

APPLICATION AND UTILIZATION OF MULTIMEDIA TECHNOLOGIES IN THE EDUCATION OF LIBRARY AND INFORMATION SCIENCE PROFESSIONALS IN THE CONTEMPORARY ERA

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Abstract

This work examined the application and utilization of multimedia technology in the education of library and information science professionals in the contemporary era. It tried to explore library and information science education as a basis for the study and also it provided a succinct overview of the concept of multimedia technology. This study however, justified the need for adoption of multimedia technology as global best practice in library and information science education in contemporary era. It further looked at the challenges associated with the adoption of multimedia technology for effective instructional delivery. The paper identified some factors militating against application and utilization of media technologies such as lack of competence in the use of multimedia technology, inadequate power supply, poor funding of library schools, high cost of multimedia facilities. Based on the above challenges some recommendations were made that, Federal Ministry of Education and relevant government agencies should adequately fund library and information science education programme in universities in Nigerian and equip their computer laboratories with up-to-date multimedia technologies that will meet the needs of the contemporary global society, as it is very essential that steady power supply is provided in school for powering multimedia system and conclusions were made.

Keywords:- Multimedia courseware, multimedia instruction, instructional tools, hyper-media, Library and Information Science Education, contemporary

Introduction

Library and Information Science Education and training have become a "grey haired" phenomenon in the corridor of academia. This field of scholarship is concerned with training of Librarians and Information specialist with the skills of what and how information is selected, acquired, evaluated, organized, maintained, disseminated and used in both print and electronic formats. Librarianship in the contemporary era has been greeted by the information age where

the role of information is increasingly emphasized as an economic resource, a marketable commodity and as a social wealth.

In this regard, the roles of librarians, library and information Science educators are of much importance. They will have to act as facilitators, advisers, consultant instructors, navigators, searchers, researchers, evaluators, organizers, preservers, promoters, communicators, technology experts, as well as a managers, leaders, entrepreneurs and visionaries. One important aspect of manpower development in this connection is improved educational system for library and information science which necessitates the knowledge and use of improved Instructional resources. According to Vockley (2012), no industry or organization can remain competitive today without making comprehensive use of technology in all of its operations.

The ultimate goal of every teacher, Instructor or lecturer is to impart knowledge on his or her students. To achieve this purpose, the instructor applies different methods and strategies. Several years ago, teaching aids such as textbooks, chalkboard, real life object and other conventional devices were prevalent tools available for classroom instruction. In a bid to carry out effective classroom instruction, lecturers/instructors have been on a look out to find a better teaching aid that guarantees global satisfaction. The emergence of information technologies brings a global breakthrough and new dimension in the pattern of learning. This development explains the need for the use of multimedia technologies as part of the instructional material for curriculum implementation.

The Concept of Multimedia Technologies: A Conceptual Framework

The word multimedia is a combination of two words "Multi" and "Media" Multi means several or multiple while media is the plural form of medium which means channel of storage, transmission, communication, representation, presentation, input interaction and perception. Multimedia is an integration of many types of media (text, graphics, images, audio, animation, video etc) on a single medium. For example a Power Point Presentation involving audio and video clips would be considered as a 'Multimedia Presentation'. Investopedia (2019) defined multimedia as computer-delivered electronic system that allows the user to control, combine and manipulate different types of media, such as text, sound video, computer graphics and animation. It helps the user in providing information from different media on one platform thus enhancing networking and resource sharing. Multimedia can also be seen as educational software involving animations, sounds and text in CDs and DVDs.

Joon, (2019) defined multimedia as a field concerned with the computer - controlled integration of text, graphics, drawings, still and moving images (video), animation, audio and any other media where every type of information can be represented, stored, transmitted and processed digitally. Multimedia can be recorded and played, displayed, interacted with or accessed by information content processing devices, such as computerized and electronic devices, but can also be part of a live performance multimedia devices are electronic media devices used to store and experience multimedia content (Wikipedia, 2019).

Over the years, there have been various terms referring to multiple media technologies. These terms include "audio-visual, hypermedia, courseware, Intelligent Tutoring Systems and multimedia". Though these terms are sometimes used interchangeably, they are different. However, what is common among them is that they refer to organized combination of various

information resources to communicate knowledge or for instructional delivery. Multimedia technologies evolved to become the most highly employed instructional tools used across the globe for effective teaching and learning. This is because of its rich combination of text, graphics, audio, video and animation in the transmission of information or knowledge.

Nwangwu and Obi (2014) stressed that multimedia is one of the several technologies which have been found useful in teaching and learning in schools. The term “Multimedia” refers to many media that combined together to form a single medium of instruction which is facilitated through the use of the computer (National Open University of Nigeria 2006). Most of the definitions include the application of multiple forms of media such as texts, graphics, animations, video and sound for the purpose of presenting information. In other words, Multimedia can be viewed as a learning subject matters and cross-curricular topics. Surjono (2015) quoting Singh, defines Multimedia as a combination of text, graphics animation, pictures video, and sound to present information in a coherent Multimedia can also be defined as integrated computer-driven interactive communication systems which create, store, transmit, and receive textual, graphic and auditory networks of information.

Bakhshi (2013) defines Multimedia as a sophisticated and multifaceted mode of communication that seamlessly integrates diverse forms of media to convey information, entertain, and engage audiences. Multimedia combines various media types, including text, images, audio, video, and interactive elements. This amalgamation enables the creation of content that transcends traditional unimodal communication, fostering a holistic and immersive experience. Text is a foundation for conveying detailed information, while graphics and images enhance visual representation. Audio introduces an auditory dimension, incorporating sounds,

music, and spoken words, and video brings dynamic visuals and motion into the narrative. Answers Corporation (2012) defines multimedia as the synergistic union of digital video, audio, computers, and information and telecommunication technologies. Answers Corporation further states that multimedia application involves both the hardware and software used to create and run the systems aforementioned.

Multimedia software is an application that involves written instruction that directs the activities of the hardware system. While Multimedia hardware, on its own part simply involves the physical attributes of the computer system that execute the written instruction. The above mentioned multimedia application software and hardware are veritable tools for animation creation, graphic/image editing, audio editing, textual formatting, media maintenance and development. Jonasses in Surjono (2015) defines Multimedia as the integration of media such as text, sound, graphics, animation, video, imaging into a computer system. The use of multimedia computer based learning facilitates learning and enhances easy comprehension of concepts. According to Surjono (2015) the use of multimedia in a computer based learning system is expected to increase students understanding with particular subject materials. Ikechukwu (2013) observed that the utilization of instructional resources such as e-learning has made it possible to deliver educational services devoid of traditional challenges. Egbiri (2012) stated that lecturers, instructors and students cannot do much without adequate knowledge of ICT including multimedia systems.

From the foregoing, it could be deduced that multimedia technology integrates various forms of instructional resources such as graphics/Image, video, animation, audio and text in order to make presentation of information more effective. Library and Information Science education Is a key

area In which multimedia technologies play vital roles as essential instructional tools. According to Bent and brink (2013) there are three basic roles of multimedia in education as follows:

Construction of meaningful and understood knowledge: This means the development of a well-structured, disciplinary, interdisciplinary and daily-life-oriented system of flexible and usable competencies, abilities, skills and content knowledge.

Construction of applicable knowledge: How to transfer meaningful and understood knowledge into applicable knowledge.

Construction of knowledge about learning: This important technology enables students to be experts of their own learning processes. Consequently, reflection and Meta cognition of learning processes support the construction of meaningful and understood knowledge as well as applicable knowledge.

Basic Elements of Multimedia

Audio: Audio is an indispensable media in a multimedia presentation. The use of audio resources in library and information science education cannot be over emphasized for effective instructional delivery. Nwangwu and Obi (2014) opines that audio clip for multimedia instruction or courseware could be a voice narration of text, graphics, video, or animation, background music, or any other sound file indicating an error, an action or prompt, a directive, etc. Audio component of multimedia has been found useful in teaching and learning in library schools. According to Uzuegbu et al (2013) quoting Jimoh the use of instructional materials like audio is .a necessity for teaching and learning to become pleasant. Audio, as defined by Wikipedia, the free online Encyclopedia (2016) is music, speech, or any other sound that the

computer converts from analog sound/waves into a digital format. Sound helps in providing an additional element to multimedia. This is because there are times when it is important to let users hear the actual sound or sounds from a person or event.

Graphics/Images: In Library and Information Science Education, graphics and images have been so resourceful for effective instructional delivery. According to Nwangwu and Obi (2014) graphic/image are digital representation of non-textual information such as drawings, charts, or photographs. Graphics/Images constitute a vital element in multimedia. Wikipedia, the free Online Encyclopedia (2016) defines graphic/images as digital representations of non-text information such as drawing chart, or photographs which play an important role in the learning process and which are worth thousand words. It went further to assert that graphics are most useful when there is a need to illustrate something or compare information. In Library and information science, illustrations are unavoidable which make multimedia graphic/image effective instructional tool to be employed.

Video: Multimedia instructional video is an effective tool through which practical and abstract concept in Library and information Science could be demonstrated. According to Madu and Nwangwu (2014) multimedia instructional video is an integration of text, audio, static and motion pictures for presentation of information. Library concept such as Cataloguing and Classification, circulation and reference exercise and other technical services in the library can effectively be demonstrated with the use of multimedia video instruction. The video instruction can be used to display for instance, the bibliographic description of a book and other information materials, original cataloguing, subject classification, notation, shelving and shelf reading etc., charging and discharging of books, registration of users etc., ready reference, current awareness,

selective dissemination of information, abstracting and indexing etc. motion pictures of library operations demonstrate procedures for carrying out the exercises.

Video, According to Madu and Nwangwu (2014) provides aural and visual stimuli as well as motion thereby making possible a more realistic presentation of event, situation, and phenomenon. They further opined that video can be used to demonstrate the process of skill development and facilitate practical skills acquisition. The use of multimedia video package in library and information science education enhances students' performance, stimulates interest of the students and enthusiasm of the instructors. Madu and Nwangwu (2014) opined that video simplifies and gives clarity to explanations than talking; provides a cognitive "bridge" between abstraction and reality to student.

Animation: Another vital element of multimedia is animation. Animation is a still image or object moving sequentially on projected presentation. Nwangwu and Obi (2014) defines animation as an illusion of movement created by sequentially playing still image frames with different movement. They further stressed that animation is usually used to portray things and object that are often not possible in the real world. Animation, as a vital instructional tool could be very useful in library and Information Science education especial in the area where illustrations are needed on how certain information resources are used. According to Online Encyclopedia (2016) Animation is useful for the "experience it allows the end user to have. Just as television is better than newspapers in providing a first-person, experiential account of an event, multimedia that effectively incorporates moving images takes users to the scene and allows them to experience an event for themselves. Animation creation programs include Microsoft Office PowerPoint, Adobe flash, Cinema4D, and so on.

Text: According to Online Encyclopedia (2016) texts are characters that are used to create words, sentences, and paragraphs. Text is useful at providing basic information. Text is the basic element of multimedia. It involves the use of text types, sizes, colors and background colors. In multimedia, text is mostly use for titles, headlines, menu, paragraph, list etc. In a multimedia application, other media or screen can be linked through the use of text. The most common and flexible element of multimedia in presenting information is text. Text is perhaps the easiest of all multimedia elements to manipulate. Text in multimedia can express specific information, or it can act as reinforcement for information contained in other media items.

Potentials of Multimedia Technologies in Library and Information Science Education

Advances in technology have brought instructional resources especially the projected and electronic resources to the forefront as the most radical tools of globalization and social development which have affected the classroom teaching-learning situation positively. Such technological breakthrough, which include all networked and non-networked; projected and non-projected, visual, auditory, and audio-visual electronic resources are important landmarks in knowledge transfer especially in Library and Information Science education. Multimedia technologies, as the vital advanced instructional tool, can be seen as tools capable of actualizing the primary and fundamental objectives of the universities especially as it relates to development of intellectual capability of individual to understand and appreciate concepts.

In line with this, multimedia draws upon more than one of the five human senses, utilizing the two fundamental senses vital for information reception sight and sound. Due to motion and sound, it can also ignite student's attention, interest and motivation in the process. Studies indicate that computer-based multimedia ran improve learning and retention of material

presented during a class session or individual study period, as compared to "traditional" lectures or study materials that do not use multimedia. The potential of multimedia learning, is that students can learn more deeply from well-designed multimedia messages consisting of words and pictures than from more traditional modes of communication involving only words.

Nwangwu and Madu (2014) quoting Oshinaike and Adekunmisi, opined that the power of multimedia lies in the fact that it is multi-sensory, stimulating the many senses of the audience. Due to the engagement of different sensory organs in the computer controlled learning process, multimedia system holds more promise to effective instructional delivery, therefore, arouses the interest of the audience to learn. Studies have revealed that student satisfaction and motivation is higher in courses that use multimedia materials. Multimedia technologies motivate students to participate in the classroom learning experience. Therefore, lecturers of Library and Information Science should be motivated to integrate multimedia resources into their classroom instruction.

Justification for the use of Multimedia Technologies (instructional tools) in Library and Information Science Education

The role of Libraries and information centres in the educational sphere of teaching, learning, research, recreation, national building, and community development cannot be overemphasized. Studies revealed that 21st Century has created more roles to libraries due to the information explosion and its concomitant increase in the search for knowledge. The advent of Information Communication Technology (ICT) also brought significant changes in the way libraries discharge their duties. These changes in the field of library and information science affected the pedagogy for Library and Information Science professionals. However, any challenge that emerges in any profession creates an immediate concern on the school that produces the manpower in that profession. In line with this, Ahmed (2012) opined that: Efficient

and effective library and information service in Nigeria depends to a great extent on the quality of librarians/information 4PPI scientists, who are products of the library schools. In fact, the fact adequacy and relevance of knowledge, skills, norms, norms, values, attitudes and approaches are critical to any profession yearning to withstand the modern challenges.

Library and Information Science Education has gained universal recognition in Nigerian universities and the number of students' enrollment into the programme has increased tremendously, therefore creating demands for more effective and efficient ways in which instruction is delivered. Patel (2013) stressed that it is true that there are teachers who use 'cutting edge' technology, but the majority of teachers still teach in the traditional manner. None of these traditional manners is bad or damaging the students but it appears that it could no longer meet the expected needs of the audience in the information age. Although, they are still useful. However, multimedia technologies hold more promises and opportunities for students to gain confidence in practice and extend themselves, especially those of Library and Information Science. For them to keep pace with modern trend in Librarianship and gain more confidence, they have to stride into the world of multimedia technology.

Multimedia technologies provide so many options in Library and Information Science education by making teaching interesting and also making teaching more productive in terms of improvements. Education in any field of study enjoys the rich potential of multimedia in teaching and learning and this is beneficial to both teachers and students. To this effect Patel (2013) identified the following as justification for using multimedia technologies in education:

To Cultivate Students' Interest in Study: In the meantime, the stereotyped traditional teaching methods and environment in Library and Information Science are no longer prominent while

multimedia technology containing audio, visual, animation effects naturally and humanely provides us more access to information. Besides, multimedia technology offers a sense of reality and functions very well, which greatly cultivates students interest and motivation in study and their involvement in class activities. Multimedia technologies increase students' passion in studying mostly the technical parts of Library and Information Science.

To Improve Teaching Effect: In Library and Information Science Education, multimedia technologies facilitate teaching content, make the best of class time, break the "teacher centered" teaching pattern and fundamentally improve class efficiency. Due to large classes it is difficult for the students to have speaking communication. The use multimedia audio resources facilitate the individualized and co-operative teaching. The traditional teaching model mainly emphasized on teachers' instruction, and the information provided is limited due to traditional classes. On the contrary, multimedia technologies beyond time and space creates more vivid, visual, authentic environment for Library and information Science education, stimulates student initiatives and economizes class time meanwhile increases class information.

To Promote Students Communication Capacity: Traditional teaching has hampered students' capacity to comprehend certain terminologies therefore makes the students passive recipients of knowledge. Terminologies abound in Library and Information Science but with multimedia technologies students get to understand the structure, function and use of such terminologies. In Library and Information Science education, multimedia technology is an effective tool in training students in effective reference communication.

To Improve Interaction between Teachers and Students: Multimedia bridges the gap between the teacher and students. It enhances teacher-students interaction. One of the sole roles

of multimedia in teaching is to train and improve students' ability to listen and speak, and to develop their communicative competence. During this process, the teacher's role as a facilitator is particularly prominent. Utilization of multimedia in teaching and learning in Library and Information Science creates a good platform for the exchange of information between teachers and students, while at the same time providing a language environment that improves on the traditional classroom teaching model. In this way, teachers in the classroom no longer blindly input information and force students to receive it in a passive way.

To Provide Flexibility to Course Content: Multimedia technologies make teaching flexible. It creates impression not only in the classroom, but also after class. Multimedia technology offers opportunities for students to have access to view avalanche kinds of information resources and their uses as displayed on the screen. Students can also exploit multimedia technology to their advantage, such as manipulating the network to contact teachers, and receiving answers by email.

To Create a Lively and Interesting Learning Environment: The use of multimedia technology in teaching and learning in Library and Information Science makes the class lively and interesting, as well as optimizing the organization of the class. Multimedia has its own features such as visibility and liveliness. During the process of teaching, multimedia audio and pictures can be set together, which enhances the initiative of both teachers and students, when using multimedia software teachers can use pictures and images to enrich the content of classes, and also imagine different contexts. In the process of producing teaching courseware, Students In the class can use multimedia to understand the class in a clear way. Through the whole interactive process, it is apparent that using multimedia in Library and Information Science Education is

effective in nurturing students' interest in earning complex courses, as well as enhancing teacher's interest in teaching effectively. Ahmed (2013) quoting Zhang, points out that, through multimedia and network technology, we can offer students not only rich sources of authentic learning materials, but also an attractive and a friendly interface vivid pictures and pleasant sounds, which to a large extent overcomes the lack of authentic language

Challenges of Adopting Multimedia Technologies as Instructional Tools in Library and Information Science Education in contemporary era

Adoption of multimedia technology for effective instructional delivery in Library and Information Science education are being challenged by a number of factors as discussed below:

High Cost of Multimedia Facilities: Multimedia facilities are relatively more costly than traditional instructional resources. Considering the high cost of acquiring multimedia facilities and the poor funding capacities of the library schools in developing countries like Nigeria, the management authorities of the library schools are left with no option than to resort to low cost traditional method.

Lack of Competence in the Use of Multimedia Technology: Most lecturers in Library Schools, especially in developing countries like Nigeria lack adequate requisite skills in the use of multimedia technologies. The inability of Library and Information Science instructors to take on this new instructional tool poses great concern for library schools trying to adopt multimedia technologies. According to Bent and Brink (2013) lack of multimedia application skills of teachers and students could affect the effective adoption of multimedia resources in education, especially that of Library and Information Science.

Poor funding of Library Schools: Over the years, many library schools, especially in developing countries like Nigeria have suffered poor funding. No much effort is made by the government to properly fund education. For the efficient running of any library school, there is need for adequate funding of it. Multimedia facilities require adequate funding to acquire them. But there is little or, no fund to acquire such modern facilities for the smooth running of the library. Library schools always complain of inadequate funds to train their staff on how best to develop and handle modern facilities needed for the multimedia presentation. This poses a great danger for library schools trying to adopt multimedia technology.

Inadequate Power Supply: This is also another discouraging factor that may hinder the adoption of multimedia technology in library schools, especially in developing country like Nigeria. Poor power supply is a serious factor in Nigerian tertiary institutions. Multimedia system requires steady power supply for it to be used effectively.

Lack of Maintenance Culture: Most library Schools in developing countries like Nigeria lack maintenance culture. One thing is to acquire multimedia equipment's and the other is the maintenance of the equipment's. Most Library schools find the adoption of multimedia technologies as a waste of resources. This is because the maintenance policy of such project is not guaranteed.

Recommendation

The following recommendations are hereby proffered as a way of ameliorating the challenges identified.

1. Federal Ministry of Education and relevant government agencies should adequately fund library and information science education programme in universities in Nigerian and equip their computer laboratories with up-to-date multimedia technologies that will meet the need of the contemporary global society.
2. It is very essential that steady power supply is provided in school for powering multimedia system
3. The university authorities should encourage the adoption of multimedia technology for effective classroom instructions by acquiring various kinds of modern multimedia facilities, such as projectors, computers with latest configuration, multimedia software and hardware, multimedia input and output devices, backing storage devices and so on.
4. Lecturers of Library and Information Science education should be trained through Workshops, seminars and conferences on the importance of multimedia technologies into their classroom presentations
5. The use of multimedia instructional resources in teaching library and information science should be adopted. This is because multimedia enhances teaching and facilitates the acquisition of knowledge and practical skills.
6. The University management should provide library and information science lecturers with incentives to encourage them attend capacity building programmes on the development and utilization of courseware for effective instructional delivery.

Conclusion

Multimedia is an indispensable instructional tool for effective instructional delivery in education. Thus, for Library schools in Nigeria to achieve the Federal Government of Nigeria,

National Policy on Education, they must have to make a major breakthrough in the use of multimedia technology in their library and information science instruction. The use of these multimedia technologies will also help the Library schools to keep abreast of the current happenings in the global world.

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