can carry them inside or outside a room without having to close and reopen the screen and store them in the carry case and can also use them for mobile data collection or note taking.
e) Since it is inexpensive to develop apps for mobile platforms, there is a rapidly growing amount of free or low-cost apps for mobile devices, many of which are suitable for education.
f) Mobile devices‘ long battery life makes them more suitable for a school day (Warschauer, 2011).

Challenges of using Mobile Devices in Education

The use of mobile devices in delivering teaching and learning in the classroom comprises of a lot of challenges and some of which are discussed below;

a) Knowledge of mobile phone usage in education. How do the teachers use the technology to help children learn better is a challenge. Since teachers are the focal point of this technology, they need to know how to teach best with whatever technology they have to use together with it. Students with sophisticated and expensive ICT tools, those with sound online learning skills and access to broadband will challenge their instructors who is not having access to it or who is not skilful in the technology hence, smooth, effective and efficient teaching and learning would not be achieved.

b) Cost of purchasing mobile phone is high and many of them cannot hold some important applications successfully. iPads are more expensive to purchase than laptop and more difficult to write and edit on than notebooks or laptops, unless one gets an external keyboard at extra expense. And iPads are unable to access websites that use the Adobe Flash multimedia platform, which is still common on many educational sites.

c) Writing skill may be jeopardized. Of course, the most important long-term educational one is in the area of writing. Learning to write well is a critical part of education, and is hindered if students don‘t have a device optimized for composing and editing. However, this problem can be overcome through use of an external keyboard, and it is expected to likely see a wide variety of mobile tablets in the future with detachable or folding keyboards or other alternative input systems.

d) Prompt answer to some strange questions in the Classroom. Students sometimes ask some questions in the class that may still strange to the trainers and if answers are not provided at the moment, it may bring the trainer down in front of the students, the use of mobile phone may intervene though Internet connectivity is still a challenge.

e) Students use of mobile phone to distract teaching and also to commit exam malpractices. In most Nigerian University; students are not permitted to have mobile phones and devices during tests and final exams. The fact is that students with a mobile phone in class receive text messages or a call interrupt the entire class and even uses it to commit exam malpractices.

Conclusion

Mobile phones are becoming popular in the world today – almost everyone can get access to simple voice and SMS text messaging phones. The cost of mobile devices and its applications will be reducing with volume – it already has decreased dramatically. The services of the mobile network operators combined with cloud computing platforms are expanding all over the world, now reaching the inaccessible. Mobile device manufacturers are loading unlimited applications, functionalities and features to stay competitive. Mobile network providers are offering service packages at negligible costs to its users to match its competitors. With the number of mobile devices surpassing the number of computers, there is now a real opportunity for innovative teaching and interactive learning with mobile devices. Mobile devices are ICT devices but with greater flexibility and ubiquitous connectivity, combined with the power of desktop computing. Teachers can have instructional support at their fingertips in the learning environment.

Students can be empowered with access to learning resources with supplementary multimedia for better understanding regardless of time and physical location. Educational institutions have always faced constraints in acquiring IT resources like computers and internet for e-learning, but with m-learning; the resources are already available as most students already have mobile devices or the schools are able to buy in bulk at reduced government subsidized prices. So if the potential benefits of mobile device technology like access to information, connectivity and collaboration can be with a student 24/7 in an easy to use mobile device and if the facilitating teacher knows how to help students manage such a process, then there is the required justification and a strong motivation to use mobile devices in education.

Recommendations

The following suggestions are made as the way forward to addressing the challenges of mobile phone usage in education;

a) Government should provide the Trainers with sophisticated mobile devices with rich functionalities to adequately provide satisfactory lesson in the classroom environment

b) Education providers should organize workshops, seminars, conferences and in- house training on how to deploy mobile devices to classroom environment for the trainers and learners to enhance adequate skills in the technology.
c) With the availability of Internet access on the mobile devices, plagiarism can be controlled during seminar presentation and project writing and this method will improve the quality of our education.
d) The time constraints that are often cited as a reason for minimal use of technology can be eliminated by the education providers in creating conducive environment for teachers to accept new technology in education such as internet facilities, supplement the erratic supply of electricity in the country such as the use of generator, inverters and battery, use of biogas to generate power and encourage the trainers to join the IT associations where new ideas on the current technology are being discussed.
e) Government should assist the school management in providing free Internet services to the School community so as to achieve full realization of any mobile device usage in education.

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