

# **APPRAISAL OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) FACILITIES IN MANAGEMENT OF COLLEGES OF EDUCATION (COEs) IN NIGERIA**

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## **ABSTRACT**

The study appraised information and communication technology ICT facilities in management of colleges of education in the north central zone Nigeria. It employed descriptive survey design. Two research questions and two hypotheses guided the study. The population of the study comprised eleven colleges of education and six hundred and thirty (630) subjects. All the federal and states colleges of education in the study area were used for this study. Proportionate stratified random sampling technique was used to draw three hundred and thirty (330) respondents for this study. Questionnaire titled Appraisal of Information and Communication Technology Facilities (AICTFQ), observation and unstructured oral interview were used as instruments for data collection. Mean was used to answer the two research questions, while T- test correlation coefficient and standard deviation were used to test the two null hypotheses at 0.05 level of significance. Some of the major findings of the study include: on availability of ICT facilities, out of the 31 items in the questionnaire, no ICT item was found to be always available. Nine (9) items out of 31 tested fell within the sometimes available range and the remaining 22 items fell under rarely and never available range respectively. On the adequacy of ICT facilities in the management of COEs in the study area, no ICT item was found to be in very adequate range. Seven (7) items out of the 31 fell within adequate range while the remaining twenty-four (24) fell within not adequate and very inadequate. Finally, it was discovered from the outcome of the study that federal COEs have higher levels of availability and adequacy of ICT facilities than the state COEs in the study area. Some of the recommendations of the study include: adequate computers, internet centre and cyber café should be made available by the federal and state governments

to each college department in order to provide accessibility for the use of ICT facilities in college management, teaching, learning, and research purposes. State government should try as much as possible to give more support for adequate acquisition of ICT facilities like their federal counterparts so as to enhance effective and productive management of state COEs

**Key Words:** Communication, Management, College of Education, ICT, ICT Facilities, Computer and Internet.

## **Introduction**

Management is an integral part of any organisation. The survival of any organisation is dependent largely on the quality of management or administrative services involved. Adesina (1990) simply defines management as the organization and mobilization of all human and material resources in a particular system for the achievement of identified objectives in the system. Educational management therefore is the process of arranging logically and using human and material resources and performances available for education, for transmission of skills, knowledge, vocation and culture through efficient teaching, learning, research, its utilization and dissemination for a better society, (Eneasator and Nduka,1998)

Management of college of education is a process involving certain functions and work activities that college managers perform to achieve the goals of the college. For instance, lucey (1997:91) observes that management has to make decisions about:

- Work of the college- what it should be, how it should be divided and organized and how the task should be coordinated.
- People in the organization, who they should be, how they should be treated and motivated, how they would be managed and led, and who does what.
- Structure of the college, what would be the group/department and their relationship; how authority and responsibilities will be arranged as well as where decision will be taken.
- System of the organization, what type of information/ communication will be used.

College management requires information that is easily assessable, accurate, timely, relevant, veritable, complete and clear on what to base the management decisions and the effective and efficient use of ICT can enhance these decisions. Colleges of education in Nigeria come broadly under the following management bodies:

- Federal government (for federal colleges of education) through the federal ministry of education
- State government (for state colleges of education) through the state ministry of education.

- Private colleges, (private colleges of education) private owned colleges of education are not included in this study.

College of education provost plans, organizes, directs and controls the allocation of human, material, financial and information resources in pursuit of the goals and objectives of the college. The volume of the records to be kept and retrieved makes the use of ICT an obvious application to opt for. The complexity of the college process and the college of education management in particular have made the computerization of some aspects of college management such as record keeping a necessity. Iperen (2006), observes that the college provost's role has become increasingly complex; college managers (provosts) are expected to play a large role in instructional leadership and be supportive and transformational in their leadership with students, staff and parents.

The management of colleges of education should be able to gather data from several sources through the use of ICT, analyse them, select them and organize them in such manner to allow the management make decisions based on the organized data. Ndukwe (2003), points that the ability to use the ICT to easily access and share the information and stimulate creation of new ideas enhances good management.

The term information and communication technology (ICT) embodies the convergence of micro electronics, telecommunications and computers. According to Pattenson (1999), information and communication technology has been made possible through the phenomenon called technological convergence. Ayodele (2002) defines ICT as electronic-based technology generally used to collate, store, process and package information as well as provide access to knowledge.

Information improves knowledge and helps in reducing uncertainty and the unknown. This is relevant in planning and decision making which is very crucial to the college of education management. Iperen observes that some ICT facilitates that could be used in the management of college of education include: college information system, desktop computer, laptop computer, departmental computer library, computer networking, scanning machine, printing machines, photocopy machine, internet, satellite disc for global information, departmental e-mail service, internet phone, college cyber café, college world wide web (www), college virtual library, digital satellite television (DSTV), fax-mail machine, public address system, audio tape player, digital camera, electronic classroom, examination scoring machine, counting machine and so on. According to Iperen, the use of ICT facilities in the performance of colleges of education management functions enhances efficiency and productivity in the achievement of college goals and objectives.

The need to appraise ICT facilities in the management of colleges of education in the north central zone, Nigeria, after 5 years of its integration is very necessary. It makes a lot of sense that when a programme /product has lasted for some time, common sense demands that such programme or product could be appraised to assess its

effectiveness and work. Dewey (1939), states that the value of an object or programme depends upon how well it satisfies some needs. This implies that ICT facilities that fail to meet up the intended consequence should be considered valueless and hence discarded.

This paper made use of minimum standard for all NCE teachers provided by the National Commission for Colleges of Education (NCCE) to colleges of education in Nigeria, as a benchmark guiding the acquisition and utilization of ICT facilities in the colleges. However, these ICT facilities are not comprehensively documented, for they are scattered across various department but, the researcher tried to pull them together in order to develop the instrument for this paper, (National Commission for Colleges of Education, 2002).

Gbenga(2006) observes that the extent of the effectiveness of ICT in the management of schools would depend on how available and adequate the ICT facilities provided to the school personnel will be. According to him, the availability and adequacy of ICT facilities are therefore important factors to consider if there must be any meaningful benefit in the use of ICT facilities in the management of COEs in the study area. It is based on this that the study is carried out to appraise ICT facilities in the management of COEs in the north central zone, Nigeria. Although this study appraised the extent of availability and adequacy of ICT facilities in management of COEs in the study area, the research hypotheses compared the level of difference that exist on availability and adequacy of ICT facilities in federal and state COEs in the area.

## **THE PROBLEM OF THE STUDY**

Although it has been observed by some people that ICT has had more impact on administrative services such as admissions, registration, fee payment than on the fundamentals of classroom teaching and learning, there is much to be desired from the use of ICT in the management of COEs in the study area. ICT has been integrated into the management of schools especially COEs in Nigeria for some time now. Despite its integration in the management of COEs, the performance of college management has not very much improved as compared to what it was before the integration of ICT. For instance, students' results are not promptly processed and released. There is no proper dissemination of information to the public on admission matters as a result of lack of information sources.

Decision making is difficult as records are not always available. Some vital issues such as students' unrest, cultism on campus, information about some important happenings such as opening and closing of schools are not always available. The college communities are sometimes starved of information that can improve and enhance teaching and learning. Why has this situation been like this in management of COEs? This could be attributable to the observation by some concerned individuals that ICT cannot make any meaningful improvement on anything if ICT facilities are not available and adequate.

It is based on this observation that the researchers are challenged to appraise what ICT facilities are available and adequate in the management of both federal and state COEs in the study area. Thus, the problem of this study is to appraise to what extent ICT facilities are available and adequate in the management of these institutions.

### **PURPOSE OF THE STUDY**

The general purpose of this study was to appraise information and communication technology (ICT) facilities in the management of the colleges of education in the north central zone, Nigeria. Specifically, the study:

1. determined the extent of availability of ICT facilities in the federal and state COEs.
2. determined the extent of the adequacy of ICT facilities in the federal and state COEs.

### **RESEARCH QUESTIONS**

1. To what extent are ICT facilities available for management of both federal and state COEs in north central zone, Nigeria?
2. How adequate are the available ICT facilities in the management of federal and state COEs in the study area?

### **HYPOTHESES**

The hypotheses of this study were stated at 0.05 level of significance

1. There is no significant difference between the mean ratings of administrators of state and federal colleges of education as regards availabilities of ICT facilities.
2. There is no significant difference between the mean ratings of administrators of state and federal colleges of education with regard to adequacy of ICT facilities in them.

### **RESEARCH METHOD**

Eleven colleges of education both federal and the state in north central zone were selected for the study. Three hundred and thirty (330) college administrators participated in responding to the questionnaire. They cut across all the departments within the institutions. Proportionate stratified random sampling was used to draw 330 respondents from the colleges of education (both federal and state).

### **THE INSTRUMENT**

The instruments for the data collection were questionnaire titled questionnaire on appraisal of information and communication technology facilities (AEICTF) and unstructured oral interview which was administrated on top management staff as: provosts, bursars, chief librarian, Deans' academic and non-academic heads of

departments. The instrument used for this study is a 31 item questionnaire designed by the researchers. The instrument has three sections: Section A requires information about the administrators and the college, section B requires information on availability of ICT facilities in the college and section C is designed to appraise the level of adequacy of the available ICT facilities.

31 item questions of four-point scale were used with different response for availability and adequacy. Section B on availability was rated thus: 4 referred to Always availability (AV), 3 sometimes available (SA) 2 rarely available (RA) 1 never available (NA). Sections C on adequacy, the rating scale on the response are as follow: 4 very adequate VA, 3 adequate (A), 2 not adequate (NA) 1 very inadequate (VI).

The questionnaire was given to ICT experts, two educational administrators, a measurement and evaluation specialist to critically look at the face and content validity. Alpha reliability scores for the instrument were availability=.853 and adequacy=.856. The reliability coefficient for the entire instrument used .854, indicating that there is high consistency in the item measured.

### **RESEARCH PROCEDURE:**

The researchers visited the institutions and some college administrators were chosen as research assistants. The questionnaire was administered at the first visit to the administrators across all the departments. At the second visit, the copies of questionnaire were collected from the research assistants. 30 copies of questionnaire mortality were discovered out of 330 questionnaire prepared for the research. Hence 300 copies of questionnaire were used for this study. After responses were collated, they were sorted into groups according to the research questions mentioned earlier. A questionnaire was not considered for analysis if it was not well completed (omission of items). Descriptive statistics of mean, standard deviation and t-test were used to analyse the data collected. The two research questions posed were answered using descriptive statistic, mean to determine the extent of ICT facilities available and adequate. The hypotheses formulated for the study were tested at 0.05 level of significance using the independent t-test and the standard deviation.

### **RESULTS AND DISCUSSION**

Even though 31 items were valid and reliable, nine of the items were completely not available and not reflected in the tables. Accordingly, only 22 items were reflected in the tables.

**Research Question One:** What is the extent of availability of ICT facilities in colleges of education in the North Central Zone Nigeria.



**Table 1: Responses on the Availability of ICT Facilities in COEs in the North Central Zone, Nigeria.**

ICT Facilities	Mean response	Decision
1. College information system	2.82	SA
2. Desktop computer	2.95	SA
3. Laptop computer	1.99	RA
4. Departmental computer library	2.21	RA
5. Scanning machine	3.12	SA
6. Printing machine	3.40	SA
7. Photocopy machine	2.86	SA
8. Internet	3.34	SA
9. satellite disc for global information	2.17	RA
10. departmental e-mail services	2.25	RA
11. internet phone	1.94	RA
12. college cyber cafe	3.00	SA
13. college world wide web (www)	2.04	RA
14. college virtual library	2.11	RA
15. digital satellite television (DSTV)	2.29	RA
16. close circuit television (CCTV)	2.10	RA
17. audio tape player	3.07	SA
18. digital camera	2.15	RA
19. external telephone lines	2.11	RA
20. counting machine	1.50	RA
21. multimedia classroom	1.83	RA
22. Radio set	2.57	SA
Grand mean	2.12	RA

Source: field survey 2010 Key: AV- Always available; SA- sometimes Available; RA- rarely Available; NA- Never Available

The result of table 1 indicates that no item mean falls within the always available range. However there are nine (9) items in the sometimes available range while 13 items fall under rarely available and nine items in the never available range respectively. The overall mean of 2.12 indicates that the mean availability of all items is simply rarely available. This shows that most of the respondents agree with the items statement that ICT facilities are rarely available in the management of colleges of education in the north central zone Nigeria.

Research Question Two: what is the level of adequacy of ICT facilities in colleges of education in the north central zone Nigeria?

**Table II: Responses on the adequacy of ICT facilities in COEs in the north central zone Nigeria.**

ICT Facilities	Mean Response	Decision
1. Desktop computer	3.23	A
2. Printing machine	3.39	A
3. Photocopy machine	3.02	A
4. Internet	2.53	A
5. College world wide web (www)	3.01	A
6. Audio tape player	2.98	A
7. radio set	2.58	A

Source: field survey 2010

Key: VA- very adequate; A- adequate; NA- Not adequate; VI- Very adequate

Result of table two indicates that only 7 items fall within the adequate range. The overall mean shows that entire response in the colleges of education in north central Nigeria is not adequate. This shows that most of the respondents agreed that ICT facilities are not adequate for management of COEs in the study area.

**Hypothesis One:** there is no significant difference between the mean ratings of administrators of state and federal colleges of education with regard to availability of ICT facilities in them.

**Table IV: t-test of mean scores of federal and State COEs as regards availability of ICT facilities.**

Type of Institution	N	Mean	Standard deviation	DF	$t_{cal}$	$t_{critical}$	Lev	Decision
Federal COEs	128	2.29	0.66	298	3.94	1.96	P>.05	Significant
State COEs	172	1.97	0.71					

DF = 298,  $p > .05$

The result revealed that the state COEs scored a mean of 1.97 while federal COEs out scored 2.29, showing that difference exist the way ICT facilities are available in federal and state COEs. The SD of 0.71 recorded for the state COEs shows wider range of availability compared to 0.66 for the federal COES had



lower score of 0.65 with an observed  $t=3.94$  at 298 degree of freedom. As this was significant at  $p<.05$ , the null hypothesis is therefore rejected hence we conclude there is a significant difference between the mean ratings of administrators of state and federal COEs as regards availability of ICT facilities.

**Hypothesis two** ; there is no significant difference between the mean ratings of administrators of state and federal colleges of education as regards the adequacy of ICT facilities in these colleges.

Table v: t-test of significant difference between two mean scores of federal and state COEs as regards adequacy of ICT facilities in them.

Type of Institution	N	Mean	Standard deviation	DF	$t_{cal}$	$t_{critical}$	Lev	Decision
Federal COEs	128	2.33	0.60	298	5.04	1.96	$P>0.5$	significant
State COEs	172	1.94	0.70					

DF=298,  $P>.05$

The result revealed that the state COEs scored a mean of 1.94 while federal COEs out scored 2.33, this shows that difference exist the way ICT facilities are adequate in federal and state COEs. The SD recorded for the state COEs is 0.70 showing a wider range of level of agreement with the items whereas the federal COEs had SD of 0.60. the calculated  $t=5.04$  is greater than critical value of 1.96 at degree of freedom of 298 and 0.05 level of significance under two tailed test, hence the null hypothesis is reject in favour of the alternative that there is a significant difference between the mean ratings of administrators of state and federal COEs as regards adequacy of ICT facilities.

## DICUSSION AND CONCLUTION

### AVAILABILITY OF ICT FACILITIES

The world is fast becoming a global village, as a result of development in information and communication technology (ICT). The challenge of integrating ICT in tertiary institutions is a very big task. It is obvious that there is poor or little acquisition and use of ICT facilities at this level of our educational system. Most institutions, especially, COEs do not have the necessary ICT facilities for management functions, instructions and research.

Result on the availability of ICT facilities in the management of COEs in the study area shows that no item mean falls within always available range. Though nine (9) items which include desktop computers, scanning machine, photocopying machine, printing machine, internet, college cyber café, audio tape player and audio set are said to be sometimes available, the rest twenty two (22) items are in the rarely and never

available range. The overall means of 2.12 indicates that the mean availability of all items is simply rarely available.

The implication of the above finding could be expressed in regard to poor funding of ICT department by federal and state governments respectively. The position of this finding is supported by the findings of Agbo (2009) that there are problems which confront acquisition and use of ICT facilities in school. For instance, high cost of ICT facilities in the face of inadequate funding for education makes it almost impossible for college managers to procure these facilities. According to him, if the facilities are available their maintenance which includes purchase of spare parts, services, accessories etc. requires a lot of money.

Moreover, from the oral interview conducted on the key administrators, it was gathered that there is no money voted by the state and federal governments for the purchase of ICT facilities. The college administrators interviewed observed that even the minimum standard given to them by NCCE is mere policy statement as there is no financial backing from the government to make it a reality. They only manage to use the college maintenance funds to buy the few they have.

From the finding of this study one can agree that ICT cannot bring about better performance in the management of college of education as expected. This is supported by the finding of the study carried out by Ifukor et al (2006). The findings of this study revealed that all the banks have computer system, they are all on line, and they have facsimile facilities and ATM. It was also discovered from the finding that all the respondents attested to the fact that because of the availability of these ICT facilities in the operations of the banks, transactions in the banks have greatly improved.

This implies that for ICT to enhance management performance, attention should be given to the funding of ICT facilities procurement by state, federal and private COEs so as enhance management performance as it happens in other public sectors.

### **Adequacy of ICT facilities**

The results of the study indicate that no mean response for any item falls in the very adequate range. However, only seven items out of the eleven found available were adequate, while 24 items are within the not adequate and inadequate range. The seven that were found adequate are: desktop computer with the mean of 3.23, printing machine with the mean score of 2.39, photocopying machine with mean score of 3.02, internet with mean score of 2.53, radio set with mean score of 2.29 and audio tape player with mean score of 2.98. The overall mean shows that the entire response in the college of education in north central zone of Nigeria is not adequate (2.01). This shows that the mean adequacy of all the items is simply very inadequate.

It is now clear that colleges of education management cannot derive maximum benefit from the use of ICT in management performance as expected because even those ICT facilities that are found to be available are not adequate. Imagine colleges

of education that have 620 administrative staff only nine ICT facilities that are sometimes available and seven that are just adequate. This scenario is a lamentable one, since these cannot provide the college administrators better opportunities to use ICT to enhance administrative performance.

The implication of the above finding could be explained with regard to poor funding for ICT by the stakeholders of COEs for their management duties. The finding of this study is supported by the finding of Gbenga, (2006) that there is gross inadequate provision of ICT facilities and equipment in African schools. It is also in agreement with the findings of Association of African Universities (2000) which shows that ICT facilities and equipment were inadequate and factors such as poor telecommunication infrastructure, lack of enabling environment, non-reliability of electricity supply and many others in the introduction and utilization of ICT in African universities. To him the level of inadequate supply of computers and ICT facilities at Nigerian universities, polytechnics and colleges of education is worrisome.

The findings of Gbenga totally agrees with the response of the oral interviews conducted on the key administrators such as the provosts, bursars, chief librarians, HODs of departments and the confidential secretaries on the adequacy of ICT facilities available. Many of the interviewees disclosed that since the governments are not interested in funding ICT for the management performance, they try to use the little funds they have to procure such ICT items like computers, radio, photocopying machine, printing machine and audio tape, to them, the use of the above items are very vital to their daily administrative performance.

This study also tried to establish from the two hypotheses formulated if there was any level of difference in the extent of availability and adequacy of ICT facilities in the Federal and State COEs. The results of the study revealed that federal has higher means on availability 2.29 and adequacy 2.32 with SDS of 0.71 and 0.60 respectively, while state COEs have less means scores of 1.97 with SD of 0.71 for availability and 1.94 with SD of 0.69 for adequacy.

From the above results, it is glaring that federal colleges of education in the study area have more and adequate ICT facilities than the state COEs. The reason for the difference is not far from the response from the oral interview conducted by the researchers on some management staff. From the interview it was discovered that federal COEs have more subventions from the federal government for the running of their institutions. This enables them to procure more adequate ICT facilities and use them in the performance of their duties, while the state COEs have little subvention from the state government. This situation does not put the state COEs in a better financial position to procure ICT facilities for the management of their institutions.

This study appraised the extent of availability and adequacy of ICT facilities in the management of COEs in the north central zone Nigeria.

1. On availability of ICT facilities the study concluded that some ICT facilities were available for college management use but they are too few to enhance proper management performance in the study area
2. Also the study concluded that ICT facilities in the management of colleges of education in the north central zone were grossly inadequate. This situation in COEs does not promote effective and productive use of ICT facilities in college management performance.
3. To sum up, it was discovered from the outcome of the study that federal COEs have higher levels of availability and adequacy of ICT facilities than the state COEs in the study area.

## **RECOMMENDATIONS**

Based on the findings of the work, the following recommendations were made:

1. Adequate computer and internet centres and cyber café should be made available by Federal and state governments to each college department in order to provide accessibility for the use of ICT facilities in college management, teaching and learning, and research purposes.
2. State and federal governments should double their efforts to provide adequate ICT facilities to their institutions to enhance effective and efficient management performance.
3. State government should try as much as possible to give more financial support for acquisition and utilization of ICT facilities like their Federal counterparts so as to enhance effective and productive management in the state COEs.
4. ICT should be seen by college administrators as tools for effective and efficient management. Therefore, college managers of both federal and state COEs should develop positive attitude towards acquisition of ICT facilities for their management duties.

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