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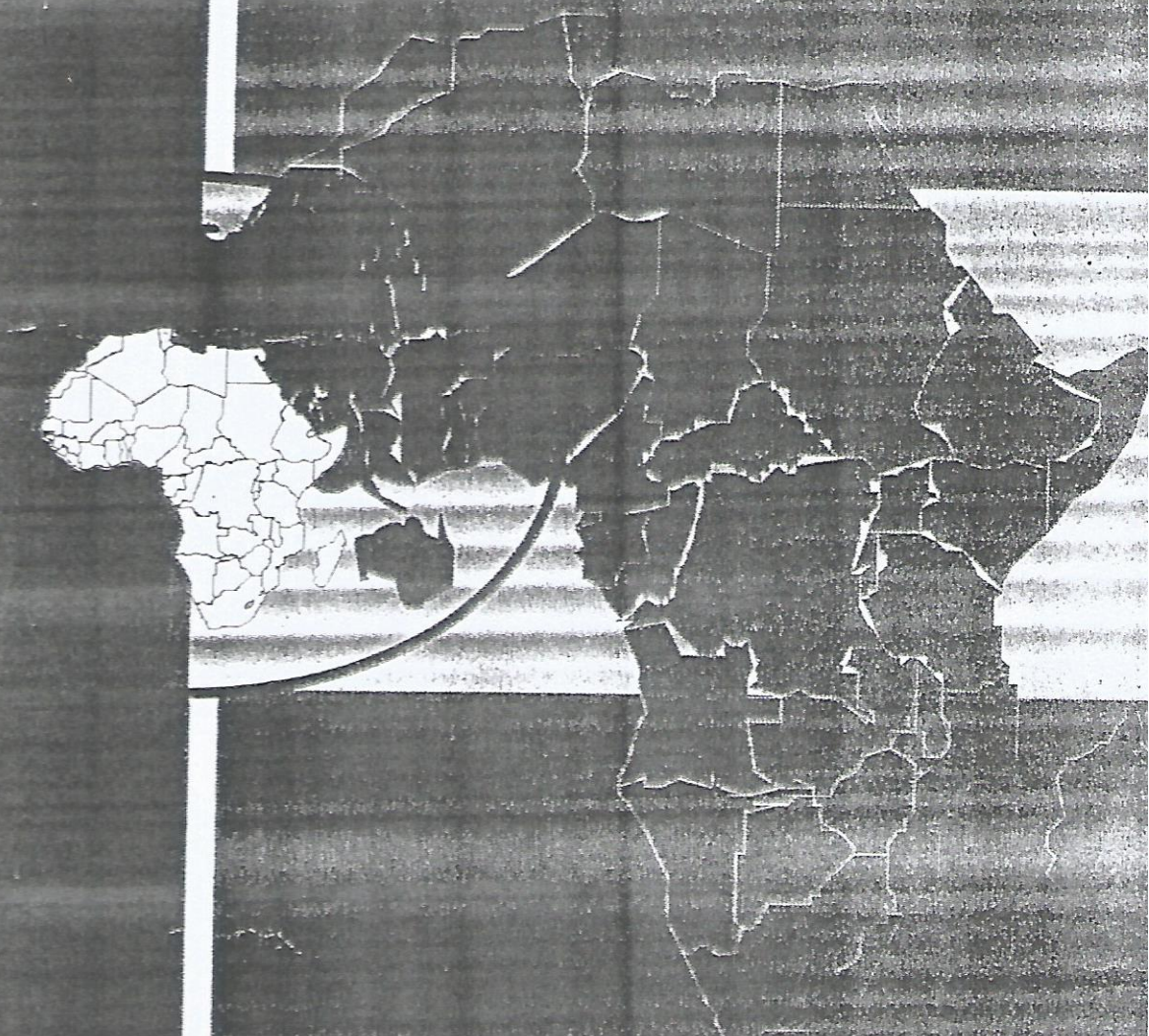

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Capacity Building for Education through ICT Implementation in Nigeria Universities

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Abstract

Capacity building is a process through which development agents aim at creating a social, economic and political environment conducive for the improvement of their abilities to efficiently and actively play their respective roles over time. A national capacity building ensures that nations take control of their own learning in such a way that enables them to effectively address the needs and issues that are on their agenda. While there is an agreement that ICT can be a powerful tool for capacity development, a major gap exists between what operates in developed and underdeveloped countries in the adoption and usage of ICT for capacity development in education. As we move into the 21st century, many factors such as the lack of capacity, lack of funding, lack of ICT awareness, policy issues, and political issues are affecting the adoption of ICT in education for capacity development in Nigeria. It is therefore pertinent to understand capacity building for education through the implementation of ICT across the nations, exploring the impact of ICT, lessons learned, when and where learning will take place and how the

learning will occur and its impact for capacity development. Therefore, this paper explores capacity building for education through ICT implementation in Nigerian universities. It also presents some of the capacity building programmes in education that have been carried out in Nigeria. The paper concluded by presenting some lessons learnt from advanced countries capacity building for education through ICT Implementations.

Keywords: Capacity Building, National Capacity, ICT Implementation, Technology in Nigeria Universities.

Background

Capacity is the ability of individuals, organizations and societies to perform functions, solve problems, set and achieve goals (The World Bank Group, 2012). A well developed capacity involves sustainable development, utilization and retention of that capacity. Capacity varies across the nations even from one institution to another; it can be low or higher. The challenge for many individuals, organizations and societies is how to bridge the gap between the low and high capacity. A World Bank publication (The World Bank Group, 2012) revealed that capacity development is thus a gradual process, with the country taking the initiative to tailor interventions to meet its needs by investing, building on human capita, changing and strengthening institutional areas.

Capacity must be developed; it is an essential lubricant for National Development, even more important than finance (Capacity Building Guide, 2012). Capacity building is defined as the ability of an organization to achieve their mission in an effective manner. It can also be described as the strategies or an action that an organization takes to ensure that it has the resources needed to succeed. These actions include: resource development, financial management (diversification of funding sources), organizational learning, leadership development and other activities. In other words, capacity building is any set of actions that an organization takes to improve its ability to perform successfully in its chosen area

(Dane, 2010). The benefits of capacity building to a Nation are enormous. It helps guarantee peace, security and also the attainment of high growth rate. It provides a mind-set and means of helping non-profits become high performing entities. It is needed for sustainable development. It is the long-term, voluntary process of increasing the ability of a country to identify and solve its own problems and take risks, and maximize its opportunities. It involves the mobilization of human, institutional, other resources and subsequently strengthening their development (Sadler, and McCabe (2002). A nation cannot fully develop without the proper use of Information Communication Technology.

ICT Implementation in Nigerian Universities

Computer has become a major component of ICT. Okebukola (1997) concludes that computer is not part of classroom technology in more than 90 percent of Nigerian public schools and this implies that the chalkboard and textbook continue to dominate classroom activities in most Nigerian secondary schools. Although, efforts have been made to ensure that ICTs are available and used in Nigerian secondary schools, the level of uptake is still low. While teachers generally agree that integrating ICT into teaching and learning is important, actual use of ICT in classroom is either low or confined to use of ICT for productivity purposes (Becta, 2007). There are still multiple gaps in curriculum design and delivery for the development of pre-service teachers' competencies in ICT integration (Becta 2007). Many teachers of education colleges offer single technology course as a form of teachers preparation (Hsu & Sharma, 2006), which are usually deemed insufficient for teachers to be adequately prepared for the complexities involved in integrating ICT (Lawless & Pellegrino, 2007). Furthermore, research indicates that instructional use of computer among faculty members in colleges of education can be below expectation (Drent & Meelissen, 2008). Many issues pertaining to digital equity, cyber wellness and social justice are also emerging from the pervasive use of ICT and they need to be adequately addressed in teachers' education (Kirschner & Selinger, 2003).

While there is an agreement that ICT can be a powerful tool for capacity development, a major gap exists between what operates in developed and underdeveloped countries in the adoption and usage of ICT for capacity development in education. As we move into the 21st century, the above factors and many others are bringing forces to bear on the adoption of ICT in education for capacity development. It is therefore pertinent to understudy how advanced/developed countries utilized ICT, the impact of ICT and what is learned, when and where learning will take place and how the learning will occur and its impact for capacity development.

There have been a number of factors impeding the full implementation of ICT in education across many other sectors that in turn affect the capacity development and implementation in higher institutions especially in Nigeria. These have included such factors as a lack of funding to support the purchase of the technology, a lack of training among established teaching practitioners, a lack of motivation and need among teachers to adopt ICT as teaching tool. Also, It has been observed by Goshit (2006) that most schools, both private and government, do not offer ICT training programmes.

Previous studies have indicated some hindrances with the use of ICT in schools; for instance, Okwudishu (2005) discovered that the unavailability of some ICT components in schools hampers teachers' use of ICTs. Lack of adequate search skills and of access points in the schools were reported as factors inhibiting the use of the Internet by secondary school teachers (Kaku, 2005). The absence of ICT equipment in most Nigerian secondary schools leads students to resort to cybercafés for Internet access. Most cybercafé clients in Nigeria are students (Adomi, Okiy & Ruteyan, 2003). With the problems stated above, it is obvious that capacity building for education through ICT implementation in Nigeria is inadequate.

The utilization of ICT for capacity building in education

While there are many stakeholders involved in ensuring effective integration of ICT in the Nigerian education system, teachers have an

important role to play. According to Carlson and Gadio (2002), teachers are the key to whether technology is used appropriately and effectively. Appropriate use of ICT can catalyze the paradigmatic shift from teacher-centered pedagogy to a more effective learner-centered pedagogy. Improved education is essential to the creation of effective human capital in any country (Evoh, 2007). The need for ICT in Nigerian higher institutions cannot be overemphasized.

While studies have shown that ICT facilitates the development of higher order cognitive skills of evaluating arguments, analyzing problems and applying what is learnt, the teacher is not to be excluded from the ICT-based activities. Martin (2000) highlights the importance of the role of teachers in integrating ICT effectively by emphasizing that without the input and acceptance of teachers, the developments of useful educational technology projects are hindered. Not only are teachers the gatekeepers of the classroom, they are the greatest source of information about curriculum design and educational content.

In this technology-driven age, everyone requires ICT competence to survive. Organizations are finding it very necessary to train and re-train their employees to establish or increase their knowledge of computers and other ICT facilities (Adomi & Anie, 2006). The ability to use computers effectively has become an essential part of everyone's education. Skills such as bookkeeping, clerical and administrative work, stocktaking, and so forth, now constitute a set of computerized practices that form the core IT skills package: spreadsheets, word processors, and databases (Reffell & Whitworth, 2002). The demand for computer/ICT literacy is increasing in Nigeria, because employees realize that computers and other ICT facilities can enhance efficiency. On the other hand, employees have also realized that computers can be a threat to their jobs, and the only way to enhance job security is to become computer literate. With the high demand for computer literacy, the teaching and learning of these skills is a concern among professionals (Oduroye, 2006).

For the students, the use of ICT allows for increased individualization of learning. In schools where new technologies are used, students have access to tools that adjust to their attention span and provide valuable and immediate feedback for literacy enhancement, which is currently not fully implemented in the Nigerian school system (Enuku & Enuku, 1999 & 2000). ICT applications and use will prove beneficial in improving Nigeria's educational system and giving students a better education. A technologically-advanced workforce will lead to ICT growth in Nigeria, with the potential to improve military technology and telecommunications, media communications, and skilled ICT professionals who will be well-equipped to solve IT problems in Nigeria and other parts of the world (Goshit, 2006).

Significance of this Paper/Statement of the Problems

There are several reasons why this paper is important:

- The lack of capacity is one of the compelling development challenges facing sub-Saharan African countries and regional institutions. Capacity constraints are serious impediments to the design and implementation of gender-responsive, growth-oriented poverty reducing policies and programmes at regional, national and sub-national levels, as well as to the quest of African countries to promote regional integration, peace & security and good governance (United Nations Development, 2012).
- Many graduates of higher institutions in Nigeria cannot find work due to lack of capacity building. Also, despite an average economic growth rate of about seven percent per annum over the last seven years, a good performance by global standards, wage employment is estimated to have declined by about thirty percent according to a recent World Bank Publication titled Putting Nigeria to Work (Treichel, 2010).
- In Nigeria, several efforts have been made on Capacity building in education. Many of these efforts have to do with ICT due to the approaches which range from publications to training. There are

many approaches to providing capacity building services. These include providing access to repositories of information and resources (for example, databases, libraries and web sites), publications (adverts), trainings (public, customized or on-line), consultation (for example, coaching, facilitating, ex pert advice and conducting research), and coordinating alliances. All these approaches cannot do without ICT.

Some of the capacity building programmes in education that have been carried out in Nigeria are discussed below:

The Nigerian University Capacity Building Programme by CBN

Since the late 1990s, the Central Bank of Nigeria (CBN) has expanded its involvement in community based activities beyond sporting development to include other areas of community development. In response to the general concern about the decaying infrastructure in the first generation universities, the Bank attempted to provide/improve key infrastructure under the Nigerian Universities Capacity Building Programme. Following the success of the pilot scheme, the programme has since been extended to include second generation universities. The projects carried out under this capacity building programme include the construction of administrative blocks, lecture halls, laboratories, health centres, and provision of IT and V-sat equipment (Central Bank of Nigeria, 2006-2011).

Nigerian Information Technology for Development (ICT4D)

One of the focal points of the Nigerian Information Technology for Development (ICT4D) developed by National Information Technology Development Agency (NITDA) is to promote the development of human capital required in key skill areas for developing information and knowledge based economy to meet with the rapid growth experienced in advanced economies. The objective of establishing NITDA was to move the agency at a break neck speed that would ensure that Nigeria catches

up with the rest of the world as clearly stated in the Nation's IT policy document (Tooki, 2011).

Jidaw Annual Software Development Capacity Building Initiative

Jidaw created software development educational programs with input from the software and certification industry in line with software knowledge and skills needs. Jidaw's Annual Software development capacity building program entails courses on Programming basics and Web Development Basics. The Software development educational programs are created and run yearly to develop capacity in software development in Nigeria (Jidaw 2011).

Capacity-building workshop in Nasarawa by Teachers without Borders (TWB)

Teachers without Borders in Nigeria is known for its outstanding and inspiring contributions through many of its initiatives including the Voice of Teachers radio show on Radio Nigeria Kapital FM in Abuja that reaches over a million listeners per week, the Millennium Development Ambassadors program, frequent seminars and workshops on contemporary issues in education and international development (TWB, 2011).

The Association of Volunteers in International Service

The Association of Volunteers in International Service (AVSI) is an international not-for-profit, non-governmental organization (NGO) founded in Italy in 1972. AVSI's mission is to support human development in developing countries with special attention to education and the promotion of the dignity of every human person, according to Catholic social teaching. AVIS has worked in the Lagos State of Nigeria since 1988 supporting the provision of primary health care services, with special attention to the less privileged and the under-served, and promoting the

holistic education of children and youth primarily through capacity building of educational institutions (AVIS, 2005).

Lessons learnt from Implementation of ICT in Education for Capacity Development

In fostering an information society and ensuring that ICTs are available to all development sectors, many government agencies have invested in building and improving their ICT manpower and infrastructure. At the same time, many governments realise that bringing technology to the people goes beyond the provision of infrastructure, hardware and software (Tooki, 2011). As noted by Bridges Organisation: "any technology will be insufficient if people do not understand how to put it to effective use as part of their lives or their work, either because they are not trained to use it, or they cannot imagine the possibilities for how they could use it.

In the last three decades, the socio-economic developments in Asia and the Pacific have been one of the most dynamic compared with other regions. With the adoption of new technologies, including information and communication technologies, most of these countries had transformed their economies into leading producers of automobiles, electronics and other consumer goods. In some countries, the focus has been on building the ICT industry, including ICT manufacturing and outsourcing. This explains why India's ICT outsourcing sector, was expected to generate an estimated $75 billion in revenues from software and services exports in 2010 (Tooki, 2011).

According to the Global e-school and communication initiative (2009), a key to success is to adopt a comprehensive, end-to-end, systematic approach, with a phase and learn-as-you-go implementation that can be adjusted to adapt to the specific needs and a changing environment. For access purpose, it was recommended that:

- Regional networks of collaboration among countries where language and context are similar could serve as a platform to promote educational quality and equality in an effort to bridge the digital divide. Greater exchange and collaboration in the production and management of educational resources would lower expenses in the development of materials as well as increase the amount of educational content for teachers' capacity development. Online knowledge sharing networks to facilitate ICT-based education process needs to be established for teachers at all levels. It is necessary to focus on training instructors to use ICT to develop their own teaching support materials. This approach assures ownership by instructors and enhances the usability of products.
- International agencies such as UNDP, the World Bank, among others, should work together along with the local government of grant-receiving countries to establish a global framework to deal with emerging issues of the digital divide due to the new internet economy.
- Insufficient access to computers is one of the main obstacles in ICT for capacity development for education. Although this will require massive investments in the infrastructure, it is nevertheless essential in order to guarantee equal access and overcome the digital divide.
- National policies need to be aligned with policies on education for capacity development. It seems thus far in the research, that for ICT to be effective in education, ICT programmes require the support of the national government.

A lot can be learned from studies carried out by UNESCO (2004) on ICT as stated below:

- policy provision as guidelines for practitioners to support ICT in education initiative, and
- planning, management and implementation of ICT for educational programmes.

In its review of 90 ICT projects in Asia, the UNESCO (2004) comprehensive report grouped the countries into 3 categories: Advanced countries with integrated ICT in the educational system (South Korea and Singapore). Countries where national ICT policies and master plans have been formulated and various ICT integration strategies have been applied and tested (although ICT is not fully integrated in their education system) include China, Thailand, Japan, Malaysia, the Philippines and India. The study covered six cases from Indonesia, Malaysia, Philippines, Singapore, South Korea and Thailand. In these six countries, ICT use in education was at different stages of development.

Other countries where efforts towards ICT integration and formulation of national policies have just begun were the 3rd categories. They include Vietnam, Cambodia and Bangladesh among others. The analysis of experts' best practices and associated problems in the above study had generated lessons learned in eight components which include:

- broader environmental context,
- policy and regulating environment,
- management and financing,
- ICT in schools – policy, vision and strategy,
- technology infrastructure and connectivity.
- curriculum, pedagogy and content development
- professional development and monitoring and evaluation
- monitoring and evaluation.

The professional development covered policy and management of teacher training on ICT, teacher training modalities, teachers' competencies and standards, how to change mindset of teachers, content focus of capacity building for teachers, capacity building for educating personnel at all levels and incentive system and motivational strategies for teachers amongst others.

Other lessons learnt are that "A well-planned and responsive education system provides an appropriate enabling environment for the successful

implementation of ICT in education policy and programme. Furthermore, to make ICT an integral part of the education master plan and ensure programme support, ICT in education policy should share the same vision as other educational policies. Finally, adequate physical and technological infrastructures are necessary conditions for effective ICT integration/capacity (Williams, Coles, Wilson, Richardson & Tuson, 2000).

Conclusion

Lecturers in higher institutions have a very important role to play in the teaching/learning paradigm shift with ICT facilitating the development of a higher level of cognitive skills in evaluating, agreements, analyzing problems and applying what is learnt. While learners play a pivotal role in the learning environment, they are often times oblivious of the changes in the teaching/learning environment for capacity development. Lecturers are more likely to integrate ICT in their courses, when professional training in the use of ICT provides them time to practice with the technology and to learn, share and collaborate with colleagues. Perkins (1993) argues that the best use of any physical support system, including ICT, is an art, and it is necessary to acquaint the teachers with this art. For effective capacity development for education through ICT, in Nigerian Universities, a lot can be borrowed from the studies organized and carried out by UNESCO (2004) in the following ways:

- Centralized training administration system for all lecturers is crucial to document and monitor capacity/professional development.
- Lecturer training modalities should be either in peers or Department based training of lecturers by their more experienced colleagues. Need-based just-in-time learning can also be used to implement capacity development in ICT.
- ICT professional development programme for lecturers should be planned, taking into account the vision for implementation in Nigerian universities e.g. in Singapore four types of ICT basic courses were programmed for the teachers; Skill ICT workshops

were organized for the teachers with 30 hours ICT foundation courses, 26 hours elective courses and 6 – 12 hours of ICT integration in each curriculum subject class.

- Training education personnel at all levels especially higher institution using ICT should be efficient, coherent and complementary e.g. from the experience in Malaysia and Philippines. It is important that there is a continuing training for policy makers and school administrators in technology planning and management. The institute's capacity for autonomous technical maintenance must be development. Finally, from the experience in Thailand, the office of the Minister of Education Secretary General organize training courses for all departmental personnel in a wide range of ICT uses.
- Having a recognition system for innovative and effective use of ICT integration in any higher institutions will motivate capacity development. In Singapore awards were used to encourage ICT usage. These awards encouraged teachers to be innovative in applying ICT to enhance learning and motivate them to move to higher levels of ICT use for capacity development (UNESCO, 2004).

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