



# Assessment of Availability and Adequacy of Facilities in the Centre for Educational Technology for Effective Training of Teachers in Colleges of Education in North-Eastern Nigeria

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**ABSTRACT:** This paper is designed to investigate the availability and adequacy facilities in the Centre for Educational Technology for effective training of Teachers in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria. For the execution of this assessment, two research questions and two hypotheses were raised. The study was conducted in colleges of education in the northeast geopolitical zone of Nigeria. Experts were used to test the instrument's face and content validity. The questionnaire was trial-tested in a pilot study at Adamawa State College of Education Hong, which is not part of the sampled colleges for the study. The reliability of the instrument will be determined through Cronbach Alpha reliability procedure and yielded a coefficient of 0.78. The instrument was administered to all sampled population in the sampled colleges in the study area by the researchers and their research Assistants. Simple percentage was used to analyze the respondent's bio-data while mean score method of data analysis was used to answer research questions. The finding of this assessment ascertained that while there are some resources available within educational technology centers for teacher training in North-Eastern Nigeria, both their availability and adequacy remain significantly challenged by various factors including funding constraints and infrastructural deficiencies. Addressing these issues through targeted investments and professional development initiatives is essential to raise the standard of teacher education in this region.

**KEYWORDS:** Availability, Adequacy, Centre of Educational Technology, Effective Training and Education Teachers.

## INTRODUCTION

Every society needs enough human and material resources to maintain culture, advance economic growth, reform political systems, and enhance social organization. Many people believe that education is a must for the development of skilled labor and the generation of wealth, a surefire way to succeed in life and serve others (Barakat & Buhari, 2019). In order to accomplish the established national goals, teachers must thus play a significant role in ensuring that the youth are suitably prepared for their roles in society. This is due to the fact that, as

curriculum implementers, teachers will ultimately be in charge of putting policies into practice and principles into practice in their interactions with students.

According to Ogunyinka, Okeke, and Adedoyin (2015), the amount and quality of available teaching manpower determine the achievement of educational objectives. After identifying the teacher as a major actor in the education delivery process, the Federal Government acknowledged that no educational system can outperform its teachers. It consequently launched vigorous programs to raise the status, welfare, and morale of teachers through improved pay scales, retraining, and professionalization of the teaching profession. It also promised to turn around the failing educational system by making sure that every problem is dealt with appropriately and properly in a reasonable amount of time. The government is fully dedicated to resolving all issues related to education (Mormah & Bassey, 2019).

The National Policy on Education has prescribed that the new minimum qualification required for teaching in primary school will be the Nigeria Certificate in Education (NCE). The NCE (a three-year programme) is also the qualification required for teaching in junior secondary schools and technical colleges. According to Wikimedia (2010), teacher training in education is the preparation of individuals to enable them to become professional teachers with special skills and abilities necessary to succeed in the teaching profession. This important training is usually provided by the Centers for Educational Technology of the designated institution which is a requirement of establishing a college of education.

Research has shown that the use of technology in the teaching and learning process is important. That is why Akinpelu (2006) stated that if the culture of media-based instruction is imbibed by the teachers, then learning will become fun. This is because media reduce a lot of inhibiting factors to learning more especially where teachers are friendly with media utilization. Hence, the NCCE made the establishment of the Centre for Educational Technology (CET) a compulsory requirement for the accreditation of any teacher training institution.

The Centre for Educational Technology in the College of Education houses two courses, namely: micro-teaching and educational technology. Micro-teaching exposes the student teachers to the basic pedagogical knowledge capable of providing the trainees with an appropriate level of competence needed in the classroom as a teacher. Micro-teaching, according to Abifarin (2004), is a laboratory technique designed to make ordinary teaching-learning processes less complicated. In the field of educational technology, learning resources are systematically identified, arranged, developed, and used, along with these processes being managed, in order to facilitate human learning (AECT, 1972). In other words, educational technology is all-encompassing in terms of design, development, utilization, selection, and improvisation of media for teaching and learning. Educational technology is an interdisciplinary course that provides solutions to teaching and learning problems in the classroom. The extent the CETs handle micro-teaching and educational technology courses to provide trainee teachers with these skills is dependent on the availability, adequacy, and effective utilization of these centers. In light of this, the purpose of this work is to look into the availability and adequacy of facilities in the Centre of Educational Technology for effective training of Teachers in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.

### **OBJECTIVE OF THE STUDY**

The main objective of the study is to investigate the availability adequacy, and utilization of the Centre of Educational Technology for effective training of Teachers in Colleges of

Education in the North-Eastern Geopolitical Zone of Nigeria. Specifically, the study is designed to:

1. Determine the availability of facilities in the Centre for Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.
2. Determine the Adequacy of facilities in the Centre of Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.

### *Research Questions*

The following research questions were raised to guide the conduct of the study.

1. What is the level of availability of facilities in the Centre of Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria?
2. What is the level of Adequacy of facilities in the Centre of Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria?

### *Research Hypotheses*

The following research hypotheses will be tested at a 0.05 level of significance.

HO1: There is no significant difference in the mean responses of Lecturers, center coordinators, and students on the availability of facilities in the Centre of Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.

HO2: There is no significant difference in the mean responses of Lecturers, center coordinators, and students on Adequacy of facilities in the Centre of Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria?

## **LITERATURE REVIEW**

According to Agun in Okwo and Eze (2013), the following names are attributed to Centers for Educational Technology: Resource Centre, Teachers' Centers, Education Centers, Curriculum and In-service Training Centers, Educational Technology Centers, Modern Aids to Educational Centers, Curriculum Development Centre.

In Nigeria, the NCCE made the establishment of Centre for Educational Technology (CET) a compulsory requirement for the accreditation of any teacher training institution. The Centre for Educational Technology produces, improvises and houses instructional facilities to facilitate effective training of teachers. The facility requirements for the establishment of CETs in the colleges according to the NCCE (2020) are: " the provision of office accommodation, micro teaching laboratory and studios, closed circuit television, projectors and their accessories, computers and their accessories, video and photographic cameras, photographic laboratory, duplicating machines, projection screens, public address systems, display boards, storage devices for non-projected instructional materials, viewing centre and CET workshop among others (Pp. 4 & 5)." Centers for Educational Technology are workshops where skills, competencies, and knowledge about designing and producing instructional materials are acquired. It is a skill acquisition center. When evaluating the availability of resources in

educational technology centers, it is critical to examine a variety of resources, including physical infrastructure (classrooms, labs), technological instruments (computers, projectors), and instructional materials. Research findings like that of Adebayo *et al.* (2021) indicates that many educational institutions lack modern classrooms equipped with necessary technological tools. Furthermore, the availability of computers and internet access is often limited; many centers do not have enough functional computers to support teacher training programs effectively.

According to Adamu *et al.* (2021), only around 40% of institutions in this region have effective educational technology facilities that include computers, projectors, and internet connection. This scarcity inhibits teacher trainees' ability to interact with current instructional techniques that rely largely on technology. Even when educational technology centers exist, the available resources are frequently insufficient. According to the same study, many centers lack up-to-date equipment or adequate supplies to successfully serve all kids.

### **RESEARCH METHODOLOGY**

The study will be conducted in the northeast geopolitical zone of Nigeria comprising of six states namely: Gombe, Bauchi, Yobe, Adamawa, Taraba and Borno States. The study will adopt and make use of survey research design. The adoption of survey research design is because survey research design provides researchers with reliable, usable, primary data to inform business decisions (Elisha *et al.*, 2023).

The population of this study is 7,510 respondents. This comprised of 22 Supportive staff in the Centre for Educational Technology and 1,512 lecturers in three Federal Colleges of Education in North-Eastern Nigeria and 5,976 NCE II students in the three sampled federal colleges of Education in North-Eastern Nigeria. The sample size for this study is 375 respondents. This sample size comprises of 3 CET staff, 75 lecturers, and 297 NCE II students in the three sampled Federal Colleges of Education in North Eastern Nigeria. The sample represents 5% of the entire population as recommended by Gall, Gall and Borg (2007). Gall *et al.* stated that if the population of a study is between 5000 and 10,000, 5% should be used. Based on the above assessment, since the population of study is 7510, 5% of 7510 is 375 respondents. Hence, proportionate sampling technique will be adopted to select the sample.

The instrument that will be used for data collection in the study will be a questionnaire to be designed by the researchers and tagged “availability and adequacy facilities in the Centre of Educational Technology for effective training of Teachers opinion questionnaire”. The questionnaire contains 20 closed ended items constructed using the modified 4-point Likert scale. The instrument to be used for the study was given to three experts to determine its validity. The instrument was subjected to face and content validity. The questionnaire was trial-tested in a pilot study at Adamawa State College of Education Hong, which is not part of the sampled colleges for the study. The reliability of the instrument will be determined through Cronbach Alpha reliability procedure. The instrument was administered to all sampled population in the sampled colleges in the study area by the researchers and their research assistants. The mean score method of data analysis was used to answer research questions.

### **RESULTS AND DISCUSSIONS**

The population of the study is 7,510 respondents. This comprised of 22 staff in the Centre for Educational Technology and 1,512 lecturers in three Federal Colleges of Education in North-Eastern Nigeria and 5,976 NCE II students in the three sampled federal colleges of Education

in North-Eastern Nigeria. The sample size for this study is 376 respondents. This sample size comprises of 3 staff in CETs and 333 lecturers in the Federal Colleges of Education in North Eastern Nigeria. The sample represents 5% of the population of the entire population as recommended by Gall, Gall and Borg (2007). Gall *et al.* stated that if the population of a study is between 5000 and 10,000, 5% should be used. Based on the above, since the population of study is 7510. 5% of the population was used as sample of the study. 5% of 7510 is 375.5 (376 respondents). Hence, proportionate sampling technique will be adopted to select the sample. The instrument used for data collection in the study a 20-item questionnaire to be designed by the researchers and tagged “availability and adequacy of facilities in the Centre of Educational Technology for effective training of Teachers opinion questionnaire” constructed using the modified 4-point Likert scale.

**Table 1: Questionnaire Return Rate**

Questionnaire	Frequency	Percentage
<b>Total Questionnaire Distributed</b>	375	100
<b>Returned and well filled</b>	362	96.5
<b>Not Returned or not well Filled</b>	13	3.5

[Source: Calculated Simple Percentage]

From the analysis in Table 1, it is clear that even though 375 questionnaires were distributed to the sampled population for the study in the three sampled Federal Colleges of Education in North East Geo-Political Zone, it is obvious that only 362 questionnaire (96.5 percent) were returned and well filled while 16 questionnaire (3.5 Percent) were either not returned or not well filled.

**Table 2: Distribution of Respondents by Sex**

SEX	Frequency	Percentage
<b>Male</b>	117	32.2
<b>Female</b>	245	67.7
<b>Total</b>	362	100

[Source: Calculated Simple Percentage]

**Table 3: Distribution of Respondents by Qualification**

Qualification	Frequency	Percentage
<b>1<sup>st</sup> Degree</b>	32	8.8
<b>2<sup>nd</sup> Degree</b>	25	6.9
<b>3<sup>rd</sup> Degree</b>	14	3.9
<b>Others</b>	291	80.4
<b>Total</b>	362	100

[Source: Calculated Simple Percentage]

From the analysis in Table 2, it is clear that; 117 respondents (32.2 percent) are male respondents while 245 respondent (67.7 percent) are female respondent. The analysis in Table 3 shows that there are four categories of respondents by qualification these are: 1<sup>st</sup> degree

holders 32 respondents (8.8 percent), 2<sup>nd</sup> degree holders 25 respondents (6.9 percent), 3<sup>rd</sup> degree holders 14 respondents (3.9 percent) and holders of other certificates 291 (80.4 percent).

**Table 4: Distribution of Respondents by Department/Unit**

Dept. / Unit	Frequency	Percentage
Academic	71	19.5
Non-academic	03	0.82
Student	288	79.5
Total	362	100

[Source: Calculated Simple Percentage]

The analysis in Table 4 shows that: in the respondents for the study, there are 71 Academic staff (19.5 percent), 3 nonacademic staff working in the CET centers (0.81 percent), and 288 students (79.5 percent).

#### *Answering the Research Questions*

*Research Question One:* What is the level of availability of facilities in the Centre of Educational Technology facilities for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria?

Descriptive statistics of mean and standard deviation was used to analyse the responses on the level of availability of facilities in the Centre of Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria. The summary is presented in Table 5.

**Table 5: Level of Availability of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria.**

Sl.	Items	Mean	Standard Deviation	Decision
1	Computer systems	3.15	1.62	Available
2	Game boards	2.34	1.35	Rarely Available
3	Interactive whiteboard	2.43	1.38	Rarely Available
4	Magnetic whiteboard	2.25	1.27	Rarely Available
5	Multi-purpose projectors	3.02	1.54	Available
6	Radio	2.54	1.47	Available
7	Normal White-board	4.12	1.98	Highly Available
8	Still pictures	2.53	1.46	Available
9	Tape recorders	2.51	1.42	Available
10	Television	2.34	1.33	Rarely Available
11	Video cameras	2.32	1.32	Rarely Available
12	Studios	3.11	1.60	Available
13	Micro-teaching laboratory	3.07	1.57	Available
14	Resource Rooms	3.09	1.54	Available
	Total	2.77	1.48	Available

[Source: Calculated Mean and Standard Deviation]

From the analysis in Table 5 it is clear that with a calculated mean range of 2.25 and 4.12, the resources 1-14 are either rarely available or highly available. On the average the availability of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria receive an available rating from the respondents as indicated with an average mean score of 2.77.

*Research Question Two:* What is the level of adequacy of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria?

Descriptive statistics of mean and standard deviation was used to analyse the responses on the level of Adequacy of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria. The summary is presented in Table 6:

**Table 6: Level of adequacy of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria.**

Sl.	Items	Mean	S.D.	Decision
1	Computer systems	2.37	1.36	Rarely Adequate
2	Game boards	2.44	1.39	Rarely Adequate
3	Interactive whiteboard	2.27	1.28	Rarely Adequate
4	Magnetic whiteboard	3.14	1.55	Fairly Adequate
5	Multi-purpose projectors	2.58	1.48	Rarely Adequate
6	Radio	2.59	1.47	Rarely Adequate
7	Normal White-board	4.09	1.83	Adequate
8	Still pictures	2.53	1.43	Rarely Adequate
9	Tape recorders	2.34	1.34	Rarely Adequate
10	Television	2.36	1.35	Rarely Adequate
11	Video cameras	3.19	1.63	Fairly Adequate
12	Studios	3.15	1.59	Fairly Adequate
13	Micro-teaching laboratory	3.08	1.57	Fairly Adequate
14	Resource Rooms	2.80	1.49	Fairly Adequate
Total		3.12	1.64	Fairly Adequate

[Source: Calculated Mean and Standard Deviation (S.D.)]

From the analysis in Table 5 it is clear that with a calculated mean range of 2.27 and 4.09, the resources 1-14 are either rarely adequate or adequate. On the average the level of adequacy of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria receive a fairly adequate rating from the respondents as indicated with an average mean score of 3.12.

#### *Testing the Hypotheses*

HO1: There is no significant difference in the responses of Lecturers, center coordinators, and students on the, and students on the availability of facilities in the Centre of Educational Technology facilities for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.

From the summary of chi square analysis in Table 7 it is clear that with a calculated chi square of 9.763, and a table value of chi-square of 12.592 at 0.05 level of significance and a degree of freedom of 6 and using a two tail test the calculated chi square will fall within the acceptance region because the calculated chi-square is less than the bl value of chi-square. This means the null hypotheses one is accepted. The implication of this is that: There is no significant difference in the responses of Lecturers, center coordinators, and students on the, availability of facilities in the Centre of Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.

**Table 7: Chi-square summary for testing Hypotheses One**

Calculated Chi-square	Level of significance	Degree of freedom	Table value of chi-square	Decision
9.763	0.05	6	12.592	Accepted

*[Source: Calculated Chi Square]*

HO2: There is no significant difference in the responses of Lecturers, center coordinators, and students on the Adequacy of facilities in the Centre for Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.

**Table 8: Chi-square summary for testing Hypotheses Two**

Calculated Chi-square	Level of significance	Degree of freedom	Table value of chi-square	Decision
7.001	0.05	6	12.592	Accepted

*[Source: Calculated Chi Square]*

From the summary of chi square analysis in Table 8 it is clear that with a calculated chi square of 7.001, and a table value of chi-square of 12.592 at 0.05 level of significance and a degree of freedom of 6 and using a two tail test the calculated chi square will fall within the acceptance region because the calculated chi-square is less than the table value of chi-square. This means the null hypotheses two is accepted. The implication of this is that: There is no significant difference in the responses of Lecturers, center coordinators, and students on the Adequacy of facilities in the Centre for Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.

#### *Findings of the Study*

1. The respondents rated the level of the availability of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria as available with an average mean score of 2.77.
2. The respondents rated the level of adequacy of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria as fairly adequate with an average mean score of 3.12.
3. There is no significant difference in the responses of Lecturers, center coordinators, and students on the availability of facilities Centre of Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.
4. There is no significant difference in the responses of Lecturers, center coordinators, and students on the Adequacy of the facilities Centre of Educational Technology for



effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria.

### **DISCUSSION ON THE FINDINGS**

The study assesses the availability and adequacy of resources in the center for Educational Technology for effective Teacher training in Colleges of Education in the North-Eastern Geopolitical Zone of Nigeria. The findings of the study revealed that the level of the availability of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria is available. This finding agreed with the provisions of NCCE (2020) and the findings of Okwo and Eze (2013). The findings of the study revealed that the level of the adequacy of facilities in the Centre for Educational Technology for effective Training of Teachers in Colleges of Education in North-East Nigeria is fairly adequate. This finding is not in line with the provision of NCCE (2020). The findings also agreed with the findings of Mormah and Bassey (2019) and Adamu et al. (2021) who find out that even where educational technology centers exist, the adequacy of resources is often insufficient.

### **CONCLUSION**

While there are some facilities available within educational technology centers for effective teacher training in North-Eastern Nigeria, both their availability and adequacy remain significantly challenged by various factors including funding constraints and infrastructural deficiencies. Addressing these issues through targeted investments and professional development initiatives is essential for improving the quality of teacher education in this region.

To enhance the availability and adequacy of resources in educational technology centers for teacher training in North-Eastern Nigeria, several recommendations can be made:

1. Government and private stakeholders should invest in building new facilities and upgrading existing ones.
2. Ensuring that each center is equipped with adequate technological resources is crucial.
3. Continuous professional development for educators on how to effectively use technology in teaching should be prioritized.

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