Maximizing the Use of Multimedia for Effective Teaching and Learning in Nigerian Tertiary Institutions

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Abstract

This paper examines the numerous benefits Information and Communication Technologies (ICTs) such as multimedia that improve the quality and quantity of teaching and learning in tertiary institutions. Furthermore, the paper reveals the challenges encountered and how multimedia facilitates teaching and learning in various ways that include: active, collaborative, creative and evaluative learning. However, the challenges were also outlined such as Lack of maintenance of ICTs facilities, Non-inclusion of ICT programmes in teachers’ training curricula, non-chalant attitudes of management staff, Cost of equipment, Lack of qualified ICT personnel, Non reliability of electricity supply, Lack of enabling environment, Inadequate and irregular funding of ICT initiatives and so on. The paper concludes the application of multimedia in our tertiary institution is paramount so as to achieve academic excellent. It was finally recommended that our institution of learning should include the innovation brought by the imaging new ICTs technologies to enable us realize the national goals.

Keywords: Information and Communication Technology (ICT), Multimedia, teaching, and learning

1. Introduction

The need for the implementation of ICT facilities such as multimedia in teaching and learning is a global resolution and has been a subject of great significance to all mankind (Olaofe, 2005). Teaching and learning is a continuous process in every high institution of learning for the development and sustainable of any Country. It is through this process that young once will be equipped with knowledge and good moral behaviors. However, the act of imparting knowledge needs to be improved at any point in time for better change.

ICT facilities such as multimedia can be used for effective teaching and learning in tertiary institution which facilitate learning activity by making it less cumbersome and easy to understand. Laudon and Laudon (1999), define “multimedia as technologies that facilitate the integration of two or more types of media such as text, graphics, sound, voice, full motion video, or animation into a computer-base application. Information and Communication Technology (ICT), which include radio and television, as well as newer digital technologies such as computers and the internet, have been fronted as potentially powerful enabling tools for educational change and sustainable development, (Saidu and et al 2009). ICT can be defined as a “diverse set of technology tools and resources used to communicate, create, disseminate, store and manage information “. These technologies include: computers, internet, broadcasting technologies (radio and television) and telephony.

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Objectives of Multimedia in Education in Nigeria Tertiary Institution

According to Said and et al (2010) some of the objects include:

- To actively facilitate e-learning and teaching in the manner that the goals of sustainable development could be promoted.
- Promote a wide range of multimedia application in an institution of learning
- To encourage worldwide research and knowledge acquisition in our tertiary institution of learning.
- To encourage creative and integrative teaching and learning which ensures that learning becomes student focused and ideas as well as individuals initiative are directed towards various learning pathways so as to achieve the national development goals of developing countries.
- To ensure easy access to educational materials high quality data, information and knowledge as well as research findings relevant to the problems of developing countries.

Learning and Multimedia

We cannot really teach things to children unless they want to learn – meaning not only acquiring facts but also understanding the meaning. And many children stop asking why when a teacher starts to teach them. It seems as if the learning and teaching process that the current educational system supports does not always facilitate learning effectively. Probably, to solve this problem we should think teaching in terms of supporting learning and choose teaching techniques accordingly. What is learning and how could we support it?

Learning

Learning concerns thinking - reasoning and reflection (Jonassen and McAleese, 1999). Students should use reasoning such as deduction and induction, and reflection to construct their knowledge relating to their existing one. Learning should be meaningful more than memorising or reproducing knowledge presented by a teacher (Entwistle et al, 1992, Mayes, 1995). Entwistle et al. define this as “deep learning”, which means that in order to transfer outside information into internal knowledge; students must understand the information presented (Entwistle et al, 1992). They should conceptualise the information, make connections with already existing knowledge and have deep understanding of it. Mayes’ learning framework (Mayes, 1995), which is following, illustrates the internal process effectively.

For that reason the use of ICTs multimedia such as computer, compact disc, projector, and television will simplify teaching and learning activity as obtained in developed countries.

2. The Role of Multimedia in Teaching and Learning

Kwache (2007) outlines the following roles of multimedia in teaching and learning:

- New multimedia 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).
- 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.
- 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.
- It will give opportunity to individuals who might wish to combine work and learning at his or her own pace, irrespective of location.
- 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.
It will revolutionize distance learning which used to be “just-in-class” to “just-in-time”, thus enhancing easy accessibility to education.

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

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

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 lifelong 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). Hence, learners can now learn at their own pace and distance will no longer be a barrier.

3. Improving the Teaching and Learning Environment through the Effective Use of Multimedia

The effective use of multimedia will improve the teaching and learning environment in different aspects. Presently teaching and learning is generally teacher-centred, which makes the learner passive and not active in the entire process, in this regard, Saidu and et al (2009), examined some of the areas where multimedia can improve teaching and learning environment which include:

Enhancing Teacher Training

MULTIMEDIA has also been used to improve access to and the quality of teacher training. For example, institutions like the Cyber Teacher training Centre(CTTC) in South Korea are taking advantage of the internet to provide better teacher professional development opportunities to in-services teachers. The government – funded CTTC, established in 1997, offers self-directed, self-paced Web-based courses for primary and secondary school teachers. Courses include “Computers in the information Society” “Education Reform,” and “Future Society and Education” Online tutorial are also offered, with some courses requiring occasional face-to-face meetings.

Active Learning

Multimedia-enhanced learning mobilizes tools for examination, calculation and analysis of information, thus providing a platform for student inquiry, analysis and construction of new information. Learners therefore learn as they do and, whenever appropriate, work on real-life problems in-depth, making learning less abstract and more relevant to the learner’s life situation. In this way, and in contrast to memorization-based or rote learning, Multimedia enhanced learning promotes increased learner engagement. Multimedia-enhanced learning is also “just-in-time” learning in which learners can choose what to learn when they need to learn it.

Collaborative Learning

Multimedia supported learning encourages interaction and cooperation among students, teachers, and experts regardless of where they are. Apart from modeling real-world interactions, Multimedia supported learning provides learners the opportunity to work with people from different cultures, thereby helping to enhance learners’ teaming and communicative skills as well as their global awareness. It models learning done throughout the learner’s lifetime by expanding the learning space to include not just peers but also mentors and experts from different fields.
Creative Learning

Multimedia supported learning promotes the manipulation of existing information and the creation of real-world products rather than the regurgitation of received information.

Integrative Learning

Multimedia enhanced learning promotes a thematic, integrative approach to teaching and learning. This approach eliminates the artificial separation between the different disciplines and between theory and practice that characterizes the traditional classroom approach.

Evaluation Learning

Multimedia enhanced learning is student-directed and diagnostic. Unlike static, text- or print-based educational technologies, Multimedia enhanced learning recognizes that there are many different learning pathways and many different articulations of knowledge. Multimedia allow learners to explore and discover rather than merely listed and remember, direct class teaching, where broadcast programming substitutes for teachers on a temporary basis; school broadcasting, where broadcast programming provides complementary teaching and learning resources not otherwise available; and general educational programming over community, national and international stations which provide general and informal educational opportunities.

4. The Challenges Encountered In the Application of ICT Facilities in Teaching and Learning

It is obvious whenever a new thing is intended to introduce into the academic environment a lot of challenges are expected. 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 multimedia in teaching and learning are:

- 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.
- 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).
- 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).
- Inconsistent electric power supply in most of the parts of the country and also inadequate telephone lines particularly in the rural areas. Power fluctuations causes electric surge and spikes which damage the hardware of computer. (Kwache, 2007)
- 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.
- Lack of maintenance of ICTs facilities. ICTs facilities need be maintained properly in other to sustain their life span.

Association of African Universities (2000) identified some obstacles in the introduction and utilization of ICTs in African universities. These include the following among others:

- Poor national telecommunication infrastructure (especially inadequate telephone access)
• Lack of enabling environment, including highly regulated telecommunications industry, unsatisfactory performance of internet service providers and absence of incentives to promote innovation and risk taking
• In some countries, the hostile social climate and potential instability prevent opportunities of international collaboration and support
• Absence of National Information and Communication Infrastructure policy (NICI policy)
• Internet points of presence in several countries are not easily accessible to university communities, even with high-speed telephone systems
• Internet traffic congestion or saturation due to limited bandwidth
• Non reliability of electricity supply
• High Internet Service Providers (ISP) fees
• Inadequate and irregular funding of ICT initiatives
• Prohibitive importation costs of ICT equipment, often compounded by national import tariff levels
• Others are organization internal obstacles, human resources-related obstacles etc.

5. Conclusion
As the globalization effects affect every nation especially the developing countries and Nigerian in particular, the country should actively participate in the acquisition of new emerging technologies especially multimedia equipments in order to modernize the educational system otherwise one is bound to conclude that the country may not free her citizens from the shackles of underdevelopment. Hence, it is pertinent to Nigerian educational system to fully embark the use of ICT Multimedia in order to realize her national goals. In conclusion, this paper encourages all tertiary institutions in Nigeria to embark on the deployment of multimedia in the teaching and learning to promote active student participation in the process and also to promote owner of knowledge by the learners.

6. Recommendations
With the above development it is deemed relevant to make the following suggestions:
• It is necessary for the government to increase research activity to ensure that the teaching and learning process is improved through the use of modern ICTs technology.
• The improvement of computer based teaching and learning at all levels of our educational system is absolutely necessary.
• Training and retraining programs in the application of ICT in our institution of learning should be intensified so that teachers in secondary schools are acquainted with the challenges of e-learning.
• Government should create monitoring and evaluation unit in order to supervise the application of ICTs in institution of learning in the country for both private and public schools so as to ensure compliance with enunciated national educational objectives.

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