DEVELOPMENT AND MANAGEMENT OF EDUCATION FOR NATIONAL TRANSFORMATION

Edited by:
C.A. Ozochi
U.O. Amaechina

COMMUNICATION TECHNOLOGY-ASSISTED INSTRUCTIONS IN PUBLIC COLLEGES OF EDUCATION IN SOUTH-EAST, NIGERIA

Ugwu, M. C., Onwukwe C. O. & Umah, D. N.

Abstract
The study was carried out to determine functionality of modern communication technology-assisted instructions for teaching in public colleges of education in South-East for achievement of quality instruction and quality output. Five research questionnaires and one null hypothesis guided the study. The research adopted a descriptive survey design. Seven public owned colleges of education in South-East, Nigeria constituted the population which comprises of three federal and four state colleges. Academic staff in these Colleges is 1700. Through a stratified random sampling, one federal and one state owned colleges were selected as the sample for the study. Thereafter, 170 academic staff representing 10% of the population was selected. A structured questionnaire was used to obtain the opinions of academic staff in the colleges. The instrument was validated by three experts and t-test statistic was used for reliability. Cronbach Alpha method was administered. Reliability co-efficient of 0.83 was established which suggested acceptance. The findings show that teachers utilize modern technology-assisted instructions for personal research and academic enhancement, but little was practiced in classroom teaching-learning due to inadequate equipments. This hampers students' manipulative skills in accessing modern educational technologies. Recommendations were made for adequate funding by government to help achieve instructional objectives in teaching and learning process.

Keywords: modern communication technologies, instructions, academic staff, teachers, teaching and learning, college and education

Introduction
The world is presently tending towards being a global village in this era of technological enhancement and information digitization and many nations including Nigeria are bracing up to mark their position in the global square. With the growing trend of modern communication technologies being a tool for educational reform, UNESCO (2003) in Babalola (2010), opines that teachers and teachers educators are central importance in tapping the potentials offered by modern technology to enhance the quality of education. This has led to the application of modern technology-assisted instructions to examine its functionality in teaching and learning as a veritable tool to reposition or re-orient education system for technological transformation in Nigeria through tertiary institutions with particular reference to public colleges of educations in south east zone.

Communication is the transfer of information, ideas, feelings, emotions and messages from one person to another or to a group. Communication is one very important human activity on which all actions with one another depends. Without communication

therefore, the components of educational technology will not work. Without communication, there cannot be teaching and learning, all the activities in which we share our experiences, feelings or knowledge will not take place. Without communication the teacher may not teach and the learner may not learn.

Technology is the application of scientific principles in research, design, development, production, distribution or service. It is often used to denote a segment of the applied science i.e. electronic technology (Osuala, 2004). Modern communication technologies are the new technological inventions by scientists to enhance communication. It involves all the sophisticated machines and equipments invented for easy gathering, processing and transmission of information across the globe and for easy communication between people (Nwajinka, 2003). These are teaching aids use to impact knowledge, skills, and attitudes in students to enable them develop values, manipulative skills needed for educational achievements and technological transformation. Modern educational technologies' components include: Computers, audio Media Resources, secondary Storage Devices, internet Resources and Projectors.

A computer encompasses; administration and guidance, object of instruction and vehicle for instructions. Computers are used to perform administrative functions such as keeping students' records, tests and high speed access to cumulative records with teachers which help students eliminate inhibiting behavior (test-anxiety, impatience, laziness, procrastination in achievement) ,(Bakpo,2004). Types of computers are: mainframe, mini, laptop, note pad, special, calculators, etc.

The word audio comes from Latin word meaning "I hear". Audio materials refer to all educational media resources that appeal only to the sense of hearing through the sound it provides. This aids teaching and learning process. Audio resources are; radio, microphone/public address system, tape recorders etc.

A secondary storage device is a piece of hardware that is used to store data or programs that must be preserved if the computers main memory fails or is shut down (power off). It helps teachers in public colleges of education to enhance teaching and learning through storage and retriever of downloaded and processed data (instructional materials) from the computer. Secondary storage device comes in two forms; disk drives and USB flash drives. Disk drive has two components- optical drives (CD/DVD ROMs) and magnetic disk drives (hard disk, floppy disk, zip drives). CD and DVD drives allow teachers to access the data stored on CDs (Compact Disks) and DVDs (Digital Versatile Disks) with the computer. They store data as physical features (called pits and lands) on the surface of a slim plastic disk with its storage capacity.

Internets provide opportunities for frequent success as well as an environment in which students receive personal attention and assignments which enhance students' sense of self-esteem, competence and foster a positive attachment for e-learning engagement between teachers and students. Using resources from internet students are better

informed, and teachers are more accessible to students. (Edoka, 2000). Internet resources include: E-mail, communication services, World Wide Web (WWW), E-commerce, E-learning/E-tutorial, On-line education system, etc.

Projectors are use by teachers in facilitating audio-visual materials to aid teaching and learning process. Projectors are devices that throw either motion picture images or still slide images onto a screen. The projectiles, which are the materials, is the software while the projector which is the equipment is the hardware. Projectors can be useful for audio-visual literacy. Examples of projectors are opaque projectors, still projectors etc.

Statement of the problem

Education in Nigeria at all level has generally been influenced positively by the use of Modern Communication Technologies. Initially, public colleges of education were equipped with little manual communication devices for teaching and learning in the classroom, seminar presentations, field work, such as typewriter, chalkboard, manuals, etc. However, it is observed that this method of communication among teachers towards the students have hampered the sustainable growth in education for national transformation and students develop no interest in them. Therefore, functionality of these educational technologies will enable the students to develop manipulative skills, good communication skills, sound basis for scientific and reflective thinking.

Research questions

1. To what extent does academic staff utilize computers during teaching in Public Colleges of Education South-East?
2. What is the usage status of Audio Media Resources for teaching by academic staff in Public Colleges of Education South-East?
3. To What extent are Secondary Storage Devices used to aid instructions by academic staff in Public Colleges of Education South-East?
4. What is the Internet Resources functionality status to aid teaching by academic staff in Public Colleges of Education South-East?
5. What is the functionality status of projectors to aid instructional projectiles in Classroom by academic staff in Public Colleges of Education South-East?

Hypotheses

1. There is no significant difference between the mean scores of academic staff in Federal and State Colleges of Education in South-East Zone during utilization of modern communication technology-assisted instructions in teaching and learning process.

Methodology

This study adopted a descriptive survey research design. Seven (7) public own colleges of education South-East, Nigeria constituted the population for the study. Of this figure, 3 were owned by the Federal government, while the remaining 4 were owned by the state governments. A total of 1700 academic staff exists in these Colleges. The

Colleges were firstly stratified according to ownership, one Federal and one state Colleges were selected as the sample for the study with the size of 170 academic staff representing 10% of the population. Structured questionnaire known as *Functionality of Modern Communication Technology-Assisted instructions* (FMCTI) was designed and used for data collection.

The instrument was validated by experts in Enugu State College of Education (Technical). Twenty (20) academic staff in one Colleges of Education in South-south, Nigeria was administered this instrument on two different intervals and their responses collated. Correlating these responses, using Cronbach Alpha, a reliability co-efficient of 0.83 was established which gave reasons for acceptance. The instrument was personally administered by the researchers and all were returned. A fourteen (19) point likert items which established a criterion mean of 2.50 was adopted and serves as basis for acceptance or rejection. A t-test statistic was used to test the research hypothesis at 0.05 level of significance.

Result/Findings

Research Question 1: What is the extent of competencies possessed by academic staff in utilizing computers during teaching in Public Colleges of Education in South-East, Nigeria?

Table 1: Opinion of respondents

S/N	SUBSTANTIVE ISSUES	$\overline{X}$	SD	REMARKS
1	Teachers Utilize Computer Systems And Computer Inputs During Teaching In Classroom.	2.06	1.092	Disagreed
2	Computer systems are funded and provided to teachers by college management for classroom instructions and research.	2.35	1.143	Disagreed
3	Teachers Have Advance Computer Training Through The College Management For Educational Purposes.	2.06	1.185	Disagreed
4	Workshops, Seminars, Conferences Etc, Are Organized By Management To Equip The Teachers On Current Computer Knowledge And Usage.	2.39	1.157	Disagreed
5	Teachers Use Their Personal Computers For Administrative Purposes.	3.18	1.392	Agreed
6	Teachers Have Basic Computer Training For Accessing Electronic Library And Downloading Data In A Computer System.	3.04	0.954	Agreed

Table 1 shows the mean scores for extent of competencies in utilizing computer in teaching in colleges. Academic staff disagreed on items 1, 2, 3, 4 ranges from 2.06 to 2.39 on computer usage while, in 5 and 6 ranging from 3.04 and 3.18, they agreed having PCs (laptop) for administrative purposes and basic computer training for accessing electronic library for instructions.

Research Question 2: What is the Internet resources functionality status to aid educational research among academic staff in public colleges of education in South-East, Nigeria?

Table 2: Opinion of respondents

S/N	SUBSTANTIVE ISSUES	X	SD	REMARKS
7	Internet facilities are provided by college management and accessible by teachers in the college.	2.36	1.277	Disagreed
8	Teachers utilize their personal modem to access internet for academic research.	3.55	1.226	Agreed
9	Teachers give students assignment to research in the Internet and pass in hardcopies.	3.69	0.949	Agreed

Table 2 reveals the range from 2.36 to 3.69 mean scores of 7, 8 and 9 items. Teachers disagreed in item 7 not provided with Internet facilities by the college management. And agreed in 8 and 9 for using personal modem to access Internet and give students assignment to research in Internet.

Research Question 3: To what extent of competencies is secondary storage devices use to aid instructions among academic staff in public colleges of education in South-East, Nigeria?

Table 3: Opinion of respondents

S/N	SUBSTANTIVE ISSUES	$\overline{X}$	SD	REMARKS
10	Teachers use CD/DVD ROMs to store data from the computer systems.	3.77	0.769	Agreed
11	Teachers use USB flash drives and Hard disk to store data and retrieve it from computer during teaching and process.	3.64	1.042	Agreed
12	Teachers receive assignments from students through USB flash drives.	2.01	1.003	Disagreed
13	Teachers are given remunerations by college management to buy secondary storage devices.	2.35	1.247	Disagreed

Table 3 shows items 10 to 13; academic staff agreed on items 10 and 11 for using secondary storage devices to aid teaching with mean scores of 3.77 and 3.64. But disagreed in items 12 and 13 for assignments and remunerations.

Research Question: 4 what is the status of audio media resources for teaching among academic staff in public colleges of education in South-East, Nigeria?

Table 4: Opinion of respondents

S/N	SUBSTANTIVE ISSUES	$\overline{X}$	SD	REMARKS
14	Teachers use public address systems to aid teaching in the classroom.	3.91	1.004	Agreed
15	Public address system/microphone equipments are provided in classroom by management and utilized by teachers for teaching.	3.72	1.217	Agreed
16	Audio tape recorders are use by teachers in classroom to aid listening, speaking, comprehension and remembering.	2.05	1.065	Disagreed

Table 4 shows that academic staff agreed in items 14 and 15 with mean scores of 3.91 and 3.72 showing that public address systems are provided in classrooms and are utilized. But, in item 16 with means score of 2.06, they disagreed not using tape recorders in classroom.

Research Question 5: What is extent of competencies possessed by academic staff in utilizing projectors to project audio-visual materials onto classroom board in public colleges of education in South-East, Nigeria?

Table 5: Opinion of respondents

S/N	SUBSTANTIVE ISSUES	$\overline{X}$	SD	REMARKS
17	Projectors are utilized by teachers to project projectuals (maps, slides, charts, diagrams photographs, etc.) during teaching in classroom.	1.86	0.724	Disagreed
18	Projectors are installed in classroom but, not utilized by teachers during teaching.	2.09	1.150	Disagreed
19	College management installed projectors in Halls for Conferences, workshops, seminars but, not utilized for classroom teaching and learning process.	4.18	0.809	Agreed

Table 5 show that academic staff disagreed in item 17 and 18 with mean scores of 1.86 and 2.09, for not using projectors in classroom but, agreed in item 19 that college management only provide projectors for workshops, conferences etc, but not for classroom teaching and learning process.

Research Hypothesis: There is no significant difference between the mean scores of teachers in Federal and State Colleges of Education in South-East Zone during utilization of modern communication technology-assisted instructions in teaching and learning process.

Table 6: Difference between the mean scores of teachers in Federal and State Colleges of Education in South-East Zone

Variables	N	Mean	SD	t- cal.	t- crit.	df	Level of significance	Decision
Federal	85	54.13	10.313					No significant
Federal	85	54.38	109.428	0.021	1.96	168	0.05	

P < 0.05

Table 6 show that since the T-calculated value of 0.021 is less than T-critical of 1.96 with 168 degree of freedom at 0.05 level of significance. Therefore, null hypothesis is accepted and alternative rejected indicating, that there is no significant difference in the mean ratings of teachers in federal and state colleges of education in effective utilization of modern communication technology-assisted instructions in teaching and learning in public colleges of education South-East, Nigeria.

Discussion

Results reveal that academic staffs in public colleges of education are passionate about modern communication technologies necessary for contemporary teaching and learning process. Evidently, they agreed that they have access to laptop computers with basic computer training for personal use, academic research etc. But, the paradigm shift from personal academic research and enhancement to classroom practicum is lacking due to inadequate of these equipments in classroom where teaching and learning take place. Due to knowledge explosion and competition, there is need for transformation in curriculum. This will provides preparatory education and then a job to serve a nation, (Achebe, 2012).

Result also reveals that some modern communication technology-assisted instructions were utilized to a reasonable extent by academic staff to facilitate teaching and learning. For example, public address systems/microphone, secondary storage devices and Internets are utilized to aid teaching. Nworgu (2006) opines that with aid of Internet resource and Online-library, teachers can carry out research work, give student researchable assignments, search and review literature from time to time.

Result from the hypothesis suggests that there is no significant difference in mean scores of academic staff of federal and state colleges of education in South-East, Nigeria in educational technologies. The global impacts of these technological changes on higher education include transformation in quality instruction and output. (Babalola, 2010).

Conclusion

Based on the findings made, the following conclusions were drawn. That some of the modern communication technology-assisted instructions identified were utilized effectively in teaching among academic staff in public colleges of education with their basic computer training while some like projectors, and audio-visual resources. Thus,

inadequate provision of these educational technologies in classrooms affected the effective utilization of them, in teaching process.

Recommendations

Based on the findings, the following recommendations were made:

(1) Teachers should be given adequate remunerations and encouraged to undergo effective training in teaching with modern educational technologies.

(2) State Ministries of Education should support the authorities of these colleges through funding to upgrade, equip and maintain the needed educational technologies for teaching. Restructure the philosophy of teaching as education technologies are currently reshaping the world at an astounding speed.

References

Achebe, C. (2012) *There was a Country:* A personal history of Biafra. London: Penguin Group.

Babalola, J. B. (2010). *Economic of transforming higher education in Africa.* Trust Africa's Higher Education Experts and Policy Makers' Dialogue on Trends, Themes, Challenges and Opportunities for Higher Education, in Africa. Ibadan: His Lineage Publishing House.

Babalola, J. B. (2010) *In Search of Excellence in Teacher Education*: The University of Education Model. Ibadan: Awemark Publishers.

Babalola, J. B. (2011) World Bank Support for Nigerian Higher Education. *Pleasure, Pain and Pathway Towards a Knowledge Economy.* An Inaugural Lecture Delivered at the University of Ibadan, Ibadan University Press, Ibadan.

Bakpo, F. S (2002) *Introduction to Computer Science and Programming in QBASIC.* Nsukka: Divine Success Press.

Bakpo, F.S (2005). *Computer Use and Applications.* Enugu: Magnet Enterprises.

Edoka, B. E (2000) *Introduction to Library Science.* Onitsha: Palma Publisher.

Federal Republic of Nigeria (2004) *National Policy in Education* 4th ed. Lagos, NERDC Press.

Nwajinka, C. O (2004) *Information and Communication Technology in Nigeria (ICT)*: The Internet and Allied Perspectives; in Uwakwe O (ed), Media Technology Issues and Trends. Enugu: Afrika link Books.

Nworgu, B. G. (2006). *The indispensability of ICT in Educational Research*: A National Conference on Information and Communication Technology in the Service of Education' Organized by Institute of Education, U.N.N.

Osuala, E. C. (2001) *Commerce for Nigeria Schools and Colleges.* Onitsha: Cape Publishers Ltd.

Okafor, E. C. (2001). Starting with Computers. Enugu: Immaculate Publication Ltd.

Osuala, E. C (2004) *Principles and Methods of Business and Computer Education.* Enugu: Cheston Agency Ltd.

Raghavan, S.N. & Jain, B.N. (1995*). Computer Networks Architecture & Applications.* Great Britian: Champion & Hill Publication.