

Mobile Learning in Africa: Strategy for Educating the Poor

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Abstract - This study argues that mobile learning delivers education more affordably, accessibly and effectively than the traditional model of delivering education, which further deprives the poor in Africa. The traditional model of education denoted in this study refers to the model of education that gives high regard for location and the formality of education with its additional services and costs. This model facilitates education. Three case studies were used to validate this argument.

Index Terms – Africa; Education; Mobile Learning.

I. INTRODUCTION

The need for welfare and sustainable development has been a driving factor in ensuring that nations are making efforts to invest in their various economies. More so, we are in the knowledge revolution where knowledge is the currency and there is need to invest immensely in human capital development to enhance the capacity of the populace to contribute to the development process. This suggests adequate investments in education, capabilities, training and development. Various economies have taken advantage of these to improve on their economic performance. However, some others are left behind because of the lack of capacity to afford the cost of formal education. Education is called the key to the future. With it, people are not only able to secure their future but their nations' future. It is apparent that the more educated a person, the more his or her chance of economic survival and the more the person can contribute to the development process. Despite these, a large group of people are being deprived of the key to their future in Africa.

60 percent of the population in Africa live in the rural areas. Not creating opportunities for their development is depriving them of their capabilities, which can be hazardous to them and the society. But why are they not educated? This study identifies and asserts that this large group of people are not educated because of two main factors. First is the rising cost of education, which rural residents may not be able to afford. The second is the

lack of proximity to schools. This study argues that these two hindrances can be addressed with the aid of technology—mobile technology. UNESCO report reveals that a significant amount of children lack access to basic education coupled with teachers, who lack the motivation, qualification and experience to train and cultivate minds. The outcome of these is millions of children lacking basic writing, reading and numeracy skills in Africa (UNESCO, 2012).

Nigeria, the most populous nation in Africa, has 94.5 percent of her population possessing mobile phones. While Egypt has a population of 82.1 million people, there are 92.6 million mobile phones in its economy. This constituting 112.8 percent of the population. However, this is not to be compared with Morocco (113.6 percent) and South Africa (117.6 percent) to mention a few. According to Pfeffermann (2014), the level of mobile phone subscription in Africa has grown to 780 million subscriptions. Given this ICT capacity, it is expedient not to waste the potentials it provides. Mobile technology puts the world in the hands of people. The use of mobile phones by the poor and rural dwellers means that they can be educated formally and informally. Various sectors have taken advantage of this opportunity to impact people in rural areas with viable services such as education and financial services as in the case of M-Pesa. For instance, Aker and Mbiti (2010) reported in their study that farmers in the rural areas of Ghana get agriculture-based education by sending request text messages through mobile technology to learn about prices of agricultural products in the city of Accra, which is hundreds of kilometres away from rural areas. In Niger, unskilled workers are able to call relatives in far distances about employment opportunities without incurring transportation costs. Residents in trouble spots are able to report violence and crime more readily without the limitations of protocols. The majority in the rural dwellers in Africa, which make up to 60 percent of Africa's population, and who may not be able to afford the rising cost of formal education neither can locate an

institute of learning at close range, can be empowered with knowledge given the rising amount of mobile phones, mobile phone subscription in Africa, and the opportunities made available. Besides saving the costs of transportation, mobile learning helps the poor to learn without paying for the extra costs of education—hostel rental, library charges, utilities, administrative costs, staff wages to mention a few. Hence, they can pay little or nothing to learn from where they are. This suggests that higher institutes of learning, besides distance learning and online learning, needs to incorporate facilities to aid mobile learning in Africa.

This study is not about whether mobile technology will affect learning in Africa; rather, it is about how mobile technology will improve access to education in ways that are more accessible, more affordable, more efficient and more effective in educating the poor in Africa. This study, thus, posits that mobile learning a solution to address the challenges of rising cost of education and lack of proximity to schools, which are hindrances to educating the poor in Africa.

The traditional model of education is designed in such a way that people are made to be at physical locations to learn from specific people. This culture has been standardized in ways that have factored in additional costs that increases the cost of education (Lewis, 2009). These costs include the wages and salaries for teachers, electricity bills, internet bills, lands and buildings, maintenance costs, cost of stocking resource centres to mention a few. These explain some of the cost of providing educational facilities and how students will have to pay for them. The more features are added, the more the cost rises and the more the poor are marginalized and deprived of their capabilities. The source of these rising costs can be traced to the ideology that formal education has to be in a physical location, which must provide additional services that are costly. The question to ask is whether education can still be achieved without these costs. In addition to the challenge of rising education costs, schools may not be located close enough for the poor and rural dwellers to afford transportation costs.

These challenges will persist until there is a change in the way education is delivered. Education that makes learners dependent on institutions marginalizes the majority that cannot afford it. Education that liberalizes learning is the kind that provides equal opportunity. This is why this study considers mobile learning as the strategy to educate the poor in Africa in order to close the gap between development and underdevelopment. ICT infrastructure has made it possible for knowledge to be made more available and accessible to all. Such infrastructure has made it possible for anyone to learn anywhere, anyway and anytime in the world. Hence, the challenge of location, time and formality has been addressed with mobile technology. There is no need,

therefore, to incur costs on infrastructure since people have their mobile phones. This availability provides channels to deliver education affordably. With mobile phones, people with less opportunities, can access information to learn and get educated formally or informally.

With mobile learning, the poor can avoid the huge costs of administration, accommodation, tuition, library usage and all the costs of physical infrastructure being charged in schools. Mobile learning, therefore, delivers education with minimal cost. The teacher has a mobile phone; the student also has a mobile phone. Mobile Alliance for Maternal Action (2014) reports that out of every hundred persons in Africa, 50 have access to electricity, 30 have access to toilets; however, 68 out of 100 persons have mobile phones with subscriptions. Nominet Trust (Undated) reports that people have mobile phones in remote areas in Africa where there is lack of safe water and lack of dependable electricity. Sambira (2013), in her study, indicated that 60 percent of those unemployed in Africa are young people, who pay an average of US\$6.50 monthly for mobile subscription, including in regions where the majority live on less than US\$2 per day. This is a clear indication that people in Africa make sacrifices and investments to keep their mobile phones active to stay connected to the world. In dispersing information to educating the poor therefore, there is no need to incur additional costs of buying mobile phones for students or teachers. Focus can therefore be given to creating and delivering relevant content in ways that are readily understandable, usable and duplicable using mobile technology.

Exploration from literature on the subject of educating the poor in Africa has been on providing free and affordable basic education. Little has been done to pinpoint how mobile learning can be a strategy to deliver education and make it more accessible and affordable to the poor. This study therefore contributes by identifying that the factors responsible for the rising cost of education can be eliminated by employing mobile technology to deliver education to the poor in Africa.

The rest of this paper is structured as follows: Section two is a review of literature on the subject of mobile learning while section three presents an overview and some stylized facts on mobile learning in Africa. Section four presents some case studies to validate the role of mobile learning as a strategy for educating the poor in Africa and section five presents the concluding remarks.

II. LITERATURE REVIEW

Hashemi, Azizinezhad, Najafi, and Nesari (2011) examined the definition of mobile learning in the knowledge economy context as well as their capabilities and the challenges that may arise via that platform. They defined mobile learning as the acquisition of knowledge and skill through mobile technology irrespective of time

and location. Hence, with mobile learning, learning can be done anytime from anywhere. This suggests that with mobile learning, where the learner goes learning goes. However, according to them, mobile learning is simply another way of learning as a result of the availability of mobile technology instead of a replacement for traditional learning. But, this idea is not supported by some.

Goksu and Atici (2013) asserted in their study that the rapid growth and developments in mobile technologies and the increasing accessibility and usage of mobile phones is driving the need for mobile learning. This suggests that the infrastructure for delivering education is no longer the issue but utilizing it to deliver services such as education. The possession and usage of mobile phones by the poor suggest that education can be delivered to them.

Concerns may arise as to how mobile learning can be used to teach subjects such as mathematics which some students have phobia for. This concern moved Taleb, Ahmadi and Musavi (2015) to embark on the study on how mobile learning will affect learning and understanding mathematics. They conducted the study in Tehran on 2353 school teachers from nineteen districts during the 2012/2013 academic session. First, they discovered that mobile learning has a direct impact on motivating the students to learn mathematics. They also discovered that it enabled their participation and understanding of mathematics. Further, they found out that there exists a significant positive relationship between mobile learning and other training methods.

Idrus and Ismail (2010) examined the role learning institutes play in improving students learning via mobile technology. Since it facilitates the easy transmission and delivery of rich content without being restricted by time or geographical boundary. They argued that people are involved in mobile learning everyday as long as they use their mobile phones to check for date and time, call someone to ask for direction or get information or use the phone as a calculator. Hence, the issue is not whether education is formal or informal. The issue to be addressed is the challenge of improving the capability of the poor through education, which has to be delivered faster and more affordably. The rural farmer may not need to leave his farm for formal education, if he can get periodical short text messages that shows him tips on how to improve the growth of his crops and preserve them from pests and rodents. These are clear indications of the possibility to bridging the poverty gap by affordable means to deliver education. It is also apparent from these that text messages through the mobile phone is an effective means of transmitting knowledge. Swaffield, Jull and Ampah-Mensah (2013), in their study, examined how mobile phone texting can enable the delivery of education in Ghana. They discovered that weekly text messages to the learners had the potential to

sustain their commitment, improve their study hours, enhance their understanding and boost their learning.

Education that the poor cannot afford is no education to them. Education that cannot improve the capabilities of Africans but further deprives them of their capabilities is no education. But the kind that educates people in ways that are affordable, time-saving and unrestricted to geographical location, is the kind of education that will enable African countries to empower people to contribute to the development process and catch up with advanced economies. The poor in Africa will continue to become a burden and social menace until they are equipped through education to be part of the development process. This explains why this study argues that the delivery model of education be reviewed by the adoption of mobile technology in order to educate the poor and equip them to be involved in contributing towards the development process in Africa. The focus, therefore, should not be restricted to the ivory towers of learning or the four walls of the classroom, whose costs of maintenance are responsible for rising cost of education (Suttle, 1983; Bowen, 2011; Schierenbeck, 2013)

III. SOME STYLIZED FACTS

Some statistics have shown that Africa will continue to be left behind on the pathway to educating its people if it depends mainly on the traditional model of education. 42 percent have access to textbooks in primary schools in Africa, while the acceptable standard is at least 85 percent. Cut in education spending, as a result of rising education cost, has put almost 4 million children out of school (UNESCO, 2012). All these can be catered for by redesigning the model in which education is delivered in such a way that mobile technology is leveraged. Evidence from a five-year study by the Ambient Insight (2013) shows that Africa has the largest mobile learning growth rate in the world with a compounded annual growth rate of 39 percent. Data from the ITU (2015) show that mobile subscriptions in Africa grew to 625 million in 2014 from 87 million in 2005 indicating 618.4 percent growth in the period while the population in Africa grew by 23.7 percent in the same period. These indicate the increasing dispersal of mobile technology and subscription in Africa, thereby setting up the required frameworks, networks and channels for the delivery of education. Figure 1 shows the trend of mobile technology penetration in Africa. The trend shows that the percentage of those using mobile technology in Africa has been on the increase. The amount has risen to almost 70 percent as at 2013. This persistent rise in mobile subscription per a hundred people in Africa is the opportunity to educate more people with lesser costs.

IV. CASE STUDIES

This study is validated by three case studies in Africa, which have employed mobile technology to educate African's more affordably and improve on their capabilities to contribute to the development process. These cases are Mobile Alliance for Maternal Action, Eneza Education and Praekelt Foundation. Each of them are discussed in this section.

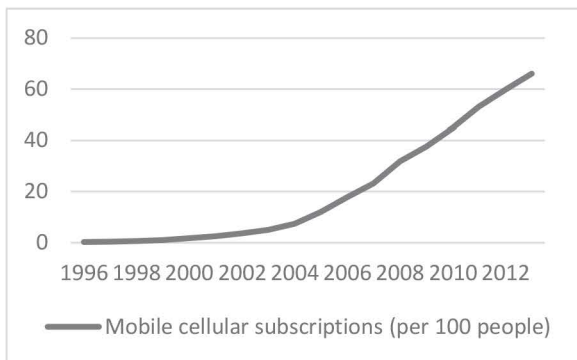


Fig. 1. Mobile Subscription per 100 People in Africa Source: World Development Indicators (2014)

Mobile Alliance for Maternal Action

Mobile Alliance for Maternal Action (MAMA), a Public-Private Partnership initiative in South Africa, is helping to use mobile education to solve the critical challenges faced by women in South Africa. Though a middle income country, about 30 percent of pregnant women are HIV positive, 25 percent have been victims of rape, 77 percent are single mothers, and of every 100,000 babies born 310 of them die out of which 180 are HIV related. All these are as a result of lack of health education. MAMA solves these problems by sending mobile text messages to new and expectant mothers to educate them on what to do, things to avoid, medications to take to prevent HIV transmission to the baby and how to be a good mother. The program has served more than 350,000 woman and their families since its commencement in May 2013. This is an attestation of how mobile learning can enable capabilities and contribute to sustainable development (Speciale & Freytsis, 2013; Coleman, 2013; Nurmatov, et al., 2014; Mobile Alliance for Maternal Action, 2014).

Eneza Education

Eneza education is a startup enterprise in Kenya aimed at solving illiteracy problems in Africa using mobile technology. The high student to teacher ratio does not enable learning hence many students do not make it through to high schools. Only 32 percent of students make it through. Since the lack of quality teachers will not solve the large student to teacher ratio, a cost-effective means that puts the learner at the centre of

education was pertinent. Eneza, thus, provides the solution by using test messages to actively engage students, deliver interactive study contents. In addition to this, they developed a solution to help teachers and parents evaluate and monitor the performance of students. The outcome from the use of Eneza shows that students who use it have increased their study period by at least 2 hours per day. The startup is therefore helping African break out of poverty (Manske, 2014; iHub, 2014; Eneza Education, 2015).

Praekelt Foundation

The Praekelt Foundation is a non-profit organization in Africa aimed at educating young people in Africa through mobile technology so as to improve their living standard and get them out of poverty. The ideology behind this is that education liberates people from the poverty trap. Primarily, they employ mobile technology to provide essential information on relationships, sex education and HIV/AIDS to curb the spread the virus through mobile learning. Hence, users can easily locate the nearest health centre and request information using text messages on a basic phone at low cost. A child in a remote community and lack of access to textbooks can read for free from his mobile phone. Those advanced in age can get text message reminders of their medication. As an entrepreneur and consultant, the founder, Gustav Praekelt, discovered the increasing spread of mobile technologies in Africa and leveraged on the opportunity to educate remote communities and deliver services to the poor cheaper, better and more accessibly (Labrique, Vasudevan, Kochi, Fabricant, & Mehl, 2013; Wikimedia, 2014; Praekelt Foundation, 2015).

CONCLUSION

The traditional model for delivering education has translated into increasing cost of education, which deprives the capabilities of those who cannot afford the costs. The traditional model gives priority to physical infrastructure and additional service features such as library services, internet technology, classrooms, hostels and administrative services. This study argues that the priority is to deliver education not the features culminating in rising costs. Mobile learning is one way to side track costly physical infrastructure and services and enable access to education by the majority. This study, therefore, postulates that mobile learning is a strategy to educate the poor in Africa and improve on their capabilities so that their efforts can be meaningful in Africa's development drive. This study contributes to literature by exposing another perspective to delivering education affordably to the poor for the purpose of improving their capabilities to contribute to the drive for sustainable development.

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