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The Nigerian Education and the Opportunities ahead for Mobile Learning.

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Abstract: Information technology is providing opportunities to improve education and therefore, research is needed to identify what gaps exist and how these gaps can become opportunities for technology integration such as mobile learning. This paper suggests that successful integration of technology towards improving quality education should be driven by the existing challenges which are contextually peculiar for every country. The case of the Nigerian education was examined alongside practices and policies. The study used secondary data from Nigeria Education Data Survey (NEDS). This paper highlights three major problems that Nigeria faces in basic education, namely: large number of out of school children, high dropout rate, and low literacy rates. It also forms a basis for further research in advancing mobile learning.

Introduction

In striving to improve quality in education, countries in developing world are tapping into innovative possibilities that are offered by Information Communication and Technology (or ICT) integration. These innovations in education are in effect investments in human capital which are perceived to result in eventual benefits such as economic and social developments for the populace (Howie, 2010; Oluwatobi, Olurinola & Taiwo, 2016; Watanabe, Naveed & Neittaanmaki, 2017). Mobile learning (or M learning), electronic learning, distance learning are some examples of innovations in education that have leveraged on the existence of technology. Technology therefore acts as a means to bridging the digital gap with benefits in quality of education.

According to UNESCO Institute for Statistics (or UIS, 2015), the quality of education can be improved by subsequently enhancing literacy rates and access to education. They also point out that efficiency in education can be measured in terms of the dropout rates and factors which are responsible for inequality. Other indicators identified by UIS (2015) are: Public Education Expenditure per Pupil (PPE) and Pupil Teacher Ratio (PTR). PPE reveals a country's commitment to education at each school level while PTR is a proxy for learning quality and a resource availability indicator.

Educational outcomes resulting from quality education have been observed to be facilitated by advancement in ICT integration. Watanabe, Naveed and Neittaanmäki (2017) categorized 20 countries according to their ICT integration level. Interestingly, their findings reveal that those 10 countries (e.g. Finland, Singapore, Netherlands, and UK) which they classified as ICT advanced (IAC) were distinguished from the other groups by the state of their internet access, quality of education and management system. They argue that the effects are seen in the transformation of their learning environments. Likewise, Oluwatobi, Olurinola and Taiwo (2016) found a positive relationship between internet usage and enrolment in primary, secondary and tertiary education.

However, some studies have identified factors that influence the ICT integration process in some countries. For instance, in Rwanda, Egypt and Nigeria, policy related problems at practice and implementation phases were observed (Byungura, Hansson, Masengesho, & Kaunaratne, 2016; Kozma, 2005, Oye, Salleh & Iahad, 2011) respectively. Howie (2010) also shows that the strategy for ICT integration was the issue in the case of South Africa.

The question is how can ICT be positioned for use in education in order to achieve quality education? Although ICT is claimed as vital to development, its presence and continuous evolution has not led to the desired impact particularly in developing countries (Heeks, Gao & Ospina, 2010). The studies enumerated so far, emphasis the need for attention to the entire process of ICT integration, that is, from policy formation to implementation stage. In addition, Howie (2010) points out that previous research on ICT policies have been shaped by perspectives of developed world and add that in the case of developing countries, cognizance of context related challenges should be noted. In line with Howie's perspective, this paper aims to:

- Identify the challenges in the Nigerian education sector by examining the policies and practices.
- Identify the possibilities technology integration can offer as a solution to the challenges.

Nigeria is selected as a case example for the study, as it has wide industry in the field telecommunication but at the same time, the country is struggling with its educational challenges and ICT use still plays a minor role in education. The rest of this paper is divided as follows. In order to provide an understanding of the country's current structure, the next segment will describe the Nigerian context in terms of profile and the education system and issues. Next, the data extracted and the main challenges are presented. Thereafter, we offer some discussion and conclude.

Nigeria: Profile and Education system

The population of Nigeria as at 2017 was estimated at 184million (World Bank), which accounts for 47% of the West African population, as well as, about 20% of the Sub-Saharan Africa population.

In 2012, the National Council on Education modified the Nigerian education system from four levels (6-3-3-4) to five levels (1-6-3-3-4) in order to provide better access to education (Federal Ministry of Education, 2014). This implies that formal education is made up five levels namely: One year of kindergarten, six years of primary school, three years of junior secondary school, three years of senior secondary school, and four years of university or undergraduate education leading to a degree award. According to the federal ministry of education, the overall objective of this system is to produce individuals that are resourceful and therefore suitable for employment. Basic education refers to the education provided for children up till the age of fifteen. In Nigeria, the government provides compulsory basic education beginning usually from age five and over a span of nine years. The technical and vocational education is also available and advocated towards meeting the societal demands. Also, the junior secondary school is both pre-vocational and academic while the senior secondary school incorporates subjects that are technical, commercial and vocational in nature in order that school leavers at this point can find themselves relevant in the labor market. In addition, there are the colleges of education which are responsible for training in order to produce professional teachers. This training is completed in three years and a Nigerian Certificate in Education is obtained. The academic year in the country begins in September and ends in July. The federal, state and local government, together with the communities and private organizations in Nigeria, all share the mandate for delivering the objectives in the education sector.

Underlying Issues in the Education Sector

According to Education Policy and Data Centre (or EPDC, 2014), the number of pupils enrolled in primary and secondary education in 2010 was 30.6 million with expected increment in subsequent years (UIS, 2015). However, 70% of these pupils are enrolled in primary education which indicates the assertion by World Education Services (in WENR, 2017), that the youth population growth is a factor that challenges the Nigerian basic education system especially its inability to accommodate a significant portion of this population category.

Literacy is viewed as a basic skill required for advanced levels of learning as well as provides a system for appraising a nation's learning achievements. EPDC (2014) claims the literacy rate among the Nigerian youth population at 66% is lower than the average among other lower middle-income countries.

Over-age and under-age students are usually as a result of either late entry into or grade repetition at the primary or secondary school. An over-aged pupil is one that is two or more years older than the official grade age. Conversely, a pupil is under-aged if he or she is one or more years younger than the official grade age. An on-time pupil is therefore one who is within the official age range for their specific grade (National Population Commission, Nigeria or NPC Nigeria & RTI International, 2016). Late entry to school and repetition rates contributes to inefficiency in education system. In addition, the over/ under-age problem affects the teachers as they have to consider their teaching approach with respect to the differences in the maturity of the students. These problems can also affect the classroom experience for the students in general. In 2015, the percentage of Nigerian primary school students found to be on-time, over-age and under-age was 59, 22 and 19 respectively (NPC Nigeria & RTI International, 2016).

The pupil to teacher ratio (PTR) is observed to decline. For example, the PTR for primary and junior secondary school in 2014 was 40 and 26 respectively (National Bureau of Statistics or NBS, 2015). In comparison, the PTR was given as 37.6 for primary education while it was 31 for the junior secondary school and 36 in upper secondary school (EPDC, 2014). Evidently, the PTR in primary school is higher than in secondary school levels in Nigeria. Similarly, a decline is observed, when comparing the primary school net attendance, which was 68.7% in 2014 against 71% in 2012 and the completion rate for primary school which was 74% in 2014 from 87.7% in 2012

(NBS, 2015). Net attendance is the number of pupils in the official age group for a given level of education who attend school in that level, expressed as a percentage of the total population in that age group. This declining trend in the education sector appears to confirm the assertion by NBS (2015) that Nigeria still struggles to attain targets such as the Universal Primary Education (UPE), Education for All (EFA), and Millennium Development Goal (MDG).

According to UIS (2012), the Out of School Children problem is the biggest contributor to the country's inability to meet these aforementioned targets. For example, NBS (2015) asserts that almost 3million Nigerian children (8.1%) between the age brackets six to 14 were out of school while 3.2 percent of this population dropped out of school in 2010. Further, Nigeria is ranked as one of the countries with the largest out of school population (UNESCO, 2015). Kozma and Wagner (2006) propose that in combating education problems, efforts should be directed at the root cause, which in their study was associated mainly with social factors. As a result, they proposed solutions which are ICT based as well as *support social engagement with learning*.

Information and Communication Technology (ICT) in Nigerian Schools

UIS (2015) recommends early integration of ICT into levels of education such as primary and secondary curricula towards building digital literacy, which is essential for youth empowerment and lifelong learning. In addition, UIS (2015) enumerates lack of formal policy, financial resources, basic infrastructure and competent teachers as factors that militate against ICT integration in education. The importance of ICT in promoting the delivery of basic education in Nigeria is acknowledged and reflected in the National Policy on Education (2013, p.15 & 42) specifically in the area of developing teachers, capacity and infrastructure. However, initiatives that address the needs of the Nigerian primary and secondary school students through ICT integration are lacking. For example, the lack of instructional materials in primary schools as suggested by Federal Ministry of Education (n.d.) can be addressed by technology integration according to Oluwatobi, Olurinola and Taiwo (2016).

Moreover, the development in the telecommunication industry in Nigeria has been monumental and its relative opportunity in terms of mobile learning will yield gains in schools. Some studies have shown high penetration level of mobile devices among the Nigerian university students (Ifinedo, Kankaanranta, Neittaanmäki, & Hämäläinen, 2017; Utulu & Alonge, 2012). However, this development has not led to its widespread use in education. Nevertheless, Adedoja, Botha and Ogunleye (2012) have enumerated two mobile learning initiatives currently in use in Nigeria (JAMBMOBILE and UI Initiative). JAMBMOBILE's target audiences are students who are interested in getting admission into universities while the UI initiative is designed for students of one university.

Data Extract

This paper is based on the premise that the successful integration of technology towards quality education should be driven from the view point of the existing challenges which can be peculiar for different countries. To achieve this, the study uses secondary data obtained from Nigeria Education Data Survey (NEDS), which was conducted between May and August 2015. This is reportedly, a nationally representative sample survey, which in partnership with the Federal Ministry of Education, the Universal Basic Education Commission and the National Bureau of Statistics was executed by the National Population Commission. In addition, technical assistance was obtained from RTI International and funding from United States Agency for International Development. The aim of the survey was to provide data on household level and the necessary information on the demand for schooling. The sample participants were children, parents and guardians.

Challenges in Nigeria's Education

UIS (2012) describes monetary cost in terms of direct fees, private expenses or opportunity costs. Examples of direct fees are school fees, Parent and Teacher association levies or for activities. Examples of private expenses are uniforms, transport fare or books. To the parents or guardians, the opportunity costs of having their children or wards in school results in forgoing the alternative, usually in form of child labor. The data extracted from the NEDS of 2015, highlights three major challenges, which are presented thus.

Reasons for Never Attending School

Figure 1 highlights five main reasons the Nigerian children are not attending school at the national level. Other reasons revealed in the survey are: too young, critically ill, disabled, travel unsafe, poor school quality, no jobs for graduates and school is not important. From the responses (n = 13,996), it is observed that the regions differ

as to reasons the children are not attending school. Financial cost is the main reason for the North Central, South East and the South-South. The South West region has the highest number of children (46.5%) with no interest in education and 44.5% are away from school because they are needed for labor. The school distance is indicated in the North East while for the North West it is the labor needed factor.

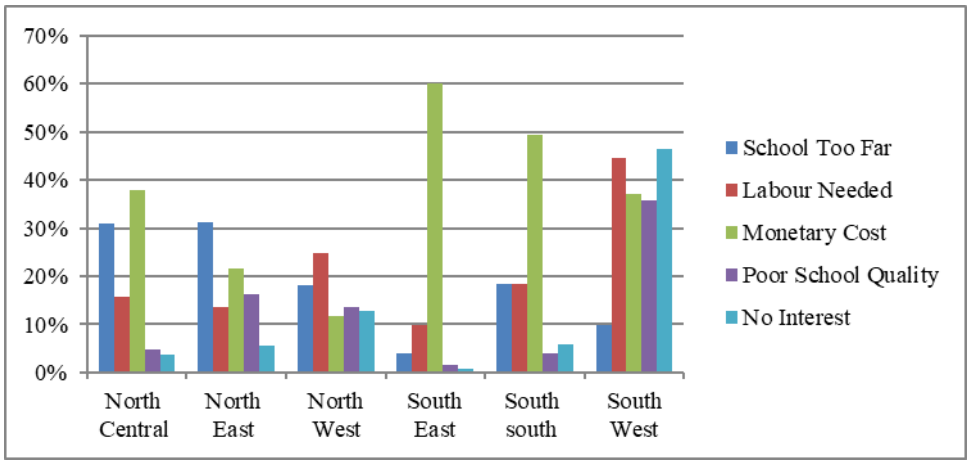

Figure 1: Reasons for Never Attending School (extracted from NEDS 2015)

Reasons for Primary School Dropout

At the national level, five leading issues were identified as responsible for school age children's dropout. Figure 2 presents the response (n = 1,339) across the regions. In the case of the dropout problem, the monetary cost is observed to be the prominent reason across the regions except in the North East. The same factor accounts for the highest share of dropouts along the rural and urban divide. Next is the labor needed factor which appears to be highest in the North West.

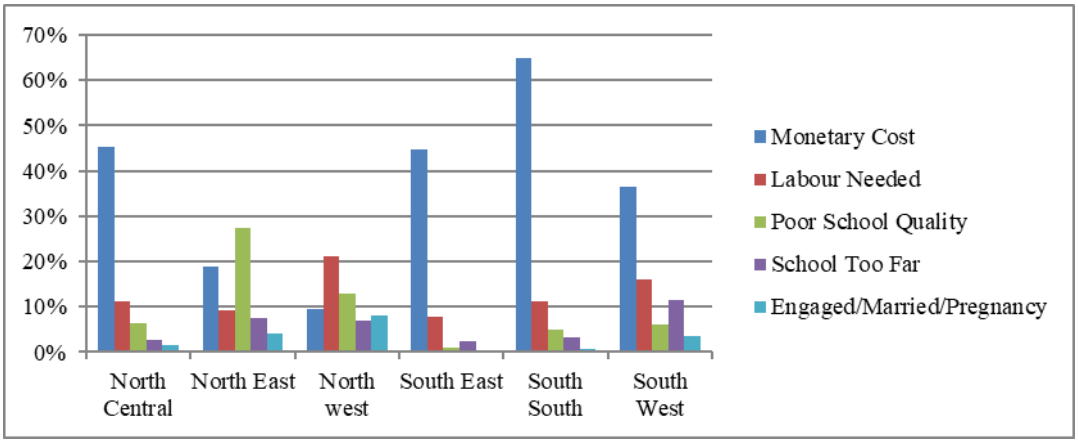

Figure 2: Reasons for Primary School Dropout (extracted from NEDS 2015).

Children's Literacy Rate

Figure 3 presents the literacy rates among children between the ages five to 16. Literacy (can read) in this context refers to the children's ability to read all or part of a sentence while numeracy (can sum) refers to those who can correctly sum numbers. The result of the survey shows that the overall literacy (n = 78, 558) and numeracy (n = 78, 293) for the school children between the aforementioned age group was 48.5%. Along the rural and urban divide, the children's reading skill was 20.4% and 48.9% respectively while their summing skill was 39.6% and 75.4% respectively.

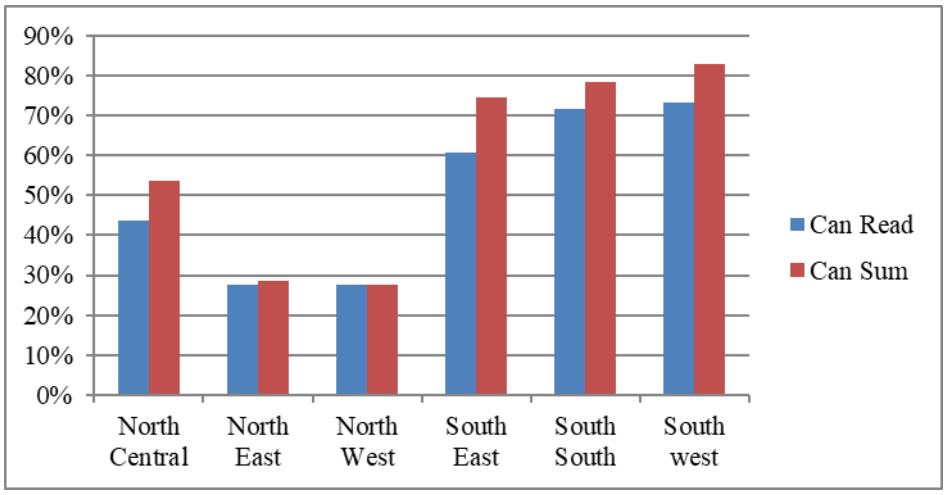

Figure 3: Children's Literacy and Numeracy Rate (extracted from NEDS 2015).

Discussion and Conclusion

UIS (2012) opined that when children enrolled into school are challenged by situations, it results in irregular school attendance that may lead to failure and then dropping out of school and eventually, they become Out of School Children. This suggests that the drop out issue is a subset of out of school children issue. Thus, on the factors challenging the Nigerian education according to the regions, the following discussion is offered.

From this study, it was observed that the regions were influenced differently. The reasons for children never attending school was mainly due to monetary cost. Others were, no interest, labor, poor school quality and school too far. Along the rural – urban divide, the school distance is the highest factor that instigates the out of school problem for those in the rural areas while the monetary cost is the highest for those in the urban area. In the case of literacy rate, it is perceived that across the board, the children seem to be more proficient at summing numbers than in reading. Also, a wide spread need for improving the children's reading skill is evident.

Overall, the use of ICT can address some problems of the school children such as no interests and school distance, labor needed by providing them with multiple channels of learning, motivational and educative materials on for example, mobile devices. Materials for promoting reading and summing skills can be designed for delivery through mobile devices for all the regions albeit a bit of variation according to the regional needs highlighted. The challenges as revealed in this study indeed offers an opportunity for the use of technology since access to mobile devices for example, enables access to information and interaction which in turn could lead to development of motivation, curiosity and reading competencies of the children as shown by Pruet, Ang and Farzin (2016).

Aside from less infrastructural requirement in mobile learning when compared with other technologies, it avails enormous potentials for achieving numeracy and literacy skills but most promising, is its ability to take educational experiences outside classrooms (UNESCO 2015). In considering the use of ICT for bridging the gap in education, Kozma and Wagner (2006), propose that the objective (meeting the academic and social needs of the school or society at large) should drive the process (design, policies, practices, strategy). In the Nigerian context appraised, this means that, in order to improve the quality of education, the government needs to reinforce the objective of the appropriate policies designed for inclusion of the out of school children, dropouts and improve the literacy rate. These policies require the participation of all stakeholders and should be coherent as well as connect with the overall goal to be achieved as pointed out by Heeks, Gao and Ospina (2010).

In conclusion, this paper identified the problems within education in Nigeria with a view to suggesting innovative ICT-based solutions to improve the quality. Nigeria is selected as the context for the study since the country has a wide industry in the telecommunication field and a youth population growth that poses a threat to her basic education system. The three major problems inherent in the Nigerian basic education were; large number of out of school children, high dropout rate, and low literacy rates. The study offers support for subsequent research in developing countries and initiatives advocating for quality education such as Education for All and Millennium Development Goal. Further, this research sets the stage for the next phase which entails the investigation of how the challenges identified in this paper can be reduced using affordable technologies within Nigeria. The need for further

research to aid the effective policy implementation with regards to ICT integration in education was also highlighted. Specifically, policies that leverage on the availability of mobile devices for the inclusion of the disadvantaged learners within Nigeria's basic education level as a means to improving the quality of education is advocated. A strong need for evaluating the current status of ICT use in Nigerian schools as well as design of case studies in which teachers and students are supported towards applying ICT as an essential and natural part of learning and teaching practices is highlighted.

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