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COMPETENCY OF LIBRARY EDUCATORS IN THE USE OF MULTIMEDIA FOR EFFECTIVE INSTRUCTIONAL DELIVERY IN NIGERIA UNIVERSITIES

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Abstract

Purpose: *This study was carried out to examine the competency of library educators in the use of multimedia for effective instructional delivery in Nigeria Universities.*

Design/Methodology/Approach: *the study discussed the concept of multimedia as the application that involves both the hardware and software used to create and run the system. It sees multimedia as the most employed instructional tools across the globe for effective teaching and learning.*

Findings: *The study highlighted three basic roles of multimedia in education as follows: construction of meaningful and understood knowledge, construction of applicable knowledge and construction of knowledge about learning. The study also highlighted the components of multimedia which includes audio resources, graphic/image resources, video resources, animation resources, etc. The study revealed various skills needed to effectively navigate multimedia applications such as animation creation, audio recording, graphic/image design and editing, etc.* ***Implication:*** *The study recommends multimedia competencies needed for library and information science professionals such as: textual competence, graphic/image creation and editing competence, audio recording, editing competence and animation creation competence.*

Originality/value: *The paper concluded that for efficiency in service delivery, library and information science educators should avail themselves the opportunity of advancing in their jobs by acquiring the competencies enumerated in this paper and by so doing, create time to attend seminars, workshops and also endeavors to acquire and read current work in their discipline firstly for personal growth and for efficiency in service.*

Keywords: *Multimedia; Library educators; Competency; Instructional delivery; Universities*

Paper type: *Opinion research*

Introduction

Multimedia is said to be technology engaging variety of media. Multimedia is the collection of text, audio, video, animation, and graphics Murkul Bhardwaj (2016). The concept of paperless society is effective with the invention of multimedia. Multimedia is the collection of text, audio, video, animation, and graphics. Multimedia helps the user in providing information from different media on one platform. It enhances the concept of networking and resource sharing.

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. Heinich (1997) defines multimedia as the exciting combination of computer hardware and software that allow users to integrate video, animation, audio, graphics, and text resources to develop effective presentations on an affordable desktop computer. In line with Heinich definition, 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 afore mentioned. 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. To this end, Fenrich (1997) defined multimedia as an exciting combination of computer hardware and software that allows you to integrate video, animation, audio, graphics, and test resources to develop effective presentations on an affordable desktop computer. It offers more complex and interesting ways to structure and access knowledge. Multimedia enables us to provide a way by which learners can experience their subject in seemingly reality. 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. Multimedia learning occurs when students build mental representation from words, pictures and voices that presented to them (Mayer, 2003).

Multimedia technologies appear to have taken a prime row in facilitating teaching and learning. Multimedia technologies have become the most employed instructional tools used across the globe for effective teaching and learning. Today, multimedia technologies have become a concept widely and frequently discussed among educational technology journals. In a nutshell, multimedia could however be defined as a combination of various mass media such as print, audio and video. Multimedia involves the combination of text, graphic art, sound, animation, and video elements even in teaching. In other hand, multimedia merges multiple levels of learning into an educational tool using computer-based hardware and software packages that guarantee diversity in curricula presentation for effective instructional delivery.

Technological advancement in the 21st century has brought myriads of transformation in teaching and learning at all levels, most especially, in universities. The phenomenal change in the way of learning and teaching has significant effect on students' academic performance. Instructional technologies such as multimedia have emerged in mainstream education sector as tools, knowledge and systems that provide ease of access to learning or knowledge dissemination. As the use of such technologies in teaching and learning becomes more prevalent, it will not be out of place to acknowledge the forms and nature of knowledge or competence that ought to be possessed by lecturers in Library and Information Science in order to make effective use of them in teaching.

Nwangwu and Obi (2014) defined instruction as an aspect of teaching through which learners are actually engaged with planned learning opportunities. Instruction, in this study refers to organized interaction process between the teacher and the learner for the purpose of communicating knowledge to the learner. Instruction is an act of teaching or transmitting knowledge or information to a person or group of persons.

Instructional delivery, on the other hands, simply refers to strategies, method, procedures or routines employed in providing instructional activities. Effective Instructional delivery in a multimedia environment requires effective multimedia application skills by the instructors. Instruction is said to be effective when information or knowledge is delivered to students in such a manner that engenders clear understanding of concepts and captured the interest and attention throughout the process of instructional activity. Nwangwu and Obi (2014) quoting Onasanyaadmits that by using multimedia for instructional delivery, a large amount of information can be passed to students, and high interest can be created in students.

Classroom instruction in the twenty-first century should be organized and deliver in such a way that fits the lifestyle and needs ofstudents. In particular, students need the opportunity to interactnot only with their

teachers butalso with fellow students and media technology as well. Students need to beable to challenge and question whatthey are being taught, they need to beable to draw on their own knowledgeand experience, and they need to beable to adapt what they learn to theirown particular circumstances. In otherwords, education for lifelong learnersneeds to become more learner-focused which multimedia technologies guarantee.

Universities as centres of research and development, Umerah and Mole (2013) opine that Library and Information Science educators have prime role to play and also that their responsibilities cannot be over emphasized in the global digital culture that has taken over universities.

This however will take us to the concept of competencies as concerned in this work which to Marshall et al (2003) defined competencies as the interplay of knowledge, understanding,skills and attitudes required to do a job effectively from the point of view of both the performer and the observer. They therefore identified two types of competencies for librarians which are professional competencies as it relate to knowledge in the areas of information resources access, technology, management and research and the ability to use these areas of knowledge to provide library and information services. Also, the other comprises personal competencies which represent a set of skills, attitudes and values "that enable librarians to work effectively, be good communicators, be able to focus on continuing learning throughout their careers, be able to demonstrate the value added nature of their contributions, and survive in the new world of work' (Marshal et.al. 2003

From the fore-going it is obvious that prime obligation and focus of a university is to provide quality education to members of its own institution by employing qualified lecturers who are also competent in the use of appropriate instructional resources. Lecturers of Library and Information Science employ various instructional materials in an attempt to deliver effective lectures which according to Uzoegbu, et.al (2013) include textbooks, handbooks, charts, chalkboard, journals, syllabus, magazines, newspapers, videotape, overhead transparencies, motion pictures, computer, marker boards, record player, still pictures, public address system, maps etc. The above instructional tools have over the years made significant impact in delivering instruction but the advent of multimedia technologies override the potentials of the former.

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", mean 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 tool and a means of communication used to foster 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 manner.

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

Objectives of multimedia application in teaching and learning according to Bates (2000) are to:

- Present knowledge in more ways than text or speech can
- Present teachers and learners with unique learning resources that can be used in a wide variety of ways to simulate various forms of learning
- Ensure that abstract principles learned by students through text are applied through an animation or a video example
- Present the opportunity for deeper levels of understanding more quickly than through conventional classroom or textual media; and perhaps more significant
- Enable a learner, have an image or a mental construction that is far richer than an abstract verbal understanding.

From the overview of multimedia technologies and its application in teaching and learning, it is obvious that a university lecturer might use a multimedia technology to prepare or to updateInformation or teach so as to enliven and also add insight to his/her teaching, thereby improving the quality of the course or lessons.

In order to effectively navigate multimedia applications, the users should possess adequate skills for operating the systems. The user of multimedia systems is expected to possess skills such as animation creation, audio recording, graphic/image design and editing. Editing involves inserting objects or text, deleting of unwanted information, modifying graphics or images, audio clips, video clips or animated objects in order to make them more meaningful and useful as to meet the objective for which such application is meant.

Components of Multimedia

Audio Resources

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) opined 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 opined that 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 ere are times when it is important to let users hear the actual sound or sounds from a person or event.

Graphic/Image Resources

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 a 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. The richness of multimedia and the effective communication are through graphic presentation (Reddi& Mishra, 2003).

Video Resources

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 Resources

Another vital element of multimedia is animation. Animation is a still image or object moving sequentially on projected presentation. Nwangwu and Obi (2014) defined animation as an illusion of movement created by sequentially playing still image frames with different movements. They further stressed that animation is usually used to portray things and object that are often not possible in the real word. 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 Resources

The most common and flexible element of multimedia in presenting information is text. According to Course Technology (2001), 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. According to Online Encyclopedia (2016), texts are characters that are used to create words, sentences, and paragraphs. Text is useful at providing basic information. The above mentioned media resources combined to form a coherent whole system called, "multimedia". The potential of these media lies in their ability to integrate two or more media to present knowledge or information.

Competence required for multimedia use for effective instructional delivery

Competencies are "collections of characteristics (that is skills, knowledge, self-concept, traits

and motives), that enable us to be successful in our interactions with others at work, school, home, and in our community at large." (MIT Career Development Center, 2005).Nicholas (2013) simply describes multimedia competencies as having a basic understanding of what a computer is and how to work with it for effective instructional delivery. Following this definition, Csapo (2010) enumerates some of the basic multimedia skills required in a for effective service delivery as using pictures, billboards, computers, and other gadgets related with electronic technology, pictorials, among others and e-mail. Lou, et al (2010) opines that the concept of multimedia competency/skills emerged in the era of ICTand it is a part of service delivery involving the use ofcomputer literacy skill.Roth in Adeleke and Emeahara (2016), aptly describes the current multimediaenvironment and the pitfalls facing users of information globally as the shift from the traditional method of service delivery to an image-based culture, the development of sound and video archives, of seemingly infinite reproduction of words and pictures through electronic media. Ojedokun and Lumade (2015) describe multimedia competency as the ability to locate, evaluate, manage and use information from a range of sources not only for problem-solving but also for decision making and research.

Significance of Multimedia Technologies in Library and Information Science Education

Dynamism is the essence of globalization. In no little way, technological development has revolutionized classroom experienceand transformed teaching and learning from obscured teacher centered to learners' participation. Such technological breakthroughs, 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 support of the foregoing, Mohler (2001) opines that 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 can 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 (Bagui, 1998; Kozma, 1994; Mayer, 2001). The importance of multimedia learning, according to Mayer (2003) 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 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 (Astleitner&Wiesner, 2004). 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.

Recommendation of Multimedia Competencies for Lecturers in Library and Information Science

It is therefore obvious that for a lecturer to benefit maximally from multimedia applications, there is therefore the need for lecturers to possess competencies in the use of such technologies for effective instruction. Competence is basically considered as the ability or dexterity to perform a task very well. Skill however means the professional

competence in having a job done accurately and effectively. Nwangwu and Obi (2014) defined competence as the ability to use one's knowledge effectively and readily in performing an act, or a habit of doing a particular thing competently. Skill requires specialize knowledge, technical know-how or exceptional ability to perform a certain task well. Multimedia technology application skill in this study can be defined as the ability to effectively and efficiently design, developed, integrate and implement multimedia technologies for effective instructional delivery. Multimedia competencies that should be possessed by Library and Information Science lecturers are those that should enable the lecturers in making judicious use of multimedia to deliver effective instruction service. Multimedia competencies as identified by Nwangwu and Obi (2014) are categorized into four which include: text, graphic/images, audio and animation.

1. **Textual competence includes:**Effective Microsoft word processing; competence in typing; slide creation competence; effective grammatical Construction; convert text to speech using the "text to speech" tool.
2. **Graphic/Image Creation and Editing Competence includes:** Import/export image files across image editing platform; add elements in layers for easy manipulation and organization; use effects filter to beautify and existing image; emerge objects together using the blend tool; create images for motion pictures and animations; resize and skew images to a required dimension; use the lesson tools to trace and extract portion of an image; convert graphic image files formats to other formats; create an image to have a transparent background.
3. **Audio Recording and Editing Competence includes:** Import/export audio files across audio editing platform; record live audio; apply noise reduction effect audio or sound files; convert text to speech using the "text to speech" tool; trace and remove unwanted part of an audio clip; mix different audio/ sound files
4. **Animation Creation Competence are:** Import multimedia elements into adobe flash stage; export image/movie for use in other platforms; create instructional picture slide show in flash; write action script to add interactivity to flash movie; create clickable buttons; convert power point presentation to video clip; create movie in **a**dobe flash; create a custom show in PowerPoint; organize multimedia elements in layers; create frame by frame animation sequence; create motion tween animation and create rollovers.

Conclusively, this paper therefore was of the put forward in addition to other competencies known therefore put forward that for efficiency in service delivery, library and information science educators should avail themselves the opportunity of advancing in their job by acquiring the competencies enumerated in this paper by so doing, they should create time to attend seminars, workshops and also endeavor to acquire and read current work in their discipline firstly for personal growth and for efficiency in service.

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