APPLICATION OF INSTRUCTIONAL MEDIA FOR EFFECTIVE INSTRUCTIONAL DELIVERY IN THE 21ST CENTURY HIGHER EDUCATION

By

ADEYEMI ADEDAPO, *Ph.D*
Faculty of Education,
National Open University of Nigeria

Abstract

This paper viewed the application of instructional media for effective instructional delivery. Undoubtedly, new technologies challenge traditional conceptions of both teaching and learning and, by configuring how teachers and learners gain access to knowledge. It has the potentials to transform the teacher-centered and text bound classrooms to rich, student-centered interaction knowledge environment. The paper concluded that instructional media could afford a more efficient and effective control over learning situations in addition to providing interest, meaning and enrichment. It therefore recommends an urgent need for a functional and well equipped centre for educational technology in each teacher education institution for the day to day teaching responsibilities.

Key Words: Instructional media, instructional delivery, media.

Introduction

The main challenge that faces our educational system in the 21st century higher education is how to transform our curriculum and teaching/learning process to provide learners with the skills to function effectively in this dynamic, information-rich and continuously changing environment. The goal of higher education has long been identified as the process that helps develop the whole man physically, mentally, morally and technologically, to enable he/she function effectively in any environment in which he/she finds himself/herself so that man may become more productive, self-fulfilling and attain self-actualization (Tinio, 2002; Aluede, Aluede & Ufah, 2004). Higher education provides the last stage of formal education which takes a minimum of four years, completing the 6-3-3-4 educational system. Professional courses, however, last longer, medicine, pharmacy, dentistry, engineering, etc for instance last for more than 4 years. There are three stages of education at the university level.

The first degree programme leads to the award of a Bachelor's Degree which can be a singled honor or combined honors. The Master's Degree programme takes one to two years after the first degree while PhD programme lasts for three years after Master's Degree. The haphazard and uncontrolled proliferation of private and public educational institutions and particularly the politicization of tertiary educational over the country (Nzeako & Ukegbu, 2013), seem to have contributed to a situation in which tertiary institutions are established after little or no preparation. Appropriate technology innovations can be used to achieve effective, efficient and conducive learning and the management of the learning process. Therefore, this paper aims to explain the objectives of educational technology, the roles and potentials of instructional media for effective instructional process.

The concept of educational technology is both theoretical and practical in nature. Spector (2008) offered an integrated explanation of educational technology. To him, educational technology is the disciplined application of scientific principles and theoretical knowledge to support and enhance human learning and performance. Based on this, educational technology implies the use of educational resources such as research, information on human learning communication to improve the quality of education, as well

as all planning strategies including identification of educational needs, resources, procedure, analysis, assessment and evaluation (Ibe, 2003). Educational technology is complex because it is formed by multiple interactions within itself and between itself and environment. Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological process and resources (AECT, 2007). Educational Technologists aimed to achieve effective, efficient and conducive learning and the management of the learning process.

There is widespread of ignorance, misconception and poor perception of instructional media among teachers and administrators in Nigeria. Also, another major inhibitor to Nigeria fully embracing it is the average Nigerian's general inadequate exposure to them. For most Nigerians, educational technology is still something unfamiliar, distant, and mysterious. Rather than being seen as a tool for personal and national development, educational technology is seen as a hurdle (National Information Technology development Agency, NITDA, 2003).

Nzeako and Ukegbu (2013) are of the view that educational technology has tripodal context. Firstly, an assembly of technical materials and resources used for educational purposes, this includes teaching materials, and audio-visual materials. This is the hardware approach and refers to mere tools for teaching. The learners are never considered in the instructional process and the design of these materials and resources. The resources and materials are seen as mere complements of the teaching-learning process.

Secondly, mass communication system that can be used to educate a large number of people. It can be described as educative gadgets which involve the use of certain communication theories, models and principles that explain teaching process. There is a concrete analysis of the characteristics of the learners who constitute the audience. The software approach to educational technology becomes the focus here because machines are used as a means to an end and not the reverse. Areas of curriculum, instructional development and course design are stressed. Practitioners within the education system can identify appropriate methodologies, activities and experiences, and evaluate the effectiveness of the resulting learning experiences as well as the strategies used.

Thirdly, an application of certain psychological models and principles under ideal learning conditions when experiments are conducted in the psychological laboratories that involve human learning, information processing theory of learning is emphasized. It involves the hardware and software approaches which revolve around the application of the systematic approach towards increased performances in learning. The emphasis is on the process – product perspective which ensures quality and relevance of the overall learning experiences.

At this juncture, it is now seen that educational technology is not precisely teaching methodologies/mechanism or development of instructional materials. Rather, it is a planned integration of techniques with resource materials and devices for the achievement of clearly defined objectives. Educational technology has its roots from audio-visual movement, system theory, research findings and theories of communication, as well as models of psychology of learning.

Advances in educational technology have altered and expanded the possibilities for supporting learning in the classroom at a distance. As more learning resources become digitalized, the ease and economy of their transmission increases, thus challenging long accepted notion of how resources are created, stored and used in teaching.

Objectives of Educational Technology

The National Policy on Education (2008) attached much importance to the development of the learner and therefore emphasized on "Learner-centred" through the development of objectives of educational technology such as:

- To provide access and improve educational programmes.
- To enhance teaching and improve the competence of teachers and students.
- To make learning more meaningful for children.
- To promote in-service education.
- To develop and promote an effective use of innovative materials in schools (section 10).

In an attempt to achieve these objectives, the policy enumerated these measures among others:

i. The development of teaching resource centres.
ii. The establishment of curriculum development centres by the federal and state governments.
iii. The establishment of educational resource centre in each state of the federation.
iv. Setting up of audio-visual centres.
v. Provision of funds to develop effective library services.
vi. Setting up of radio and television education to provide more efficient and effective instruction.

Roles of Educational Technology

Educational technology should be examined from the context of use instead of mere electronic gadgets, teaching machines or development of hardware. Nzeako and Ukegbu (2013) presented the role of education technology as:

i. educational technology uses a learning environment approach where research in human learning, communications, production and utilization of instructional media and materials are involved. This will facilitate the learning process if the conditions and hierarchies of learning as well as effective and efficient instructional events are established.
ii. it emphasizes the means of employing both human and non-human resources to bring about effective instruction that will facilitate the learning process.
iii. it provides students with the opportunity to play a more active role in their own learning through the development of instructional modules which stress individualized instruction as in computer-assisted learning, etc.
iv. it is a means to arrive at an end, and thus plans to maximize learning in the most efficient manner with lowest cost.
v. It educates a large number of students with optimal efficiency as greater learning opportunities are provided for all students, regardless of their physical location within the school system as in distance and open learning; internet based learning environment, web-based courses, virtual schools, computer-based residential course, open university and so on.
vi. it provides experiences not easily obtained through other materials and contributes to the efficiency, depth and variety of learning.
vii. It makes access to education to be more equal. By this function, the less privileged and the handicapped students can attain the same level.

Table 1: Media/Technologies for Effective Instructional Delivery and Application

Medium	*Technologies Delivery*	*Educational Application*
1. Face to face contact medium	Overhead projector (manual or electronic) specialist technologies	Seminars, tutorials, classes, workshops and lectures. Learner study groups or self-help groups, conferences, one to one interaction, either between educator and learner
2. Text including graphics	Technologies for delivery print	Books, booklets, and pamphlets, study guides, workbooks, newspapers, journals, periodicals, newsletters and magazines, maps charts, photographs, posters, written/printed correspondence, earner support materials e.g. self tests, projects, coursework.
3. Audio	Audio cassettes, Audio Compact Disc, Radio broadcasting, Telephone, Computer	Audio programmes, lecture instructional materials e.g art pictures or biological photographs. Video conferences with

	with related applications including CD-ROMS	two-way audio and video or one way audio.
4. Video	Television Broadcasting, Video Programmes, Lecture Terrestrial, Satellite or Instructional Material E.g Art Cattle, Digital or Analogue, Transmission including Educational Television, Video Cassettes, Video Conferencing	Video programmes, lectures instructional material eg. Art pictures or biological photographs, video conferences with two-way audio and video or one way audio.
5.Integrated multimedia	Stand-alone, computer-based workstation CD-ROM, DVD	Presentation of information/knowledge, simulations.
6. Audio-visual	Television sets, Computers	Instructional programmes, closed circuit television system
7.Tools & manipulative	Creative tools	Games, simulations, creative tools and instruments as counters, weighth and common table
8. Visual Media	Non-projected	Visual as real objects, photographs, pictures, modules, charts, books, graphic material

Source: Bither Nail (2003:26)

Instructional Media for Effective Instructional Delivery

Ifegbo (2009) explained educational technology as a multimedia approach to instruction. Multimedia simply means combination of media. These media can be picture, sound, motion, video, animation and or text items combined in a product whose purpose is to communicate effectively. Multimedia is a combination of resources that appeal to more than one sensory channel (vision, feeling, hearing, touching). For example, some are auditory learners, they learn through sense of hearing. Some are visual learners, they learn through sense of seeing. Some also are tactile learners, they learn through sense of touching, etc. It is therefore important that the teacher should use educational technology resources that will appeal to all the learners in their classes.

The major goal of the teacher education programme is to produce competent professionals who will be capable of making learning easier for students. The teacher's ability to evaluate the level of effectiveness of any instructional medium and material will depend on the extent of his interaction with and continuous use of instructional media for teaching and learning (Salawu, 2008). Research has shown that the appropriate use of educational technology media enable new ways of teaching and learning rather than simply allowing teachers and students to do what they have done before in a better way (Bransford, 1999). These new ways of teaching and learning are underpinned by constructivist theories of learning and constitute a shift from a teacher-centered pedagogy—in its worst form characterized by memorization and rote learning—to one that is learner-centered. However, Tinio (2002), WCCI (2003), Nwosu and Ogbomo (2010), Nzeako and Ukegbu (2013) noted the effectiveness of instructional media in the process of instructional delivery in the following ways:

i. Supplying a concrete base for conceptual thinking.
ii. Making learning more permanent. Utilization of media provide complete diversions from the traditional talk and chalk methods of instructing learners.
iii. High degree of interest to learners. Media increase the efficiency of the learners and make teaching more dynamic.
iv. Reality of experience. Media provide freshness and variety, encouraging pupils participating in instruction and diversifying instruction.
v. Improve communication by providing the opportunity for a systematic design and development of learning resources that can lead to quality presentation of a lesson.
vi. Add interest or conversely relieve boredom. Media reduce verbalism; make learning more interesting, diversified and effective.
vii. Increase the motivation of students and teachers

viii. Facilitates their motor skill development. Media extend the creative ability of the learners in terms of self-produced learning materials.
ix. Understands and applies other principles of learning by providing opportunity for a systematic design and development of learning resources that can lead to quality presentation of a lesson.
x. Establishes a democratic classroom atmosphere
xi. Strengthens weak skill areas as an aid to adjustment
xii. Reduces disabling levels of anxiety
xiii. Guides peer interaction effectively
xiv. States and assesses behavioural objectives effectively and efficiently
xv. Provide the child with basic tools for further educational advancement.

The Potentials of Instructional Media in Instructional Delivery

Instructional media plays a vital role in education both directly as a subject and indirectly as a tool to assist in educational delivery and management. Educational technology has the potential for acting as a catalyst to revolutionize the education system.

It can empower teachers and learners and promote the growth of skills necessary for the 21st century workplace. The potentials of instructional media can help to improve the quality of instruction, transform the school, improve school management, increase access to education and improve in teacher education among others and cannot be over-emphasized. It involves the thorough analysis of educational objectives and changes a realistic understanding of the potential of technologies, considering the pre- and co-requisites of successfully implementing technology education and the prospects of this process within the dynamics of educational change and reform.

Instructional media has the potentials to serve the educational interests of primary and secondary schools in Nigeria through special exhibitions and auditorium programmes. Special exhibitions of instructional materials are designed to encourage self-instruction on the part of young people (Onwumere, 2012). This approach was simple-narrative labeling, including audio-visual devices aimed at attracting attention, stimulating interest and providing graphic or dramatic explanation. Another approach of offering school services is through providing for primary and secondary schools on a regular interval, distribution of educational resource centre materials which may be used by teachers for instruction.

Furthermore, instructional media can enhance learning by increasing the information available to learners thereby engendering collaborative learning, as well as technology awareness and skills which are essential for success in the contemporary knowledge. When used appropriately, technology and media can enhance children's cognitive and social abilities. Technology and media offer opportunities to extend learning in early childhood settings in much the same way as other materials, such as blocks, manipulative art materials, play materials, books, and writing materials. Screen media can expose children to animals, objects, people, landscapes, activities, and places that they cannot experience in person.

Modeling the effective use of technology and interactive media for parent communication and family engagement also creates opportunities to help parents themselves become better informed, empowers them to make responsible choices about technology use and screen time at home, engages them as teachers who can extend classroom learning activities into the home, and encourages co-viewing, co-participation, and joint media engagement between parents and their children (Stevens & Penuel 2010; Takeuchi 2011). A vibrant education sector is fundamental for developing human resources with an active and transformative education policy and supportive infrastructure. The development of a knowledge-based population can apply itself to sustain and equitable academic growth.

Conclusion

The picture that emerges from this discussion shows that educational technology can afford a more efficient and effective control over learning situations as well as providing interest, meaning and enrichment to the whole learning experience.

Recommendation

If the application of instructional media is to be useful, then there is urgent need for a functional centre for educational technology in each teacher education institution with adequate instructional facilities for the day to day teaching responsibilities and emphasis to be more productive for various needs at lower levels of education.

References

Bither, N. (2003). Teaching With(Out) Technology: Secondary English Teachers. Retrieved on July 10, 2016 from www.ijcrse.com/index.php/ijcrsee/.../31.

Federal Republic of Nigeria (2008). *National policy on education*, Lagos: Federal Government Press.

Ibe, G.S. (2003). Educational technology and the new national policy on education. In Z. Alaezi (Ed.), *Relevance in Nigeria Education Pattern Approaches and Strategies*. Ibadan: University Press

Ifegbo, P.C. (2009). Multimedia approach in teaching and the attainment of secondaray education goals. *Formal of Educational and Instruction* (TETI), 20, 70-75.

Iwu, A. O. & Nzeako, R. C. (2010). ICT in rural dwellers, *Journal of Instructional Technology.*16, 98-107.

Iwu, A. O. & Nzeako, R. C. (2013). Education technology: An effective instructional delivery for early childhood education. Conference Proceedings of the Nigeria Association for Educational Media and Technology. 1, 109-115.

Nwosu, O. & Ogbomo, E. F. (2010). ICT in education: A catalyst for effective use of information. *Pacific Northwest Library Association PNLA Quarterly*. Retrieved from http://www.ictin education.

Nzeako, R.C. Ukegbu, M.N. & Eziaghala, H. (2013). Educational technology and effective service delivery in training: Determining the training needs of staff. Conference Proceedings of the Nigeria Association for Educational Media and Technology. 1, 100-108.

Nzeako and Ukegbu (2014). The potentials of Educational Technology for effective instructional delivery in tertiary institutions. *Journal of Educational Media and Technology, 18 (1), 25 - 30.*

Onwumere, A. O. (2012). Integrating ICT in Secondary Education in Nigeria. Journal of Educational Media and Technology: 16(1).

Salawu, I.O. (2008). Application of systems approach to instructional delivery. Journal of Improved Educational Practice, 12, 75-86.

Spectator, J. (2008). Theoretical foundations, In J.M. Specter, M.D. Merrill, Z. Merriem (Eds.). *Handbook of Research in Educational Communication of Technology*, 21-28.

Tinio, V. L. (2002). The role of ICT in education. *African Journals Online (AJOL).* Retrieved September 13, 2013 from www.ajol.info/../62437.

World Council for Curriculum and Instruction (2003), 4 (1).