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A.B. Oshinaike
Olabisi Onabanjo University Ago-Iwoye, abuayisha2@yahoo.com.uk

S.R. Adekunmisi
Olabisi Onabanjo University Ago-Iwoye, adekunmisisr@yahoo.com

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A.B. Oshinaike
Main Library
Olabisi Onabanjo University
Ago-Iwoye, Ogun State, Nigeria

S.R. Adekunmisi
Main Library
Olabisi Onabanjo University,
Ago-Iwoye, Ogun State, Nigeria

Introduction

The use of multimedia in industries has been extensive, as it has been effective in increasing productivity and retention rates, where research has shown that people remember 20% of what they see, 40% of what they see and hear, but about 75% of what they see and hear and do simultaneously (Lindstrom, 1994). Multimedia is now permeating the educational system as a tool for effective teaching and learning. With multimedia, the communication of information can be done in a more effective manner and it can be an effective instructional medium for delivering information.

Multimedia access to knowledge is one of the possibilities of information and communication technology that has tremendous impact on learning. The instructional media have emerged in a variety of resources, and equipment, which can be used to supplement or complement the teachers efforts in ensuring effective learning by students.

It is recognized that conventional media technologies can no longer meet the needs of our teaching and learning processes; as a result they are being replaced by multimedia technology. This technology provides a learning environment that is self-paced, learner-controlled and individualized.

Literature Review

Multimedia is defined as the combination of various digital media types such as text, images, sound and video, into an integrated multi-sensory interactive

application or presentation to convey a message or information to an audience. In other words, multimedia means “an individual or a small group using a computer to interact with information that is represented in several media, by repeatedly selecting what to see and hear next” (Agnew, Kellerman and Meyer, 1996).

Reisman (1994) described multimedia as a ray of “computer-driven interactive communication system, which create, store, transmit and retrieve, textual, graphic and auditory networks of information.

Multimedia could be interpreted as a combination of data carriers, for example video, CD-ROM, floppy disks, Internet and software in which the possibility for an interactive approach is offered (Smeets, 1996; Jager and Lokman, 1996).

Fetterman (1997) also viewed multimedia as those resources used for instruction that include one or more media such as graphics, video, animation, image and sound in addition to textual information. He identified four important characteristics of multimedia as:

- Multimedia systems are computer controlled
- Multimedia systems are integrated
- The information content must be represented digitally
- The interface to the final presentation of media.

The power of multimedia lies in the fact that it is multi-sensory, stimulating the many senses of the audience. It is also interactive, enabling the end users of the application to control the content and flow of information. This has introduced important changes in the educational system and impact the way we communicate information to the learners (Neo and Neo, 2000).

Ogunbote and Adesoye (2006) expressed that multimedia technology adds new dimension to learning experiences because concepts were easier to present and comprehend when the words are complemented with images and animations. Stating further that it has been established that learners retain more when a variety of senses are engaged in impacting knowledge; and the intensity of the experience aids retention and recall by engaging social, emotional and intellectual senses.

The evolution of multimedia has made it very possible for learners to become more involved in their work. With multimedia technologies, they can create multimedia applications as part of their project requirements. This would make them active participant in their own learning process, instead of just being passive learners of the educational content.

Reinsman (1994) expressed that multimedia involves processing, storage, generation, manipulation and retention of multimedia system, and the resources could include text files, pictures, video, audio, databases, archives, library catalogs, course notes, relevant links to various websites and easy access to search engines available on the Internet (Shuell and Ferber, 2001).

A study by Ubogu (2006) supports the view that multimedia resources facilitate access to all human knowledge, anytime, and anywhere in a friendly, multi-modal, efficient and effective way, by overcoming barriers of distance, language and culture, and by using multiple Internet-connect devices.

It is important to say that the use of multimedia technology has great significance in colleges, universities and research institutions in the Western countries. In these countries, the technology is being seen as a key player to development in all ramifications and essential component of education.

However, Babajide (2003) identified different types of multimedia communication, some of which include computer hardwares, computer softwares, public address systems, slides, overhead projectors, opaque projectors, videos, cassettes, audiotapes, cassette recorders, flip, time sequence, streamcharts, Diorama still motion pictures among others.

Multimedia in Education

Multimedia in Education has been extremely effective in teaching individuals a wide range of subjects. Multimedia is changing the way we communicate with each other. The way we send and receive messages is more effectively done and better comprehended.

While a lecture can be extremely informative, a lecture that integrates pictures or video images can help an individual learn and retain information much more effectively. Using interactive CD-ROMs can be extremely effective in teaching students a wide variety of disciplines, most notably languages and music.

A multi-sensory experience can be created for the audience, which in turn, elicits positive attitudes towards its application (Neo and Neo, 2001). Multimedia has also been shown to elicit the highest rate of information retention and result in shorter learning time (Ng and Komiya, 2000).

On the part of the creator, designing a multimedia application that is interactive and multi-sensory can be both a challenge and thrill. Multimedia application design offers new insights into the learning process of the designer and forces him or her to represent information and knowledge in a new and innovative way (Agnew et al, 1996).

However, information technology application serves different purposes, such as knowledge sharing-portal, search engines, public administration, social service and business solution. Oshodi (1999) posits that awareness created towards the use of information and communication technology over the years is increasing in the classroom learning environment in the third world such that mere verbalization of words alone in the classroom to communicate ideas, skills and attitude to educate learner is futile.

Omagbemi (2004) supporting this view expressed that access to multimedia information could stimulate changes and creates conductive learning environment and make learning more meaningful and responsive to the localized and specific needs of learners.

There is certainly no lack of vision within educational communities concerning the central role and importance of ICT in the educational contexts of the future (Wood, 1993). That vision is shared by many and is accompanied by an acknowledgement that in order to realize this vision, three factors – access, training and targets must be provided (DFE, 1995; Simpson, Payne, Munro and Hughes, 1999). However, Hoffman (2001) suggested that successful implementation of ICTs need to address five interlocking frameworks for change namely the infrastructure, attitude, staff development, support (technical and administrative) and also sustainability and transferability.

The many kind of ICTs implemented at teaching and learning can be used in education for different purpose. For instance, some of them help students with their learning by improving the communication between them and the instructors (Valasidou, Sidiropoulos, Hatzis and Bousiou-Makridou, 2005).

In a study conducted by Simpson et al (1999) it was found that 64% of the teacher educator used ICT in the production of traditional resources of overhead transparencies and hand outs using standard word processing package; 27% indicated that they made use of and had experience with more powerful communication and presentation software; 32% incorporated the use of any ICT software into the lectures and only 24% made use of CDi resource materials. The study also revealed that in the tutors' delivery of the courses, the students seldom experienced demonstrations of the use of ICT as a teaching tool, that is, the tutors seldom modelled its use through their own practices. However, these tutors gave lack of time to practice skills and the limited accessibility of some specialized

facilities as constraint factors on their use of ICTs in teaching.

Studies have shown that, there are some factors that determine academics' use and non-use of new technologies for teaching and learning in the advanced countries and these include, the needs of the learner, the characteristics and experiences of academics, the technology available, the environment within which academics work and how valuable they perceive the use of technology to be for teaching their students (Spotts, 1999; Jager and Lokman, 1999; Chun and Kwan, 2005; and Munoz – Repiso and Tejedor, 2006) and the disciplinary context of which the academic is part (Rowley, Banwell, Childs, Gannon – heary, Londsdale, Urguhart and Armstrong, 2002). However, research have demonstrated that there are disciplinary and subject differences in the way ICTs are being used and adopted in teaching and learning (Jager and Lokman, 1999; Jones, Zenois and Griffiths, 2004 and Eynon, 2006).

In developing countries, Nigeria inclusive, factors like lecturers' attitude, (Agbonlahor, (undated); Perception and use of media (Mabawonku, 1987); Perceived ease of use (Mabawonku, 1987; Ehikhamenor, 2005) quoted by Agbonlahor (undated); Perceived usefulness (Aghonlahor, (undated); Characteristics of lecturers (Gender, Age, Experience; Qualification etc); Adekunmisi, Ojo, Amusa and Obadeyi 2009; Training (Osunade, Philips and Ojo (undated); Opinions of "significant others" and or peers in the university community (Agbonlahor, (undated); Availability of infrastructural facilities (Osunade et al (undated); Iloanusi and Osuagwu (undated); Cost of Purchasing (Ehikhamenor, 2005; Iloanusi and Osuagwu (undated); Management attitudes (Sife, Lwoga and Sanga, 2007); Use/knowledge of computer (Anadarajan, Igbaria and Anakwe, 2002); Power supply (Osunade et al (Undated); Iloanusi and Osuagwu (Undated) amongst others.

Statement of the Problem

There is an urgent need to improve the quality of education to bridge the gap between developed and developing nations, and multimedia instruction is considered as a necessary tool for this purpose. However, the presence of multimedia alone will not stimulate significant changes in a school. Teachers are important ingredient in the implementation of multimedia instruction in education. Without the involvement of teachers, most students may not take advantage of all the available potential benefits of multimedia on their own. Teachers need to actively participate in the use of multimedia facilities. They have to be trained in the use of multimedia and in its integration in the classroom activities to enhance thinking and creativity among students. They must also learn to facilitate and encourage students by making them responsible for their own learning. Many of the current graduates were found to be lacking in creativity, communications skills, analytical and critical thinking and problem – solving skills (Teo and Wong, 2000; Tan, 2000).

In this study, attempts are therefore made at examining such issues as are pertinent to multimedia utilization for teaching in the Faculties of Arts and Education, University of Ibadan, Oyo State, Nigeria.

Objectives of the Study

Specifically, the objectives of this study are to:

1. Determine the availability of instructional multimedia in the Faculties of Arts and Education for teaching and learning.

2. Determine the pattern and frequency of use of multimedia by lecturers in these selected faculties for teaching and learning.

3. Investigate the adequacy of multimedia facilities for teaching and learning in these faculties.

4. Identify factors, if any, which limit the use of multimedia by the university lecturers in the two faculties.

Research Questions

The study is structured to provide answers to the following research questions:

1. How available are the instructional multimedia for teaching and learning in the two faculties?

2. What is the pattern and frequency of use of the multimedia for teaching and learning by the lecturers of the two facilities?

3. How adequate are the multimedia facilities for teaching and learning in these faculties?

4. What factors limit the use of multimedia by lecturers of the two faculties?

Methodology

This study employed a survey research method. The instruments used for this study were structured questionnaire, personal observation and short interview. The instrument which was designed to elicit information on the availability and use of multimedia for teaching and learning among lecturers in the Faculties of Arts and Education, University of Ibadan, Nigeria, was validated by several scholars to be specific five (5) from the Olabisi Onabanjo University whose validity and reliability was found to be 0.84 and 0.76 respectively. The subjects used in determining these properties were drawn from the Olabisi Onabanjo University. The instrument was divided into two sections. Section A sought information pertaining to demographic data of the respondents while Section B contained structured questions directed to the study. Interview sessions and personal observation of respondents were also carried out. The population for this study were lecturers in the Faculty of Arts and Faculty of Education whose statistics were seventy-one (71) and one hundred and twenty-five (125) respectively for the 2007/2008 academic session. However, the simple random sampling technique was used in arriving at a workable sample size. One hundred (100) questionnaires were administered but only eighty (80) were returned, giving a response rate of 80%. The data generated were analyzed using frequency and percentages.

Results and Discussion

Table 1: Gender Distribution of Respondents

Gender	Frequency	Percentage
Male	60	75.00
Female	20	25.00
Total	80	100.00

The information in Table 1 above showed that 60 (75.00%) of the respondents were male lecturers while 20 (25.00%) constitute female lecturers.

Table 2: Distribution of Respondents by Years of Experience

Years of Experience	Frequency	Percentage
1-5 years	20	25.00
6-10 years	40	50.00
11 – 15 years	16	20.00
15 years and above	04	5.00
Total	80	100.00

The result from Table 2 showed clearly that 40 (50.00%) of the respondents had 6-10 years of teaching experience whereas 20 (25.00%) had between 1 – 5 years. 16 (20.00%) of the respondents had put in between 11-15 years, while only 4 (5.00%) of the respondents had spent over 15 years as teachers impacting knowledge to students.

Table 3: Availability of Multimedia Resources

Availability	Frequency	Percentage
Yes	28	36.00
No	52	65.00
Total	80	100.00

From Table 3 above, 52 (65.00%) of the respondents indicated that multimedia resources were not available in the faculties for their use in teaching and learning while the remaining 28(36.00%) of the respondents indicated that multimedia resources were available.

Table 4: Adequacy of Multimedia Collection

Adequacy	Frequency	Percentage (%)
Adequate	08	10.00
Fairly Adequate	12	15.00
Inadequate	20	25.00
Grossly Inadequate	40	50.00
Total	80	100.00

Table 4 above revealed that 40 (50.00%) of the respondents viewed the multimedia collections as grossly inadequate to their aspiration (teaching, learning,

research and presentations); 20 (25.00%) ranked them as being inadequate; 12 (15.00%) indicated fairly adequate to their needs for teaching and learning while only 8 (10.00%) of the respondents viewed them as being adequate. It could be inferred that the multimedia facilities in these faculties are not adequate as a greater percentage 60 (75.00%) of the respondents viewed the collection or facilities as being inadequate.

Table 5: Accessibility to Multimedia Resources

Accessibility	Frequency	Percentage (%)
Yes	28	35.00
No	52	65.00
Total	80	100.00

Table 5 showed the accessibility of multimedia resources to respondents. 28 (35.00%) of the respondents had access to multimedia resources on campus while 52 (65%) of the respondents, a larger percentage had no access. This implies that much is required to facilitate easy access to multimedia resources.

Table 6: Type of Multimedia Resources being used.

Type	Frequency	Percentage (%)
Transparency	04	5.00
Television	44	55.00
Radio	56	70.00
Projector	56	70.00
Graphics	56	70.00
CD-ROMs	60	75.00
Computer and its accessories	76	95.00
Internet and its facilities	80	100.00

From the table above one can gather that the mostly used of the multimedia are the Internet and its facilities as all the respondents signified that they used it; followed by computer and its accessories 76 (95.00%); CD – ROMs 60 (75.00%); then Radio, Projector and Graphics 56 (70.00%); while Television 44 (55.00%) and Transparency 4 (5.00%) were the least being used.

Interview sessions held with these respondents as to what they used these resources for and where they used them revealed that majority 65 (81.25%) of the respondents used the multimedia resources for their research and publication activities and outlets; paper presentations; forming lecture notes used in teaching and not in the actual use in the classroom for teaching. Major reasons for not

using these facilities in teaching their students were adduced to lack of infrastructural facilities, lack of ICT training skills and time to spend on the technology. Similarly, majority 65 (81.25%) of them signified that they made used of these materials at their homes and while the remaining 25 (18.75%) signified that they made use of these facilities on the campus and cybercafes outside the campus.

Table 7: Frequency of Use of Multimedia Resources

Multimedia	Very Often	Often	Seldom/ Sometimes	Rarely	Never
Transparency	_____	_____	4 (5.00)	_____	76 (95.00)
Television	10 (12.50)	30 (37.50)	4 (5.00)	_____	36 (45.0)
Radio	16 (20.00)	35 (43.75)	5 (6.25)	_____	24 (30.00)
Projector	30 (37.50)	16 (20.00)	10 (12.50)	_____	24 (30.00)
Graphics	10 (12.50)	26 (32.50)	20 (25.00)	12 (15.00)	12 (15.00)
CD-ROMS	30 (37.50)	20 (25.00)	10 (12.50)	_____	20 (25.00)
Computer	64 (80.00)	12 (15.00)	4 (5.00)	_____	_____
Internet	70 (87.50)	10 (12.50)	_____	_____	_____

** Note: Values in parenthesis ( ) are %*

Table 7 presented the frequency of use of the multimedia resources by the lecturers in the two faculties. A critical observation of the result showed that Internet and its facilities have the highest frequency of use 80 (100.00%) with 70 (87.50%) using it very often and 10 (12.50%) often; followed by computer 76 (95.00%) with 64 (80.00%) using it very often and 12 (15.00%) often while Television 44 (55.00%) with 10 (12.50%) using it very often and 30 (37.50%) often and Transparency 4 (5.00) only seldomly using it have the least frequencies. This is an indication that the Internet, computer and its accessories; as well as radio, projector and graphics were regularly being used in the teaching, research and publication activities while television and transparency are rarely being used in these processes.

Table 8: Factors Limiting the use of Multimedia Facilities

FACTORS	FREQUENCY	PERCENTAGE
Lack of supportive infrastructures	80	100.00
Lack of time to spend on technology	80	100.00
Inadequate or Lack of/Inadequate training	70	87.50
Inadequate capital on the part of the individual	60	75.00

High cost of technology	55	68.75
Wrong choice of software or software inadequacy	50	62.50
Lack of understanding of the value or possible benefits of multimedia facilities	50	62.50
Lack of perceived economic or other benefits	50	62.50
Too hard to use	30	37.50
Not user-friendly	10	12.50
Non-existent of service	10	12.50

As shown in the table above, the order of importance of the constraint factors: lack of supportive infrastructures (100.00%), lack of time to spend on technology (100.00%), lack of/Inadequate training (87.50%) and inadequate capital/funds on the part of the individual lecturers (75.00%) appear to be the major constraint factors affecting or limiting lecturers use of multimedia and ICT in these faculties. Whereas, multimedia in terms of being too hard to use, not user friendly and non-existence of service are found to be of less importance having 37.50%, 12.50% and 12.50% respectively.

Summary of Findings

i. Majority of the respondents do not have access to the multimedia resources on campus probably this might be responsible for use of these materials at their homes and cybercafes.

ii. The multimedia collection in these faculties are being viewed by respondents as being grossly inadequate.

iii. 28 (35.00%) of the respondents had access to the multimedia resources available on the campus while the remaining 52 (65.00%) do not have access.

iv. It was also found that majority of the respondents did not make use of the multimedia resources in practical teaching but rather in forming lecture notes for teaching their students, paper presentations, research and publication activities/outlets.

v. It was also found that the mostly used multimedia facilities were being used for research and publication activities rather than for teaching their students.

vi. The study further revealed that the Internet and its facilities as well as the Computer and CD-ROMs were the mostly used of the multimedia resources while the television and transparencies were the least being used.

vii. Lack of supportive infrastructures; lack of time to spend on technology, inadequate and or lack of training, inadequate fund on the part of individual lecturers and high cost of technology were the major constraint factor limiting the use of multimedia for real – life experience in teaching their students.

Recommendations and Conclusion

In view of the above findings, the researchers would like to recommend as follows

that:

i. The Nigerian (federal) government should see ICT integration effort at the university as an embracing project to development in education and should support by allocating and releasing adequate funds to invest in massive Internet connectivity, as well as purchase and installation of ICT infrastructures. Also, the university must aim to ensure accessibility, availability and reliability of ICT facilities such that every lecture room and staff offices have computers linked to Internet and have equipment appropriate for accessing a range of electronic resources.

ii. If the government is not forthcoming, the university management can solicit for both internal and external funds and support from willing individuals, philanthropists and international organizations. They can also embark on networking and partnership programmes for funds, technical supports etc but should ensure that funds or support realized are geared toward sustainability of ICT integration and application efforts.

iii. The government can also help by subsiding or reducing the tariffs on importation of ICT facilities so that lecturers and others can afford the purchase of these ICT facilities and accessories since the price will come down.

iv. It is also being recommended that the University lecturers be exposed to series of training and development skills in the use of these high technology facilities. Integrating the use of technology into curriculum in a purposeful and meaningful way is one of the many problems facing lecturers today. ICT training should be given to lecturers and other members of staff in the university on integration of technology in instruction.

v. Adequate, competent and experienced ICT technical staff must be made available should problem arises.

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