The Imperatives of Information and Communication Technology for Teachers in Nigeria Higher Education

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Abstract

The pace of change brought about by new technologies has had a significant effect on the way people live, work, and play worldwide. New and emerging technologies challenge the traditional process of teaching and learning, and the way education is managed. Information Technology (IT), while an important area of study in its own right, is having a major impact across all curriculum areas. Easy worldwide communication provides instant access to a vast array of data, challenge assimilation and assessment skills. Rapid communication, plus increased access to IT in the home, at work, and in educational establishments could mean that learning becomes a truly life-long activity, an activity in which the pace of technological change forces constant evaluation of the teaching-learning process itself. In this paper issues related to the needs and imperatives of Information and Communication Technology (ICT) related technologies to education and in particular teachers' education are highlighted. The paper also advances some suggestions and/or recommendations for effective integration of ICT in the teaching-learning process, bearing in mind current problems mitigating against the implementation of ICT in the Nigerian education system.

Keywords: life-long activity, network society, autonomy, flexibility, quality education, teacher education, task oriented activities, ICT enhanced learning.

Introduction

Information and communication technology (ICT) is an indispensable part of the contemporary world. The field of education has certainly been affected by the penetrating influence of information and communication technology worldwide and in particular developed countries, ICT has made an impact on the quality and quantity of teaching, learning, and research in the traditional and/or distance education institutions using it.

In concrete terms, ICT enhances teaching and learning through its dynamic, interactive, flexible, and engaging content. It provides real opportunities for individualized instruction. Furthermore, information and communication technology has the potential to accelerate, enrich, and deepen skills; to motivate and engage students in learning; to help relate school experiences to work practices; to help create economic viability for tomorrow's workers; contributes to radical changes in school; to strengthen teaching, and to provide opportunities for connection between the school and the world. The pervasiveness of ICT has brought about rapid technological, social, political, and economic transformation, which has eventuated in a network society organized around ICT (Yusuf, 2005).

Accordingly, the application of ICT makes institutions more efficient and productive, thereby engendering a variety of tools to enhance and facilitate teachers' pedagogical activities. For instance, e-learning is becoming one of the most common means of using ICT to provide education to students both on and off campus by means of online teaching offered via web-based systems (Yusuf, 2005; Mutula, 2003).

In research, ICT provides opportunities for students and faculty to communicate with one another through e-mail, mailing lists, chat rooms, etc. It also provides quicker and easier access to more extensive and current information, and can be used to carry out complex mathematical and statistical calculations. It provides researchers with a steady avenue for the dissemination of research reports and findings (Yusuf and Onasanya, 2004) quoted in Yusuf, (2005).

Looking at the role of education in the development of any society, the school will be indispensable in developing an ICT learning culture of any country. The school must provide effective leadership in ICT integration, through research, modeling of effective integration of ICT, and provision of opportunities for professional development of citizens of a country.

The Imperatives of ICT for Teachers and Students.

In order to fit into the new economic order, it is necessary for Africa, Nigerian institutions, and individuals alike to develop a society and culture that places a high value on education and training. Thus ICT-based technology like e-learning has great potential to supplement traditional learning. This is so because ICT-enhanced learning can provide new opportunities to explore high-level cognitive activities such as autonomy, creativity, problem solving and team work while providing teachers with the means to take into account individual needs of students, especially while using web-based technology. Accordingly, and in addition to some of the imperatives mentioned above, some of the definite and specific reasons for implementing ICT-based technology for teachers are:

1. New ICT facilities allow students and teachers to control, manipulate and contribute information to learning and teaching environments as interactive books, journals and the like are usually made available via Internet (Oxfam Education Report, 2002).

2. The use of new multimedia technologies and Internet will improve the quality of teaching-learning related activities not only in Nigeria but Africa sub-Saharan region as well.

3. As a social process it will facilitate interaction and collaboration not only among learners but among teachers as well both at local and/or global levels.

4. It will give opportunity to individuals who might wish to combine work and learning at his or her own pace, irrespective of location.

5. It enhances performance of lecturers in time of course materials delivery and provides maximum attention to students as they could meet through e-mail feedback facility or other wise.

6. It will revolutionize distance learning which used to be "just-in-class" to "just-in-time", thus enhancing easy accessibility to education.

7. A flexible user interface, since it is attractive and interactive, may motivate the learner's interest, which in turn will sustain continuous learning.

8. It promotes human resources capable of responding to the demands of the new world economy that is supported and driven by ICT.

9. Open and distance university education, if well supported by e-learning technology, will provide accessibility, flexibility, and collaborative work to both the urban and rural populace of Nigeria and Africa in general, who might not have the privilege to attend conventional universities. This has life-long value to quality education and to all who seek knowledge irrespective of age and/or geographical location and time.

Thus, with the evolution of the new Information and Communication Technology, higher education institutions are able to provide a flexible and more open learning environment for students and teachers alike. In Nigeria, indications are that with increasing enrollments at all levels of education, distance or blended learning shall continue to grow, which calls for immediate technology support (Kwache, 2005).

Problems Mitigating against the Implementation of ICT in Nigeria Education

The digital divide between advanced and developing countries, particularly in Africa, is well established. Like most African countries, Nigeria as a nation came late and is still slow in the use of ICT in almost all sectors of the nation's life (Yusuf, 2005). Accordingly, the most common problems associated with the effective implementation of ICT are:

1. Lack of qualified ICT personnel. Most institutions lack computer literate teachers and ICT experts that would support and manage the Internet connectivity and/or application of computing in the teaching-learning process.

2. Cost of equipment. The cost of equipment in a country like Nigeria with a battered economy and seriously devalued currency is enormous. However, it should be noted that the problem might not be the funds nor the technology but rather the will on the part of government and/or the governors of education (Itegboje & Okubote, 2002).

3. Management's attitudes. The attitudes of various managements in and outside institutions towards the development of ICT related facilities such as the Internet and procurement of computers is rather slow in some instances, and in others there are no aids or support by the government at all (Albirini, 2006).

4. Inconsistent electric power supply in most of the parts of the country and also inadequate telephone lines particularly in the rural areas.

5. Non-inclusion of ICT programmes in teachers' training curricula and/or at the basic levels of education. There seems to be no clear and definite policy and/or curriculum for all levels of the Nigerian education system.

The Way Forward For Effective Integration of ICT in Nigeria Education

Despite the fact that Nigeria, and in fact most African countries, came late into the ICT world, the adoption of the Nigerian national policy for information technology in 2001 is the right step in ICT application in every sector of the nation's life and in particular in education. The policy is designed to ensure that Nigeria as a nation recognizes the strategic importance of ICT for national development. Successful application in every sector can only be assured through adequate coverage of needed areas. Identified gaps can be filled through the involvement of important stakeholders/actors such as the teachers and the managers of education (Kwache, Yusuf, 2005). Specifically, the following are some required urgent steps in addition to the ones already accepted.

1. The adoption of ICT international standards and its inclusion in the Nigeria curriculum and in particular in the teachers' education curriculum.

2. Continuous and periodic training of teachers on computers and ICT skills acquisition.

3. Development and training of ICT experts specifically for instructional design and development who will work in partnership with educators and teachers.

4. Restructuring, redevelopment, and reinforcement of the Nigeria Policy for integration of ICT in the Nigerian education systems. This is because "its potential as a tool for addressing challenges in teaching and learning and as a change agent seems to be neglected" (Yusuf, 2005, p. 319).

5. Funding - government at all levels should make ICT a matter of priority, provide the funds specifically needed for the training of teachers in computer education who shall in turn be equipped with ICT knowledge and skills to teach pupils/students computer and/or ICT basics.

6. There should be a monitoring, inspection, and evaluation division at all levels of education that will be responsible for ensuring that the ICT curricula are adhered to and that the monies allocated for such purposes are not diverted, and also to ascertain that the right equipment is procured and delivered at the appropriate time.

7. There is a need for the Nigeria government to address seriously the issues of the erratic electricity power supply, while on other hand schools wishing to adopt the integration of ICT in their teaching-learning process should as a matter of agency procure a generator that can supplement Power Holding Company (PHC) for supply of power.

8. Above all there should be an attitudinal reorientation of expected users of the ICT-related facilities so that society will be in a better position to adopt new ICT innovations such as new pedagogical methods, access to remote resources, collaboration between individuals and groups of people in more widely diverse geographic locations, online experts and mentors, virtual learning communities, home/school communities. This is because cultural perceptions seemingly have a significant impact on a teacher's adoption of ICT (UNESCO, 2000; Albirini, 2006).

Conclusion

From the foregoing discussion, it is clear that ICT in education is an indispensable tool in the modern teaching-learning process, and so its adoption for teachers will go a long way toward the enhancement of one's teaching style. This is true because issues such as good course organization, effective class management, content creation, self-assessment, self-study, collaborative learning, task oriented activities and effective communications between the actors of teaching-learning process and research activities will be facilitated and enhanced by the use of the ICT-based technology. However, in order to achieve maximum impact and influence of ICT, culture and the society to which teachers belong have to be adjusted to meet the challenges of the knowledge economy age.

Thus for Africa, and in particular Nigeria, to make effective use of ICT for the enhancement of tertiary education environments, the various challenges that have been raised in this paper have to be addressed, by having in place an effective legal, regulatory, and policy framework that will enable the implementation of viable e-learning strategies (Mutula, 2003).

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