

EVALUATION OF FUNCTIONALITY, ADEQUACY AND ELECTRICAL LECTURERS PREPAREDNESS IN UTILIZATION OF MULTI-MEDIA MICRO-TEACHING LABORATORIES CONSTRUCTED BY TETFUND IN COLLEGES OF EDUCATION IN NORTHERN NIGERIA

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Abstract

Multi-Media Micro Teaching Laboratories in the Colleges of Education is used for training the JSS teachers in Nigeria. This study is to evaluate the functionality, adequacy and lecturers preparedness in utilization of the multi-media micro teaching laboratories constructed by TETFund in colleges of education in northern Nigeria and specifically determined the adequacy of the digital electronics and personnel, determine the preparedness of the lecturers, frequency of lecturer's utilization and functionality of micro teaching laboratories facilities for teaching and learning in the Colleges of Education in Northern Nigeria. The researchers used a descriptive survey design method for the study, the study was carried out in Northern. The total population of the study is 137 staff of the Colleges of Education comprising of 45 Micro Teaching Center Staff 92 micro teaching lecturers. The size of the sample population is 80 respondents derived from the proportionate stratified random sampling in the area of the study. The instruments used for data collection is a self-developed questionnaire tagged Microteaching Laboratory Assessment Instruments (MLAI) and checklist. The reliability index of 0.8 was obtained. The findings indicated that in each of the laboratories there are adequacy in terms of facilities, coordinators, lecturer and Messengers, and inadequacy in operators of the facilities, and other personnel. Lecturers were prepared by Advanced Digital Appreciation Program for Tertiary Institutions (ADAPTI), and the "Own a Laptop" scheme by Nigerian Communications Commission (NCC). It is also clear from the findings that the lecturers never used at all any of the micro teaching facilities except item Public Address system which is connected to the large population of students in the Colleges of Education. It was discovered most of the facilities are functional in all the centers in Northern Nigeria. The non-functional resources are servers and inverter batteries that require the attention of the colleges in terms of subscription and constant maintenance. And the study recommended that, since the laboratories are adequate in terms of facilities NCE should mandate all colleges to put their Multi-Media Micro Teaching Laboratories in use or sanctioned, operators of the lab must be employed and trained in the use of the Laboratories, micro teaching lecturers must be motivated to use the laboratories and finally technicians are to be employed to maintain all facilities in the Multi-Media Micro Teaching Laboratories

Keywords: Multi-Media, Micro Teaching Laboratories

INTRODUCTION

Micro-teaching has been developed since the early and mid 1960s by Dwight Allen and his colleagues at the Stanford Teacher Education Program (STEP). The Stanford model emphasizes an approach of teaching, reviewing and retrospection, and re-teaching, using actual school students as authentic audiences. The model has been adopted for teaching in Colleges and Universities where it has been used most often for graduate teaching assistants. Microteaching often offers a concentrated form of peer feedback and discussion. A micro-lesson is an opportunity to present a sample "Snapshot" of what/how students teach and to get some feedback from colleagues about how it has been received through

electronic media. Electronic media like video cameras and closed circuit cameras that can be used to facilitate effective feedback are vital aspect of micro teaching (Teg, 2007). It is a chance to try teaching strategies that student may not use regularly. The literature describes the use of microteaching as a beneficial and accepted element of pre-service teacher education.

The multi-media microteaching laboratories in Colleges of Education in Nigeria are to be equipped with modern multimedia digital facilities and Multimedia Monitoring System; there are projectors, video equipment, television and Multimedia classrooms which can record and playback the teaching processes. And there are also many other software and hardware instructional materials. Micro-teaching is one of the basic compulsory courses with the code (Educ. 213) taken by the students before they graduate from the Colleges of Education (NCCE, 2012).

A microteaching is a controllable practical system, the system can make teachers students focus on a specific teaching behavior or learn things under a condition with control. Microteaching is a way to train teaching skills in the Colleges comprehensively, systematically and scientifically based on teaching theories, teaching techniques and audio-visual theory and technology. Microteaching mainly contains content in two aspects, i.e., master-control room and microteaching classroom. The master-control room can control shots and camera shooting holders at any microteaching classroom effectively, monitor and supervise sounds and images at any microteaching classroom and rebroadcast practical situations of a certain microteaching classroom to other classrooms simultaneously. In the master-control room, the involved equipment mainly contains supervisory console, computer, monitor, main control computer, VCDs and DVDs. In a microteaching classroom, some teaching devices like camera and sub-control machine are mainly included. A microteaching classroom can control picture pick-up system in it effectively as well as record images and sounds in the room. With improvement in science and technology, microteaching also obtains corresponding development. As a result, a kind of digital microteaching system appears to have network system integrating digital live broadcast, Microteaching, Video on Demand (VOD), Multimedia Editing, Multimedia Storage as Well as Production of Video lessons. In the aspect of information records, this system generally takes hard-disk storage method or optical-disk recording. This method is so convenient that people can request broadcasting, view and emulate as well as evaluate teaching activities by optical disk or network whenever and wherever possible.

For Micro teaching in the colleges, a lecturer may want to repeat small portions, such as boring, a number of times, and this is fairly easy to do even without a counter, though the ideal starting point may not be reliable in analog technologies. Few if any audiotapes have copyright protection devices, so students as well as the lecturers copied tapes freely. Especially when preparing tests, it was often easier to put all the stimulus questions on one tape in the proper order than to key up several tapes ahead of time. The double-deck tape player and recorder was useful for copying and editing. In editing using analog technologies, the starting and stopping points were not always exact. Moreover, with analog technologies, copying from one tape to another a lecturer will lose about 10% of clarity with each successive recording (Becta, 2008). To sum up, it was easy to copy and edit on analog tape recorders, but the result will be rough and playback on different equipment could be problematic.

STATEMENT OF THE PROBLEM

It is worrisome that the attainment of the objectives of ICT in JSS seems to suffer some setbacks as the Multi-Media Micro Teaching Laboratories in the Colleges of Education that train the JSS teachers in Nigeria is underutilized, which means that NCE graduates may not acquire the necessary skills needed.

Colleges of Education have come under serious criticism in recent times. According to NCCE (2008), graduates of Colleges of Education in Nigeria are ill prepared for the task of teaching in JSS. Education experts as well as members of the public have expressed concern over the Colleges of Education in Nigeria for the actual teaching ability of their graduates in JSS (Jaiyeoba & Atanda, 2007).

This means the Colleges of Education are not doing enough to equip the teachers with modern digital skills despite huge amount of money spend by TETFund nationwide in the construction of multimedia micro teaching laboratories to compliment the efforts of the educational technology centers in the preparation of teachers using digital technologies. These may not be unconnected with lack of functionality, adequacy and lecturers preparedness in utilization of Multi-Media Micro Teaching Laboratories constructed by TETFund in colleges of education in northern Nigeria which prompted the researchers to embark on the evaluation of the micro teaching laboratories.

PURPOSE OF THE STUDY

The purpose of this study is to evaluate the functionality, adequacy and lecturers preparedness in utilization of multi-media micro teaching laboratories constructed by TETFund in colleges of education in northern Nigeria and specifically to determine the:

- Adequacy of the digital electronics hardware in micro teaching laboratories in Colleges of Education Northern Nigeria
- Adequacy of personnel in the micro teaching laboratories Colleges of Education Northern Nigeria
- Preparedness of the lecturers in the use of micro teaching laboratories facilities in Colleges of Education in Northern Nigeria
- Frequency of lecturer's utilization of micro teaching laboratories facilities for teaching and learning in the Colleges of Education in Northern Nigeria
- Functionality of micro teaching laboratories facilities for teaching and learning in the Colleges of Education in Northern Nigeria

RESEARCH QUESTIONS

To achieve the above stated specific purpose, the following research questions were used to guide the study:

- How adequate are the digital electronics hardware micro teaching laboratories in Colleges of Education Northern Nigeria?
- How adequate are personnel in the micro teaching laboratories Colleges of Education Northern Nigeria?
- What is the level of preparedness of the lecturers in the use of micro teaching laboratories facilities in Colleges of Education in Northern Nigeria?
- What is the frequency of lecturer's utilization of micro teaching laboratories facilities for teaching and learning in the Colleges of Education in Northern Nigeria?
- How Functional are micro teaching laboratories facilities for teaching and learning in the Colleges of Education in Northern Nigeria?

SIGNIFICANCE OF THE STUDY

National Commission for Colleges for Education (NCCE), Tertiary Education Trust Fund (TETFund) and the Sustainable Development Goals (SDGs) and the Colleges of Education will benefit from the study. The study exposes status of micro teaching laboratories' adequacy, functionality utilization and lecturers preparedness in the teaching in Colleges of Education in Northern Nigeria. Therefore if published it will be a useful source of information that may serve as support in decision-making for improvement and

amendment where appropriate. The recommendations if implemented will also help the government to supply relevant and up-to-date learning materials to the Colleges of Education in Northern Nigeria. Where the laboratories facilities are available but not utilized, the outcome of the study will suggest the Colleges of Education in Northern Nigeria to remove all the obstacles and make the facilities accessible for full utilization of the centers.

REVIEW

The framework of the study is based on social constructivism and connectivism by Brunner (1986) and advanced by Siemens in (2005). According to Brunner (1986), learning is an active social process in which students constructs new ideas or concepts based on current knowledge. He maintains that if learning will take place students must go beyond information given, having been equipped with the skills. The students create connections to the materials at hand thus making deeper assimilations to information and developing stronger urge to see where the information will lead them next.

Siemens argues that knowledge is networked and distributed and that the act of learning is in the creation and navigation of networks. The role of the teacher is to facilitate connections that the student may not create independently by themselves in learning.

RESEARCH DESIGN

The researchers used a descriptive survey design method for the study because, this method allow the researcher a vivid description of current situation of digital facilities an lecturer's preparedness in Colleges of Education in Northern Nigeria, and how lecturers are making use of digital facilities in the Micro Teaching laboratories.

AREA OF THE STUDY

The study was carried out in Northern Nigeria; with 3 geopolitical zones namely North-west, North-east and North-central. The land covers the Savannah region and lies within the geo-coordinates of latitude $6^{\circ} 27' N$ to $14^{\circ} N$ and longitude $2^{\circ} 44' E$. The land covers approximately area of 730, 00 KM square which is about 78% of the total land mass of Nigeria.

POPULATION OF THE STUDY

The total population of the study is 137 staff of the Colleges of Education comprising of 45 Micro Teaching Center Staff 92 micro teaching lecturers.

SAMPLE AND SAMPLING TECHNIQUES

The size of the sample population is 80 respondents derived from the proportionate stratified random sampling in the area of the study, which according to Mars, (2007) this technique divided the population of the study into strata (sub-population).

INSTRUMENTS FOR DATA COLLECTION

The instruments used for data collection is a self developed questionnaire tagged Microteaching Laboratory Assessment Instruments (MLAI) and checklist based on NCCE minimum standard for the Colleges of Education. These checklists was used to answer research questions 1and 2. A structured questionnaire was constructed to collect data on research 3, 4 and 5.

VALIDATION OF THE INSTRUMENT

To maximize the content validity of the instrument for the study and ensure objectivity, the instruments was faced validated to determine whether or not the items in the questionnaire represent the objectives

dictated, with the intent of ensuring that significant information is elicited (Gall, Gall & Borg, 2007). The checklists and the structured questionnaires were submitted to 3 experts from Modibbo Adama University of Technology (MAUTECH) Yola, and 2 experts from Abubakar Tafawa Balewa University (ATBU), Bauchi. The validates were provided with NCCE minimum standard for the Colleges of Education that has to do with micro teaching laboratories, and a request letter was writing to the validates.

RELIABILITY OF THE INSTRUMENT

The split-half method of testing reliability was used in single administration of the instrument to lecturers of FCE (T) Omoku Rivers State from this single administration, two sets of data was obtain by splitting the data into two equal halves using odd and even numbers. The two sets of scores from the two halves of the instrument was correlated using Spearman Rank Order Correlation coefficient. The resulting coefficient gave the reliability estimate r of 0.8.

PROCEDURE FOR DATA COLLECTION

The researchers used the National Commission for Colleges of Education (NCCE) minimum standard as checklist for adequacy of the Micro teaching laboratories in the Colleges of Education in Northern Nigeria. The data was collected by the researchers and their trained assistants and the checklist was used to in the sampled Micro teaching laboratories with the permission granted from their various authorities of the colleges.

METHODS OF DATA ANALYSIS

Data analysis was facilitated by statistical tool coded Statistical Package for Social Sciences (SPSS) in computing the Chi-square for research questions 1 and 2 while Mean and Standard Deviation was used for research questions 3 and 4, and percentage was used to answer the research question 5.

RESULTS AND DISCUSSION

Research Question 1 How adequate are digital electronics hardware in the micro teaching laboratories in Colleges of Education Northern Nigeria?

Adequacy of Digital Electronics Hardware each Micro Teaching Laboratories

S/N	Item	F O	FE	%	Remark
1	Computers	48	48	100%	Highly Adequate
2	Server	1	1	100%	Highly Adequate
3	Visualizers	2	2	100%	Highly Adequate
4	Digital Projectors	2	2	100%	Highly Adequate
5	Interactive Boards	2	2	100%	Highly Adequate
6	Public Address	2	2	100%	Highly Adequate
7	Projectors	2	2	100%	Highly Adequate
8	Televisions	0	0	0%	Highly Adequate
9	Inverter	1	1	100%	Highly Adequate
10	Computer Monitors	2	2	100%	Highly Adequate

The data in the Table above indicates that in each of the micro teaching laboratories in the colleges of education in the northern Nigeria, there is high adequacy of Computers, Visualizers, Digital Projectors, Interactive Boards, Servers, Public Address System, Inverters and Computer Monitors. This indicated that digital electronics hardware in micro teaching laboratories are adequate.

Research Question 2

How adequate are personnel in the micro teaching laboratories in Colleges of Education Northern Nigeria?

Adequacy of Personnel in Micro Teaching Laboratories

		No. Observed	No. Expected	Percentage Observed	Remark
11	Coordinator and Lecturer	12	12	100	Adequate
12	Micro Teaching Lecturers	25	2242	1.1	Not Adequate
13	Secretary	5	12	41.7	Not Adequate
14	Computer Operators	9	68	13.2	Not Adequate
15	Graphic Artists	1	39	2.6	Not Adequate
16	Projectionists	1	40	2.5	Not Adequate
17	Equipment Technicians	2	36	5.6	Not Adequate
18	Photographers	2	33	6.1	Not Adequate
19	Store officers	4	13	30.8	Not Adequate
20	Messengers	8	12	66.7	Adequate
22	Cleaners	8	32	25.0	Not Adequate
23	Clerks	4	12	33.3	Not Adequate

The data in the Table above indicates an adequacy in item 11 Coordinator and Lecturer and 20 Messengers, and inadequacy in item, 14 Computer Operator, item 15 Graphic Artist, item 16 Projectionist, item 17 Equipment Technicians, item 18 Photographers, item 19 Store Officer, item 22 Cleaners and item 23 Clerks. The results also indicated the personnel are grossly in inadequate compared to the requirements of the minimum standard of National Commission for Colleges for Education (NCCE).

RESEARCH QUESTION 3

What is the level of preparedness of lecturers in the use of micro teaching laboratories in Colleges of Education Northern Nigeria?

Lecturers Preparedness in the Use of Micro Teaching Laboratories

S/n	Item	Mean	SD	Decision
24	Attendance of Advanced Digital Appreciation Program for Tertiary Institutions prepared me for the use of digital technologies in microteaching lab.	3.6	0.9	Agree
				Agree
25	using i-clickers, videos and PowerPoint for teaching in micro teaching lab,	2.8	0.6	Agree
26	Using digital e-learning micro teaching for students and lecturers	2.6	0.6	Agree
27	prepared for using digital educational technologies	3.3	0.5	Agree
28	prepared to assist students in using the educational Hardware for in micro teaching	3.1	1.1	Agree
29	prepared to assist students use the e-Learning platform in micro teaching	2.8	0.4	Agree

30	Capacity building in electronic-based teaching & learning prepared me for the use of micro teaching	3.2	0.6	Agree
31	prepared in using micro teaching by my college	2.5	0.5	Agree
32	Ability to use micro teaching by you tube	3.2	0.6	Agree
33	learnt using the micro teaching out of personal interest	3.2	0.6	Agree
34	prepared to use micro teaching after formal training by TETFund	2.6	0.6	Agree
35	prepare my Lecture notes via printed handouts	2.7	0.5	Agree
36	prepared to use e-mails by working with other people/colleagues	2.3	0.5	Disagree
37	The in-house training organized by the Educational Technology Center prepared me for the use of ICTs	1.5	0.6	Disagree
38	The College organize on-the-job training for the use of digital technologies for teaching	2.1	0.9	Disagree
39	A large proportion of my notes are prepared in hand written copy only	2.4	0.5	Disagree
40	prepare my lectures to use Multi-sim software in teaching my students	2.1	0.8	Disagree

Grand Mean=2.3

The data in the Table above indicated that the respondent Agree with item 24-35, which the Advanced Digital Appreciation Program for Tertiary Institutions (ADAPTI) prepared them for the use of digital technologies. The respondents also agree that the “own a laptop” scheme by Nigerian Communications Commission (NCC) for lecturers prepared them for using digital educational technologies. This prepared the respondents to assist students in using the micro teaching Hardware for and use the e-Learning platform in. This also indicated that lecturers can perform basic functions and could use the computer independently. Also the lecturers agree that they were prepared in using the Internet out of their personal interest. Despite the training the respondents disagree with item 36-40 which indicated that they don’t prepare their Lecture notes of micro teaching course for the use of digital educational technologies in teaching, because there was no in-house training organized by the micro teaching center to prepare them for the use of digital technologies in teaching.

RESEARCH QUESTION 4

What is the frequency of lecturer’s utilization of micro teaching laboratory for micro teaching practicum in the Colleges of Education in Northern Nigeria?

Mean and Standard Deviation Frequency of Utilization of facilities in Micro Teaching Laboratories

S/N	Frequency of utilization of micro teaching facilities,	Mean	S D	Decision
41	Use of CCTV for micro teaching and drill work	1.9	0.5	Never Used
42	use of digital Video Camera with accessories to produce my own video clips for micro teaching	1.9	0.6	Never Used
43	Use of Digital Video Player/Recorder for micro teaching	1.9	0.6	Never Used

44	Use of Editing/Dubbing Machine for cropping video clips and animations of my micro teaching	1.9	0.6	Never Used
45	Public Address System with Accessories is used for micro teaching	2.6	0.6	Frequent
46	Use of visualizer with Accessories for micro teaching presentation and images and displays	1.8	0.6	Never Used
47	Use of interactive boards for micro teaching	2	0.7	Never Used
48	Use of Projectors for Multimedia Projection during micro teaching	2	0.7	Never Used
49	Use of Projectors in micro teaching	2	0.7	Never Used
50	Use of magnifiers during micro teaching for projecting tiny resources	2	0.7	Never Used
51	Use of Web pages and hyperlinks to gather relevant multi-media information for better concept clarity during micro teaching	2.1	0.7	Never Used
52	use of digital still Cameras with Accessories during micro teaching	2	0.8	Never Used
53	Use of tripod stand for Video and Photographic Cameras during micro teaching	2.1	0.8	Never Used
54	Use of digital printers	2.4	0.9	Never Used
55	Use of voltage stabilizer	2.2	0.9	Never Used
56	Use of Interactive Whiteboard in the micro teaching for drag and drop, flip pages	2	0.9	Never Used
57	Use of Computer Equipment to store large readymade learning packages during micro teaching	2	0.8	Never Used
58	guide students in accessing online contents during micro teaching	2	0.7	Never Used
59	use of web based software for micro teaching	1.9	0.6	Never Used
60	Use of Cable Satellite Facilities for recording educational program in life broadcast during micro teaching	1.9	0.6	Never Used

From the data it was discovered from the data, it is clear from the mean of 1.9 - 2.0 the lecturers never used at all any of the micro teaching facilities except item 45 which is connected to the large population of students in the Colleges of Education. The use of the micro teaching facilities in teaching was not common among the respondents this revealed that the micro teaching laboratories were not used by the lecturers.

RESEARCH QUESTION 5

How Functional are micro teaching laboratories facilities for teaching and learning in the Colleges of Education in Northern Nigeria?

Extent of Functionality of Digital Electronics Hardware in Micro Teaching Laboratories

S/N	ITEM	No.	No. Functional	No Not Functional	Remark
1	Computers	48	22	26	Fairly Functional
2	Server	1	0	1	Not Functional
3	Visualizers	2	2	0	Functional
4	Digital Projectors	2	2	0	Functional
5	Interactive Boards	2	2	0	Functional
6	Public Address	2	0	0	Functional
7	Televisions	0	0	0	Functional
8	Inverter	1	0	1	Not Functional
9	Computer Monitors	2	2	0	Functional

From the data in the Table above it was discovered most of the facilities are functional in all the centers in northern Nigeria, items 3 to 7 and 9 are functional while only item 2 and 8 are not functional. The nonfunctional resources are servers and inverter batteries items that require attention of the colleges in terms of subscription and constant maintenance.

FINDINGS AND DISCUSSIONS

1finding in research question 1 indicated that in each of the micro teaching laboratories in the colleges of education in the northern Nigeria, there is adequacy of Computers, Visualizers, Digital Projectors, Interactive Boards, Servers, Public Address System, Inverters and Computer Monitors. This finding agree and strengthen the findings of the research work conducted by Longe, (2013) who noted the condition of micro teaching laboratories in teacher education in Colleges of Education. The findings have revealed that government and private owners of various institutions does not adequately provide enough equipment for the practice of micro teaching except from the from the TETFund intervention.

2findings in of research question 2 indicated an adequacy in item Coordinator and Lecturer and Messengers, and inadequacy in Computer Operator, Graphic Artist, Projectionist, Equipment Technicians, Photographers, Store Officer, Cleaners and Clerks. This also indicated the personnel are grossly in inadequate compared to the requirements of the minimum standard of National Commission for Colleges for Education (NCCE). This finding agree and strengthen the also findings of the research work conducted by Longe, (2013) who revealed that government and private owners of various institutions does not adequately provide enough equipment and adequate professional staff to assist lecturers in using micro teaching facilities

3findings in research question 3 indicated that the respondent agree that the Advanced Digital Appreciation Program for Tertiary Institutions (ADAPTI), and the “Own a Laptop” scheme by Nigerian Communications Commission (NCC) prepared them for the use of digital technologies, and to assist students in using the micro teaching Hardware and use the e-Learning plat form. Also the lecturers agree that they were prepared in using the Internet out of their personal interest. They don’t prepare their Lecture notes of micro teaching course for the use of digital educational technologies in teaching, because there was no in-house training organized by the micro teaching center. This remain in line with the findings of Tella (2011) titled Availability and use of Digital Technologies in whose findings indicated that the lecturers of the Colleges of Education have not been prepared enough to take advantages of digital technologies on teaching, learning and research or some of the lecturers are

unwilling to be resourceful. Some of the lecturers are waiting for their college management to train them through capacity building.

4 findings in research question 4 it is clear that the lecturers never used at all any of the micro teaching facilities except item Public Address system which is connected to the large population of students in the Colleges of Education. The use of the micro teaching facilities in teaching was not common among the respondents this revealed that the micro teaching laboratories were not used by the lecturers. The goes in line with the findings of Oshinaike, & Adekunmisi, (2011) Titled Use of Multimedia for Teaching in Nigerian University System: A Case Study of University of Ibadan. The study seeks to specifically determine the frequency of use of multimedia by lecturers in these selected faculties for teaching and learning and investigate the adequacy of multimedia facilities for teaching and learning in these faculties. The findings indicated that majority of the respondents did not make use of the multimedia resources in practical teaching but rather in forming lecture notes for teaching their students, paper presentations, research and publication activities.

5 from the findings of research question 5 it was discovered most of the facilities are functional in all the centers in Northern Nigeria. The nonfunctional resources are servers and inverter batteries that require the attention of the colleges in terms of subscription and constant maintenance.

RECOMMENDATIONS

The following recommendations were made based of the findings of the study

1. NCCE should mandate all colleges to put their Multi-Media Micro Teaching Laboratories in use or sanctioned,
2. Operators and lecturers of the micro teaching laboratories must be employed and trained in the use of the Laboratories,
3. Micro teaching lecturers must be trained and motivated to use the resources of laboratories and
4. Lecturer must use the micro teaching laboratories in each micro teaching lessons
5. Finally technicians are to be employed to maintain non-functional facilities in the Multi-Media Micro Teaching Laboratories

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