

REPOSITIONING EDUCATION THROUGH THE USE OF MULTIMEDIA IN TEACHING AND LEARNING AT JUNIOR SECONDARY SCHOOLS IN FCT, ABUJA

IBRAHIM MOMOH ANABE, Ph.D

*Department of Curriculum Studies and Instruction,
FCT College of Education, Zuba – Abuja*

And

DAVID MAJABI

*Department of Curriculum Studies and Instruction,
FCT College of Education, Zuba – Abuja*

Abstract

The Universal Basic Education programme which was launched in 1999, is an educational programme of the Federal Government of Nigeria. It is an effort of the government to provide a universally free, compulsory and continuous 9 year Basic Education for its citizens. To kick start the programme the Nigerian Educational Research and Development Council (NERDC) developed the new 9 year Basic Education curriculum for distribution to schools. This paper presented the curriculum for Basic Education Level (Junior Secondary School). It also discusses the meaning of multimedia, its elements of and media tools and how it can enhance the implementation of Basic Education programme at upper Basic level. It also highlighted the challenges hindering the effective use of multimedia in teaching and learning at junior secondary school level to include: inadequate funding, lack of constant power supply, lack of sufficient man power among others. Possible suggestions were made to improve the use of multimedia in teaching and learning at junior secondary school level in the FCT, Abuja.

Keywords: Basic Education, Curriculum Implementation, JSS, Multimedia.

Introduction

Education is an indispensable and integral part of development and endeavours in a society. It is a gradual process of affecting changes in behavioural pattern of the learners. The behavioural change could be in terms of acquisition of knowledge, skills, attitudes and values. The process involved the use of structured document (curriculum package) with its content presented in a systematic manner to the learners in order to achieve the desired aims/objectives (Momoh, 2012). This involves all the activities to be carried out within and outside the four walls of the classroom. The curriculum which is suppose to be functional, is expected to take care of the development of the cognitive, affective and psychomotor domains of the learners.

The Universal Basic Education (UBE) programme in Nigeria was introduced in 1999 in fulfillment of governments signatory to a number of International declarations on education. It is free and compulsory for all children of school age ranging from six to fifteen years of age and literacy training for adults. The UBE Act was signed into law in May, 2004 which provided the legal framework for the programme and an indication of its effective take off. Consequently, Tahir (2005) expressed that at the end of the 9 years of continuous education, every child should acquire appropriate level of literacy, numeracy, communication, manipulation and lifelong skills, be employable, useful to him/her self and the society by possessing relevant ethical, moral, and civic values. Thus, the vision of UBEC, (2007) has taken care of all it entails to bring about socio-economic development of its citizens. But the workability and functionality of UBE curriculum depends largely on the following factors; provision of adequate number of qualified teachers, provision of adequate infrastructure and instructional methods/materials, adequate funding, sufficient trained man-power for supervision. However, this paper examines the upper Basic level of the UBE, highlighted the subjects taught at that level and the role of multimedia in the implementation of the curriculum. Finally, the paper also discussed changes that hinder the effective implementation of junior secondary school curriculum. To reposition the upper Basic level of UBE, possible suggestions were presented to improve its implementation.

The New 9 year Basic Education Curriculum

The philosophy of the 9 year Basic Education Curriculum as stipulated by the Nigeria Educational Research and Development council is that every learner who has gone through the 9 years of Basic Education should have acquired appropriate level of literacy, numeracy, manipulative, communicative and life-long skills as well as the ethical, moral and civic values required for laying a solid foundation for life-long learning as a basis for scientific and reflective thinking.

Table 1: Subject taught at upper Basic Level

Level	Core Compulsory Subjects	Elective Subjects
Upper Basic (JSS 1-3)	English Studies Mathematics Basic Science Basic Technology Computer Studies (ICT) PHE One Nigerian Language - Hausa - Igbo - Yoruba - French Language Social Studies Creative/Cultural Arts Religion – CRS/IRS	Agric Science Home Economics Arabic Language Business Studies * Learner must offer one elective but not more than three

The term curriculum implementation has been defined in different terms by ways of different scholars. Ibrahim (2018) viewed curriculum implementation as the translation of planned curriculum package on paper into practice/action. Momoh (2012) defined curriculum implementation as the process of putting all that have been planned into practice in the classroom through the combined efforts of the teachers, learners, school administrators, parents as well as the interaction with the physical facilities, instructional materials, psychological and social environment.

Ivowi (2004) defined curriculum implementation in a nut shell as “the translation of theory into practice or proposal to action”. All these definitions shows that curriculum implementation is the reactions among the teachers, learners and other stakeholders in education geared towards achieving the objective of education. Onyeachu (2008) asserted that no matter how well is a curriculum of any programme is planned, designed and documented, implementation is very important in the curriculum process. However, poor implementation do occur as a result of some factors or challenges that may arise at the implementation stage. Mkpa (2005) and Babalola (2004) remained that, it is the implementation that many excellent curriculum package and other policies are marred. Consequently therefore, this paper tends to present the role of multimedia in the implementation of upper Basic Education level of UBE programme in FCT-Abuja.

Meaning of Multimedia

Multimedia is a term frequently heard and discussed among educational technologist today. Unless clearly defined, the term can be alternatively mean the development of computer based hardware and software packages produced on a mass scale and yet allow individualized use and learning. In essence, multimedia merges multiple levels of learning into an educational tool that allows for diversity in curricula presentation. Mayer (2001) views multimedia as the exciting combination of computer hardware and software that allows one to integrate video, animation, audio graphics and test resources to develop effective presentation on an affordable desktop computer. However, today’s multimedia is a carefully woven combination of text, graphic, sound, animation and video elements. If the end user is allowed i.e. the viewer of a multimedia project to control “what”, “when” and “how” the elements are presented, it becomes interactive multimedia. As such, multimedia can be defined as an integration of multiple media elements (audio, video, graphic, text animation, etc) into one synergetic and symbiotic whole that results in more benefit for the end user than any of the media element can provide individually.

Multimedia could be referred to any kinds of communication or interaction pattern that employs more than one medium. It can refer to any mix of text, sound, graphic, still images, art, animation, or any other medium that is transmitted at the same time. Abifarin (2013) defined multimedia as a communication process in which a variety of media are used in a planned and organized combination to achieve the maximum output in a given communication situation. Ajileye (2019) opined that multimedia is order to exhibit and integrate text, pictures, audio and video with links and other tools that enable user navigation, interaction, creation and communication in multimedia, a computer is used. Multimedia as explained by Gilakjani (2012) is multisensory that stimulates multiple senses of audience at a time. He further explained that as a result of its interactive nature, it enable teachers to control the content and the flow of information.

Multimedia can also be defined as uses of multimedia tools in teaching and learning process that facilitate learning that make lesson concrete to the learners, create avenue for the learners to learn at their own pace and assimilate the content easily. Multimedia can also be defined as a method of presenting ideas (in communication, entertainment or the arts) using several media, such as integrating sound, video and text something that employs or supports such a technique, like software. However, since the use of multimedia equipment in junior secondary school teaching and learning improved students' performance by making learning more flexible, real and concrete. This is an evidence to prove the importance role multimedia play in teaching and learning process at the junior secondary school.

Element of multimedia

- **Text:** Text is an essential tool for communication in any medium. It entails a variety of font styles, sizes, colours and backgrounds. In a multimedia application, text can be used to connect different media or screen. Hypertext is the term for this. Text can be entered directly into the writing application or imported from a text file. Text includes ASCII Unicode, HTML, postscript, PDF, Note and Word Pad. Teaching of Computer studies can be carried out through the use of this element for students interaction.

- **Images and Graphics:** Graphics add to the appeal of the multimedia application. They aid in illustration of ideas through still images. Bitmaps (Paint graphics). Bitmap images are genuine images that can be captured with cameras or scanners. When vector graphics are produced on a computer, they only take up a little amount of memory. GIFs and JPEGs are the two most common graphics formats for online training and web pages in general. Both are bitmap files with a tiny file size. Both formats compress images differently with each excelling in different sorts of graphics compression. This element can be used for interaction on Basic Science teaching and learning.

- **Audio:** The best way to attract attention is by using audio. A multimedia application may require the use of speech. Music and sound effects. These are called audio or sound. Audio is most appropriate elements of multimedia interaction to catch the attention of audience. We use audio effectively for training and educational application. There are two types of audio, digital and analog. As per reproduction and transmission of sound stored in a digital format. The digitizing and storage of sound or music on a computer or compact disc are usually used. The audio formats are: MP3 audio (.mp3), wav audio (.wav), sound (.snd), Real audio (.ram). Audio File Format (.aiff), MIDI (Mid) windows media Audio (.wma). This element can be utilized when teaching any subject at junior secondary levels.

- **Video:** According to Eddweiss (2018) defined video as "the technology of electronically capturing, recording, processing, storing, transmitting and reconstructing a sequence of still images representing scenes in motion". Video is more towards photo realistic image sequence/live recording as in comparison to animation. Video makes us of all elements of multimedia, bringing your products and services alive, but at high cost. Although video requires lots of bandwidth to download, it is very useful for conveying certain information and processes among other things. Video format are video files motion pictures includes: Expert Group (.mp), quick Time (.move), Audio Video Inter leaved (.avi), Windows media Video formats (.wmv).

- **Animation:** Animation is a process of making a static image look like it is moving in multimedia, digital is used. Digital animation can be grouped into two broad areas: 2D (2

Dimension) and 3D (3 Dimension) animations. 2D animation refers to creating movements to two dimensional digital objects from photographs. 3D animation refers to creating movements to three dimensional digital objects from photographs. Animation file formats are swf, gif. There are many ways you can create animation.

Multimedia Tools

In general, multimedia learning resources can be thought of as online learning aids that help users become familiar with the representations made possible by the usage of various media elements. When employing digital learning resources, multimedia tools combine text, images, audio, moving pictures and other elements to offer information and learning exercise. Educational multimedia applications, according to Norhayati (2004), are more concentrated on specific objective and all-encompassing approach. However, multimedia are the latest tools as far as Nigeria is concerned that can be employed in teaching and learning process.

The following gadgets are the multimedia tools:

Multimedia Projector: An optical device known as a projector or image projects an image (or moving pictures) onto a surface, most frequently a projection screen. The majority of projectors produce images by passing light through a tiny transparent lens, although some more recent models project images directly utilizing laser.

High Definition (HD) Camera

High-definition video (HD video) is a video of higher resolution and quality than standard-definition. While there is no standardized meaning for high-definition, generally any video image with considerably more than 480 vertical scan lines (North America) or 576 vertical lines (Europe) is considered high-definition. High definition 1080p HD camera images (also known as Full HD) is a set of high definition (HD) video modes characterized by 1080 horizontal lines of vertical resolution and progressive scan.

Interactive Smart Board

An interactive smart board, commonly referred to as an electronic whiteboard, is a teaching tool that enable students to project images from a computer screen onto a classroom board. A tool or simply a finger can be used by a teacher or students to “interact” with the visuals that are displayed on the screen. Another definition of a multimedia projector is a small, high-resolution, full-colour projector that can display text, images, video and audio. Inputs for a computer, DVD player, VCR, CD player and storage device are frequently found on projection. Watching a PowerPoint presentation, listening to a recorded lecture, or reading a physics textbook are a few examples of multimedia learning.

MP 3:

MP 3 (MPEG-1 Audio Layer-3) is a standard technology and format for compressing a sound sequence into a very small file (about one-twelfth the size of the original file) while preserving the original level of sound quality when it is played. MP3 files (identified with the file name suffix of.

Multimedia in Teaching and Learning Process

When it comes to educating people in a variety of subjects, multimedia in education has proven to be incredibly beneficial. The way we communicate with one another is changing because of multimedia. We are efficient and better able to understand how we transmit and receive messages. While a class can be very instructive, one that incorporates graphics from videos or photographs can greatly improve how well a student learns and remembers the materials for teaching pupils in a wide range of subjects, interactive CD-ROMs are especially helpful, especially for teaching complex contents and music. (Neo and Neo 2011). Described multimedia in teaching and learning process as multi-sensory experience can be created for the audience, which in turn, elicits positive attitudes towards its application. Multimedia has also been shown to elicit the highest rate of information retention and result in shorter learning time.

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 interactive software that integrates several media at once to inform a viewer is known as a multimedia application. Text is one of the various media types that can be employed. Images (photographs, illustrations), audio (music, sounds). However, information technology application serves different purposes, such as knowledge sharing-portal, search engines, public administration, social service and business solution. Most of our classrooms are heavily dominated by too much verbalization by the teachers, this procedure of instruction is biased in nature because it emphasizes on talk and write as the main medium of instruction. Anieok, (2013) and Adedeji, (2013) has both discredited this procedure of instruction. They both opined that due to inequality of the procedure to solve learners immediate problems of making them passive instead of to be actively involved in the classroom activities or process, with integration of multimedia into content process due to its potential in bringing events into classroom that closely reflect realities and make learning process more easier and accessible to the learners. Omagbemi (2004) supporting this view expressed that access to multimedia information could stimulate changes and create conducive learning environment and make learning more meaningful and responsive to the localized and specific needs of learners. The incorporation of various media aspects in multimedia or digital learning materials helps students successful developmental representations that enable information processing. 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.

However, Hoven, (2013) cited in Majabi, (2014) 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.

There are some factors that determine academics use and non-use of new technologies for teaching and learning in the advanced countries and this include, the needs for learner, the characteristics and experiences of academics, the technology available, the environment within which academic work and how valuable they perceive the use of technology to be for teaching their students and the disciplinary context of which the academic is part. However,

research have demonstrated that there are discipline and subject differences in the way Its are being used and adopted in teaching and learning.

In developing countries, Nigeria inclusive, factors like lecturers attitude, Agbonlahor (2012) cited in Majabi (2014) that perception and use of media, perceived ease of use, perceived usefulness, characteristics of lecturers (Gender, Age, Experience; Qualification etc), opinions of “significant others” and the peers in the college community, availability of infrastructural facilities, cost of purchasing, management attitudes, use/knowledge of computer, power supply among others.

Multimedia Aided Teaching (MAT) as opined by Rolf & Gray, (2011) is a means of instructional delivery usually used with the traditional method of teaching. In addition, Mayer, (2005) explained that MAT is a presentation consisting of words, sound, and pictures that is designed for meaningful learning. According to Altherr, Wagner, Ecker, & Jodl (2004), multimedia elements have paramount importance in teaching of science, , multimedia element can help to present different phenomenon and processes vividly, simulate complex content and present different levels of abstraction. This helps in meaningful and authentic learning. According to Singh (2003) opined that Multimedia Aided Teaching (MAT) is useful especially when students have low motivation and low prior knowledge. It is characterized by the presence of text, pictures, sound, animation and video; some or all of which are organized into a coherent program.

Challenges that affects the use of Multimedia in Teaching

The following are some of the barriers affecting the uses of multimedia in junior secondary schools in FCT Abuja:

- i. Inadequate power supply
- ii. Phobia on the part of the student
- iii. Poverty among the students
- iv. Lack of adequate/regular training of staff
- v. Inadequate funding
- vi. Corruption

Conclusion of the Study

This study revealed that teachers and students’ behavior and expectations have really been influenced by multimedia as an important technology. Multimedia can activate more than one sense at the same time, resulting in increased attention and retention. Multimedia, according to Roger (1999) cited in Majabi (2014), allows pupils to be more motivated while learning and to work at a different speed. Managing the introduction of multimedia into a lesson is especially intriguing because teachers must convince students to stop performing their current work and congregate around the computer to use the package.

Suggestions

Based on the research study, the authors wishes to make the following suggestions:

- i. The use of multimedia equipment in junior secondary school teaching and learning improved students’ performance by making learning more flexible, real and concrete for students. As a result, the government and other stakeholders should work together to provide

secondary schools with the necessary multimedia facilities. However with a consistent power supply, technical assistance for facility maintenance should be put in place.

ii. The government should raise public knowledge about the importance of multimedia in our educational system; for example, more seminars, workshops, conferences and training should be held to ensure effective instruction delivery.

iii. School officials should develop an environment that encourages students to use multimedia gadgets at their pace where the resources are available.

iv. The government should employ technician to cater for maintenance and repairs of the equipments.

Consequently, very few Colleges of Education have multimedia microteaching centre, hence the federal ministry of education should liaise with the state ministry of education to build multimedia centre in every Local Government of the Federation to be able to cushion the problem of multimedia in our schools.

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