



Assessment of Information and Communication Technology (ICT) Facilities in the Management of Colleges of Education in North Central Zone, Nigeria

KEYWORDS

Communication, Management, College of Education (COE), ICT, ICT Facilities, Computer and Internet.

MRS. ODEH, R. C. Ph.D

EDUCATIONAL FOUNDATIONS AND
GENERAL STUDIES
UNIVERSITY OF AGRICULTURE, MAKURDI

TYOKYAA, C. I. Ph.D

EDUCATIONAL FOUNDATIONS
AND GENERAL STUDIES UNIVERSITY OF
AGRICULTURE, MAKURDI

ABSTRACT

The study assessed information and communication technology ICT facilities on the 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 Assessment of Information and Communication Technology Facilities (AICTFO), 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: no ICT item was found to be always available; most of the items are rarely or never available while few are sometimes available; a few of the items are sometimes found in use while majority are rarely or never found in use. Finally, it was found that Federal Colleges of Education (COEs) have higher levels of availability and utilization of ICT facilities than the state COEs. Some of the recommendations of the study include: that 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. The government should make the use of internet in the management of COEs compulsory.

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 the 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 (2006) observes that some ICT facilities 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, photocopier 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.

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 utilized the ICT facilities provided to the school personnel will be. According to him, the availability and utilization 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 work is carried out to assess ICT facilities in the management of COEs in the north central zone, Nigeria. Although this study assessed the extent of availability and utilization of ICT facilities in management of COEs in the study area, the research hypotheses compared the levels of difference that exist on availability and utilization 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 be 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 appropriately utilized.

It is based on this observation that the researcher is challenged to assess what ICT facilities are available, how adequate the available ICT facilities are and their utilization in the management of both federal and state COEs in the study area. Thus the problem of this study is to assess to what extent ICT facilities are available and utilized by these institutions in the study area.

PURPOSE OF THE STUDY

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

1. Determine the extent of availability of ICT facilities in the federal and state COEs.
2. Determine the extent of the utilization of ICT facilities available in 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. To what extent are the ICT facilities available utilized 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 availability of ICT facilities.
2. There is no significant difference between the mean ratings of administrators in the state and federal COEs as regards the utilization of ICT facilities in these colleges.

RESEARCH METHOD

Eleven colleges of education both federal and 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 the questionnaire titled questionnaire on assessment of information and communication technology facilities (QAICTF) and unstructured oral interview which was administered on top

management staff as: provosts, bursars, chief librarian, and deans, academic and non-academic heads of departments. The instrument used for this study is a 31 item questionnaire designed by the researcher. 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 determine the extent of utilization of ICT facilities available for college use.

31 item questions of four-point scale were used with different response for availability and utilization. Section B on availability was rated thus: 4 referred to Always available (AV), 3 sometimes available (SA) 2 rarely available (RA) 1 never available (NA). Section C on utilization, the rating scale and the response were: 4 always in use (AU), 3 sometimes in use (SU) 2 rarely in use (RA), 1 never in use (NU).

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=0.853 and utilization 0.850. The reliability coefficient for the entire instrument used was 0.853, indicating that there is high consistency in the items measured.

RESEARCH PROCEDURE:

The researcher 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 questionnaire was collected from the research assistants. 30 out of 330 respondents to the questionnaire prepared for the research were not returned. Hence 300 respondents to the questionnaire were returned and used for this study. After responses were collated, they were sorted into groups according to the research questions. A questionnaire was not considered for analysis if it was not well completed (omission of items).descriptive statistic of mean, standard deviation and t-test were used to analyse the data collected. The two research questions were answered using mean statistic to determine the extent of ICT facilities availability and utilization. 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 (1): What is the extent of availability of ICT facilities in colleges of education in the North Central Zone of 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 2010Key: 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 (9) items in the never avail-

able 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 (2): what is the extent of utilization of ICT facilities in the management of college of education in the north central zone Nigeria?

Table II: Responses on the utilization of ICT facilities in COEs in the North Central Zone Nigeria.

ICT Facilities	Mean response	Decision
1. College information system	1.88	RU
2. Desktop computer	2.25	SU
3. Laptop computer	2.02	RU
4. Departmental computer library	1.66	RU
5. Computer networking	1.73	RU
6. Scanning machine	1.97	RU
7. Printing machine	2.99	SU
8. Photocopy machine	3.09	SU
9. Internet	2.25	RU
10. satellite disc for global information	2.32	RU
11. departmental e-mail services	2.40	RU
12. internet phone	1.61	RU
13. college cyber cafe	2.56	SU
14. college world wide web (www)	2.86	SU
15. digital satellite television (DSTV)	2.49	RU
16. audio tape player	2.24	RU
17. digital camera	1.77	RU
18. external telephone lines	2.23	RU
19. multimedia power point projector	1.60	RU
20. counting machine	1.69	RU
21. Radio set	2.65	RU
22. Public addressing system	2.31	RU
Grand mean	1.90	RU

Source: field survey 2010

Key: AU- Always in use; SU- sometimes in use; RU- rarely in use; NU- never in use

Table two reveals that no item has a mean value within the range of always in use or utilized yet only 6 out of 31 means are for sometimes in use. Nevertheless, 16 items fall in the range of rarely in use while 9 items fall under never in use. The overall mean for utilization of ICT facilities in colleges of education in the study area falls within rarely in use range (1.90). This shows that most of the respondents agreed that ICT facilities are rarely utilised in the management of college of education in the north central zone Nigeria.

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.

Table III: 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 reveals 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. The federal had lower score of 0.65 with an observed t=3.94 at 298 degree of freedom 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 utilization of ICT facilities in these colleges.

Table IV: t/test of significant difference between two mean scores of federal and COEs as regards utilization of ICT facilities in them.

Type of Institution	N	Mean	Standard deviation	DF	t _{cal}	t _{critical}	Lev	Decision
Federal COEs	128	2.15	0.61	298	3.08	1.96	P>0.5	significant
State COEs	172	1.91	0.71					

DF=298, P>.05

The result in the table four reveals that the state COEs scored a mean of 1.91 while the federal COEs out scored 2.15, this shows that the difference exist the way of ICT facilities are utilized in the federal and state COEs. The SD recorded for the state COEs 0.71 compared to the federal COEs which is 0.61. the calculated t=3.08 is greater than the 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 rejected in favour of the alternative that there is a significant difference between the mean ratings of administrators of state and federal COEs as regards utilization of ICT facilities in their institutions.

DICUSSION AND CONCLUSION AVAILABILITY OF ICT FACILITIES

The world is fast becoming a global village, as a result of development 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 show 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 the National Commission for Colleges of Education (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 colleges 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.

Utilization of ICT facilities

The findings of this study reveals that no item has a mean value within the range of always in use yet only 6 out of 31 items are for sometimes in use. However, the rest 25 items are for rarely in use and never in use. The overall mean for utilization of ICT facilities in colleges of education in the central zone Nigeria falls within rarely in use (1.90), out of the 9 ICT facilities found to be available, only desktop computer with mean score of 2.50, printing machine with mean of 2.99, photocopying machines, college cyber café with mean of 2.56, college world web (www) 2.86 and radio set with mean 2.65 were sometimes in use.

From the above findings it is pertinent that ICT cannot bring much improvement on the management of colleges of education as it should because even the ICT facilities available are not being utilized in the performance of

management duties. Take internet for example, it is indicated available but it is not being used. It is obvious that ICT cannot bring much improvement in management performance without the use of internet. This is because it is through the internet one can connect to the whole world with the use of e-mail, internet phone, virtual library, facsimile machine, computer networking, college information system, satellite disc for global information and other too numerous to mention.

The reason for the underutilization of ICT facilities could be attributable to Watson (1993) theory of "perceived ease of use". From his studies there are a number of factors which have been identified that relate to the ease of use of ICT, which in this case is for practicing ICT users. The impact project of Watson and other studies identified a wide range of skills and competence which administrators felt they needed in order to find ICT easy to use. Some of these are shown below.

Negative and Positive Factors Influencing Perceived Ease of Use.

Positive	Negative
1. Regular use and experience of ICT Outside office	Difficulty in using software and hardware
2. Ownership of the computer.	Need more technical support
3. Confidence in using ICT	Not enough time to use ICT
4. Easy to operate	It is too expensive to use regularly.
5. Easy to access information	Insufficient access to resources.
6. Can get help and advice from colleagues.	Does not give room to interpersonal interaction.

Another factor that can cause underutilization of ICT facilities in the management of COEs could be traced to the theory of "perceived usefulness" if COE administrators see no need to question or change their administrative practices then according to Cox, Preston and Cox (1999), in his study of users attitude to ICT, they are unlikely to adopt the use of ICT. However, if they perceived ICT to be useful to them, their administrative performance then according to the empirical evidence of previous studies by Cox et al, they are more likely to have a positive attitude of the use of ICT in management performance. Cox et al gave a number of factors which could contribute to administrators, perceived usefulness of ICT as shown below

Positive	Negative
Makes my work more interesting	Makes my work boring
Make my work faster	Makes my works different
Has improved access of information	Reduces workers' and data motivation
Give me more prestige	Impairs better administration performance
Makes my administration more efficient and productive	makes my administration inefficient and unproductive
Gives me more confidence	Takes too much time
Enhance my administrative competence	it is counterproductive due to insufficient technical resources
	It is not enjoyable

This study also tried to establish from the two hypotheses formulated if there was any level of difference in the extent of availability and utilization of facilities in the Federal and State COEs. The results of the study revealed that federal has higher means on availability 2.29, utilization 2.15 with SDS of 0.66 and 0.61 respectively, while state COEs have less means scores of 1.97 with SD of 0.71 for availability and 1.91 with SD of 0.71 for utilization.

From the above results, it is glaring that federal colleges of education have more adequate ICT facilities than the state COEs. In the area of ICT utilization, it was discovered that federal COEs utilize more ICT facilities than the state owned for the management of COEs in the zone. The reason for the difference is not far from the response of the oral interview conducted by the researcher 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 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 assesses the extent of availability and utilization 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. The finding of the study on utilization showed that an insignificant number of ICT facilities is being utilized by COE managers for the performance of their duties because most of the items tested under this variable fall within rarely used.
4. To sum up, it was discovered from the outcome of the study that federal COEs have higher levels of availability and utilization 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 research purposes.

2. The government should make the use of internet in the management of COEs compulsory as internet was indicated available but not utilized in the COEs management. From this situation, it is obvious that ICT cannot bring much improvement on COEs management performance without the use of internet.
3. College of Education managers should be encouraged by the COE stakeholders to put to use the ICT facilities available because it was revealed from the findings of the study that out of the 9 ICT facilities available only 6 are being utilized in the management duties of COEs.
4. State government should try as much as possible to give more support for acquisition and utilization of ICT facilities like their Federal counterparts so as to enhance effective and productive management in the state COEs.
5. 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 the utilization of ICT facilities in their management duties. Besides, college managers should endeavour to mobilize and train their personnel for proper use of ICT facilities.

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