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Perceived Use of Networked Multimedia Applications on Learning in Selected Universities in South West Nigeria

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Introduction

Unlike paper books, networked electronic multimedia allows many people simultaneous access to the same materials. These resources are available all the time, from office or home to research institutes and Universities. More sources can be consulted and relevant information can be obtained immediately. Widespread use of this technology has implications for the learning, studying, local network capabilities and the services provided by libraries. It adds new dimensions to the learning experience, most concepts are easier to present and comprehend when words are complemented with images and animations. Learners retain more when a variety of senses are engaged in delivering information. The intensity of the experience aids retention and recall by engaging social and emotional as well as intellectual responses.

Conventional media technologies can no longer meet the needs of our teaching and learning processes, as the direct result, and they are being replaced by multimedia and its technology. Multimedia and its technology, an increasingly popular instructional delivery system, provide a learning environment that is self-paced, learner-controlled, and individualized. It is growing to become a common part of teaching and learning activities. The importance of making instructor and student aware of the rapidly advancing technologies of multimedia and information handling is in the process of transforming teaching and learning activities in our Colleges and Universities.

According to Newton and Rogers (2001) multimedia is a class of computer-driven interactive communication systems, which create, store, transmit, and retrieve textual, graphic, and auditory networks of information. Multimedia means that computer information can be represented through audio, video, and animation in addition to traditional media, that is, text, and graphics, drawings, and images. Multimedia system is capable of processing multimedia data and applications. According to Shuell & Farber (2001), multimedia involves processing, storage,

generation, manipulation and rendition of multimedia information characterize multimedia system, and the resources could include online text files, pictures, video, audio, databases, archives, library catalogs, course notes, relevant links to various Web sites and easy access to search engines available on the Internet.

Multimedia networking provides the skills needed to set up, troubleshoot and maintain computer systems configured for a visual communication and computer graphics environment. Multimedia information networking is a composite field. It is a synthesis of aspects of multimedia systems, information systems, and computer networking each a vast field in its own right. It involves the fundamental concepts, theory, technology, and methodology required to build and use multimedia information networks, wide area networks, internetworking; and multimedia information networks are author's easy-to-read style and comprehensive approach combine with its excellent, well-thought-out examples to provide a valuable instructional tool for both the novice and the experienced reader. The instruction and use of networked multimedia technology has increased significantly in most Colleges and Universities. Regarded as the key to students' future success, multimedia resources technology has become an essential part of education. As multimedia combines the technology of video and computers, one of the most important advantages is that it may offer a unique environment for interactivity, learner control and student interest and motivation. It should be indicated that the quality of an instructional multimedia system depends on the integration of technology, information, and personnel.

There is an accelerated technological change accompanied by exponential growth in human knowledge, especially in the digital and networked environment. The idea of using multiple media to improve communication between humans and computers is not new. The term "multimedia" has two possible meanings. Firstly, the "media" refer to storage media such as WORMs, CD-ROMs, and disks. Secondly, it can refer to the presentation of information using different media such as sound, graphics, text, etc. Human beings often use at least two sensory channels which are visual and auditory (Fadamiro 2000, Gbodi and Laleye, 2006)) but frequently use the third, which is the touch sensory, and within these communication channels, a rich variety of media are employed.

A multimedia technology enables the creation of environments in which constructivist learning can take place. They make available to students original materials instead of pre-interpreted and diluted information. They provide tools for the exploration of that data so that students can investigate a topic and approach it with genuine questions. In the process students create new and examine existing knowledge structures through the exploration of a topic as well as an appreciation of it.

Literature Review

Aberson, Berger, Healy, Kyle and Romero (2000), emphasis that multimedia technology ends up addressing an activity that is fundamental to academic, that is, the art of teaching. Orr, Poindexter, and Allen (2001) concluded that using multimedia based information technology in learning would positively impact learning. Plous (2000) in different studies of computer-assisted instruction found positive student perceptions on skills improvement. While Hult and Edents (2003) found video-aided teaching to be an effective and interpretive educational method for evaluating student skills, and Friel and Carboni (2000) found video based education to have the potential to support alternative experiences.

Using computer, video, Internet-based, and other multimedia materials in educational activities eases teachers' class-management problems, increases students' and teachers' attention levels, and enhances the learning-and-teaching process's effectiveness (Beers, Paquette, & Warren, 2000; Kablan, 2001). This means that the use of multimedia applications can overcome difficulties in education. This corroborates with Hartley (2007) assertion that multimedia

applications motivates the learners, helps slow learners and students with learning difficulties; promotes individualized-learning, saves teachers' and students' time and increases productivity; provides constructivist learning environments, promotes student-centred led activities, promotes collaborative and cooperative learning, develops higher order thinking skills, promotes active learning

Ozdener and Esfer (2009) report students' favourable attitudes toward multimedia applications, and this foster more dynamic classroom discussion which involve critical thinking and problem solving, both of which can promote a student's academic and career success. Schuell & Farber (2001) reported that multimedia applications led to increased quality of interaction between students with their lecturers, as well as led them to perceive their lecturers as technologically competent and thus students have reported an increase in computer literacy after exposure to multimedia technology.

Despite the favourable student attitudes that technology can yield in the classroom, some students perceive the technology as cold, impersonal and intimidating. They also express beliefs that their skill level is lower than what is needed to effectively utilize the technology offered, and may experience anxiety when faced with technology in the classroom (Katayama, Shambaugh, & Doctor, 2005; Schult & McIntosh, 2004).

Students have reported an increase in computer literacy after having exposure to multimedia technology. Further evidence indicates that students exposed to technology in the classroom do not feel greater amounts of self-efficacy for technology when compared to a traditionally-instructed control group (DeBord, Aruguete and Muhlig, 2004). In addition to promoting positive attitudes, the integration of technology in the classroom may also promote active learning and critical thinking in the classroom, interactive and dynamic; promote student engagement (Newlin & Wang, 2002). This is in contrast to more traditional and passive modes of acquiring knowledge, such as transcribing lecture content into notes with little student participation.

According to Guttormsen and Krueger (2000) knowledge is the recall of previously learned material and comprehension involves basic understanding of that material. In essence networked multimedia application assists students in knowledge and comprehension by listening to a lecture, watching videotape, or reading a textbook and then memorizing through rehearsal: one-way communication with simple effort. Sever (2001) believed that while all cognitive levels require active learning to some degree, higher levels are enhanced with networked multimedia communication. A meta-analysis of instructional media found that computer-based instruction improves student attitudes toward learning and the content itself (Russell, Finger and Russell (2000). Both instructional films and the Internet increases higher student interest and motivation. Networked multimedia applications have the advantage of increasing student motivation to learn.

Plous (2000) opcit that actors in the learning process and are therefore appropriate for achieving high-level cognitive learning objectives of application, analysis, synthesis, and evaluation. Additionally, multimedia allows the opportunity for non-linear communication of information, paralleling most knowledge structures

Guttormsen and Krueger (2000) opined that multimedia resources add new dimensions to the learning experience. Multimedia information sources present exciting possibilities for increasingly sophisticated and evocative presentations of material in many fields of education. Widespread use of this technology has implications for the learning, research, local network capabilities and the services provided by libraries. Most concepts are easier to present and comprehend when words are complemented with images and animations. Learners retain more when a variety of senses are engaged in delivering information. The intensity of the experience aids retention and recall by engaging social and emotional as well as intellectual responses.

Objectives of the Paper

This paper will specifically look into librarians' perception on networked multimedia resources; the study aims to examine the concept of multimedia, the characteristics of multimedia, benefit accruable from multimedia to learning, and challenges. Perceptions of how the use of multimedia applications improved student's skills.

Research Questions

In order to find solution to the issue of use of multimedia resources to learning, the study seeks answers to the following questions:

1. Is there any significant difference between the perception of male and female on the uses of networked multimedia application?

2. Is there any significant difference in the uses of multimedia applications between federal and state Universities?

3. Is there any significance difference between the use of multimedia resources and learning?

Methodology

The population of the study consists of Librarians in Ten University libraries in Nigeria. A total number of 60 librarians were selected from these Universities. The selection was based on the availability of multimedia resources in these various Universities. The federal universities selected are; University of Ibadan, University of Lagos, University of Ilorin, Federal University of Technology, Akure and University of Benin while the state universities are Olabisi Onabanjo University, Ago Iwoye, Osun State University, Osogbo, Ladoke Akintola University, Ogbomoso, University of Ado Ekiti and Ondo State University, Akungba

The data for the study were generated through the use of questionnaire. Sixty copies of questionnaire were distributed to librarians in these ten universities. The questionnaire was design to obtain information about the Librarians' perception of the use of multimedia resource in learning. The questionnaire, which contained 30 items, has two sections. Section A requires information about the name of the University, status, age bracket, sex, and qualification of the Librarian. Section B consists of thirty items, which are intended to find out the benefit accruable from multimedia to learning.

Descriptive statistics of means and standard deviation were use for data analysis while analysis of variance and t-test was used to test the hypotheses at 0.05 level of significant. The study generated 100 percent response rate providing a pool of 60 responses.

Results and Discussion

Table 1: Showing Distribution of Questionnaire

Gender	Federal University	State University	Total
Male	16	18	33
Female	14	12	27

Total	31	29	60

The table above shows the distribution of the questionnaire to the librarian in the Ten University Libraries on gender basis. The respondents from both federal and state University libraries were random select equally, that is, constitute of 31(51.7%) from federal university and 29(48.3%) are from State owned University libraries respectively. It is observed that all the Universities involved in one way or the other uses multimedia applications. From the above table, 33 male (55%) responded to the questionnaire, while 27 female (45%) completed and returned the questionnaire.

Hypothesis One: There is no significant difference between male and female perception on the use of networked multimedia application?

Table 2: Showing Gender differences of Librarians perception on uses of networked multimedia application

Sex	N	X	SD	Coefficient of Dispersion	Coefficient of variation	Df	T.cal	T-tab
Male	33	40.54	7.07	0.163	22.4	59	1.025	1.96
Female	27	42.62	8.69	0.178	26.2			

The study means score on for male and female were 40.54 and 42.62 respectively. From the table above male 55% while their female counterpart is 45% and the coefficient of dispersion for both male and female are 0.163 and 0.178 while coefficient of variation are 22.4% and 26.2%. The male obtained a higher level mean score 42.62, standard deviation 8.69 than their male counterpart 40.54 while the standard deviation is 7.07. This implies that female librarian have a higher level of perception on the use of multimedia application than their male counterpart. This finding confirms hypothesis one.

Hypothesis Two: There is no significant difference in the uses of multimedia applications between Federal, State and Private Universities?

Table 3: Showing ANOVA on the use of networked multimedia application in 10 Nigerian Universities

University	N	X	SD	Df	Sum of Square	Mean Square	F	Sig.
Federal	31	41.5	7.76	59	74.283	37.142	0.596	NS
State	29	42.8	8.24		3552.7	62.328		

The table above indicate that there is no different in the use of multimedia and learning on the basis of Universities that is federal and state universities (F = 0.596 P<.05). This can be attributing to the availability of multimedia resources in these Universities. A post hoc test using LSD to determine the direction of the effect reveal that librarian in federal universities has the highest perception of use of multimedia application than their counterpart in both state-owned universities. Therefore there is no significance difference between the respondents from federal universities state-owned universities on perceived use of networked multimedia application as a precursor to learning.

Hypothesis Three: There is no significance difference between the perceived use of multimedia resources and learning (student improved skill)

Table 4: Showing T-test on the use of multimedia resources and learning

Variable	N	X	SD	Df	T-cal	T-tab	P
Usage	60	41.48	7.84				.037
				59	2.135	1.96	
Learning	60	43.82	7.04				Sig.

From the table above the means and standard deviation were calculated using t-test. The calculated t-value of 2.135 is more than the t-table of 1.96 therefore hypothesis 3 is rejected. The above table confirms that uses of networked multimedia application have a significant effect on learning. The respondents' perception on the use of networked multimedia applications reveals that multimedia applications challenges students to want to learn and this improved their perception on learning and at the same time challenges their multiple senses and fosters teamwork.

Discussion of Findings

The analysis of data collected showed that an indirect relationship skills improvement, which is learning, was accounted for with the use of networked multimedia application. The instruction and use of multimedia has increased significantly in most Universities especially federal universities. Regarded as key to any student's future success, technology has become an essential part of education. The results show that librarians perceived better improvement in learning using multimedia applications, which in turn led to improved perception of higher-level cognitive skill development.

It is significant to note that from Table 2 that female have positive perceptions on the uses of multimedia application than their male colleagues. These confirm the first hypothesis, this is due to the fact that most female respondent are either audiovisual, system or multimedia librarian.

From Table 3, the unprecedented lack of multimedia in some of our higher learning especially the state government-owned universities reduce our students to second rate academia. With reference to the findings in Table 4, it can be deduced that the use of multimedia assisting student has come a long way in developing higher-order cognitive learning skills. This agreed with Guttormsen and Krueger (2000), that networked multimedia applications have the advantage of increasing higher student interest and motivation them to learning.

The findings from this research indicated that the benefits of multimedia in education were not limited to learning tasks, but reliant on repeated manipulation and searching of information. Individual differences in the response of learners to this technology seem to be significant. They report that there is no convincing evidence of increased learning in multimedia environments.

Conclusion

As multimedia combines the technology of video and computers, one of the most important advantages is that it offers a unique environment for interactivity, learner control and student interest and motivation. It should be indicated that the quality of an instructional multimedia system depends on the integration of technology, information, and personnel. Merely piecing together existing media components cannot solve many problems associated with the development of a quality instructional system. Multimedia and its technology are still on its developing stage. It is believed that multimedia and its technology with its potential brilliant prospect is impacting our classroom teaching and learning, and it will continue to do so.

Studies indicated that effective programs use the capabilities of the networked multimedia applications to amplify information, by varying the use of features such as colors, print size, text display rate, and others

Apart from enhancing learning, multimedia provides learning guidance. It involves making the stimulus as meaningful as possible. In general, use concrete examples of abstract terms and concepts, and elaborate each idea by relating it to others already in memory, but it also enabled them to become producers of knowledge as they analyzed data and information and developed testable propositions.

Therefore, we conclude that when higher-order cognitive skills improvement is needed, the development of networked multimedia applications needs to ensure that the learning-driven factors are included. It is significant that networked multimedia applications are designed to produce learning interest, provide self-reported learning, and provide opportunities to learn from others. Interactive multimedia is quickly becoming a media of choice for learning and information distribution throughout the nation and the world. It is being heavily incorporated into our society in areas such as education, marketing, and training due to its apparent success as a medium for the transfer of information. Researchers and lecturers should use interactive multimedia applications in the presentation of concepts where practicable, applicable, and valid to better communicate learning concepts to students using new and unique technologies.

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