CAPACITY BUILDING AND INTEGRATION OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) BY LECTURERS IN COLLEGES OF EDUCATION IN ANAMBRA STATE

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Abstract

Information and Communication Technology (ICT) is an advancement in technology that provides a rich global resource and collaborative environment for dissemination of knowledge and information. This paper investigated the extent of ICT capacity building and integration among lecturers of Colleges of Education in Anambra State. Two research questions were used. Simple random sampling techniques was used to select 250 lecturers for the study. A 30-item questionnaire was used to collect data which was analysed using mean and standard deviation. Findings indicate a low level of ICT capacity building and integration among the lecturers. This implies that so far in the institutions studied, curricula, teaching and learning have not taken full advantage of ICT now available. Recommendations made include that Government should declare ICT capacity building and integration by staff of teacher education institutions a priority issue and invest fund for ICT training in the institutions. The lecturers themselves can integrate ICT by utilizing course elements chosen from a virtual worldwide selection as well as offer their own course elements for integration with other college courses.

In Nigeria, teacher education through Colleges of Education both at the federal and state government levels is meant to improve teacher preparation. According to Isoun (2006), Information and Communication Technology (ICT) has become an imperative for adequate teacher preparation. Information and communication technology (ICT) is an advancement in technology that provides a rich global resource and collaborative environment for dissemination of knowledge and information. Legris, Ingham, & Collerette (2003) described ICT as the overlap of computer information and telecommunications technologies and their applications. Globally, it is acknowledged that ICT is growing at a rapid pace with emerging technologies such as internet, intranets, extranets, satellite broadcasts, audio/videotape, interactive TV and storage devices. Hence developing ICT capacity and integrating ICT into academic programmes are among the major challenges facing Colleges of Education in Nigeria.

Capacity building is a means of helping people to improve their knowledge and abilities. Olibie (2008) described capacity building in ICT as improving the abilities of lecturers to use ICT. Mbakwem (2008) explained that ICT integration involve the utilization of ICT in practice of teaching, learning, and assessment. It also involves using ICT in research, outreach and professional services. Capacity building in ICT is necessary because the information revolution and advent of new technologies will continue to open up possibilities for individual and collective empowerment, information exchange and knowledge accumulation (Ololube, Ubogu & Ossai, 2006; Edafiogho, 2007). Also the ways in which teachers integrate ICT with research and lecture delivery are catalysts that create thriving learning environments.

In order to prepare for an ICT-based society, Colleges of Education (COE) in Nigeria have started to offer general courses on computer

applications (National Council for Colleges of Education, 2002). In Anambra State, the management of the COEs provided ICT infrastructure and individual PCs and Laptops to their lecturers (Abiogu, 2008). With these developments, the foundations for the institutional, physical, and human resources necessary for ICT integration in the Colleges of Education are being built.

Despite these developments, Cirfat, Zumyil & Ezema (2003) found that very few ICT facilities were available and that not many lecturers had ever used such facilities in selected teacher education institutions in Nigeria. Mac-Ikemnjima (2005) observed that slow access to basic ICT equipments, low internet connectivity, and insufficient computers in teacher education institutions are barriers to the effective use of ICT and professional development of teachers in Nigeria. Mbakwem (2008) reported that many Nigerian lecturers were unable to use ICT because they were not trained with ICT in their pre-service training. The observed status of ICT in teacher education has contributed in the digital divided against Nigerian teachers because in countries like USA, UK, China, Japan, and even South Africa, ICT have already invaded and dominated teachers education but as Mohammed & Ekpunobi (2003) noted, its invasion in Nigerian colleges of education is slow. The digital divide gap can only be transformed into digital opportunities if emerging technologies are applied and integrated by the lecturers to leapfrog into the modern information society (Norris, 2001). Moreover, availability of computer equipment does not necessarily mean that students and teachers make effective use of it, that it is easily accessible or that it is of good quality. Capacity building for the lecturers and their integration of ICT in course delivery are paramount. It is against this background that this paper seeks to identify the extent of ICT capacity building and integration by lecturers in Colleges of Education in Anambra State.

Research Questions

The study was based on two research questions as follows:

1. What is the nature of ICT capacity building among lecturers in Colleges of Education in Anambra State?
2. How did lecturers in Colleges of Education integrate ICT in teaching?

Research Design

The study adopted descriptive survey research design in which a group of people were studied by collecting and analyzing data from only a few of them which are considered to be representative of the entire group. This design was appropriate for this study because data was collected from a sample of lecturers in the Two Colleges of Education in Anambra State with regard to their capacity building and ICT integration.

Population for the Study

The population for this study was made up of all the 678 lecturers in the two Colleges of Education from Nwafor Orizu College of Education and 202 lectures from Federal College of Education, Umunze.

Sample and Sampling Technique

The sample for this study comprised 250 lecturers selected through simple random sampling. In each of the two Colleges of Education, five schools were randomly selected (Total = 10 schools). From each of the selected schools, five departments (Total = 50) were randomly selected. Then from each of the departments, simple random sampling was used to pick five lecturers. Thus the total sample size was 250 lecturers.

Instrument for Data Collection

A researcher developed questionnaire titled – "ICT Capacity Building and Integration among Lecturers (ICBIL) was used. The ICBIL comprised 30 items structured on a 4 point scale of strongly agree (4 points), agree (3 points), disagree (2 points) and strongly disagree (1 point).

Validation of the Instrument

The instrument was validated by two lecturers in the Department of Curriculum Studies and Educational Technology, Nwafor Orizu College of Education Nsugbe Anambra State. An initial instrument that contained 34 items was presented to the experts but they condemned four items as vague. Only 30 items were retained.

Reliability of the Instrument

The split half method of testing for reliability was used. The researcher administered 10 copies of the questionnaire on 10 lecturers that were not included in the study sample. The data collected from their responses were analysed using the split-half method based on even and odd numbers. A reliability coefficient of 74 was obtained using Pearson's Product Moment formula and was considered satisfactory for the study.

Administration of Instrument

Copies of the questionnaire were administered on the respondents by the researcher and a trained research assistant. Out of the 250 copies distributed, only 246 (98.40%) were retrieved.

Method of Data Analysis

Mean and standard deviation were used to answer the research question. To enhance computation, the options were weighted on the – point rating scale thus: Strongly Agree (SA, 4 points), Agree (A, 3 points), Disagree (D, 2 points) and Strongly Disagree (SD, 1 point). The midpoint for the scale was 2.50 obtained thus: = 4+3+2+1=10. 10/4 = 2.50. Items with mean above 2.50 represented agree (A) while those with mean below 2.50 represented disagree (DA).

Presentation and Analysis of Data

Research Question 1: What is the nature of ICT capacity building among lecturers in Colleges of Education in Anambra State?

Table 1
Mean and Standard Deviation of Respondents on ICT Capacity Building (N = 246)

	Items: I have built ICT capacity through:	Provided by the college		Provided through self efforts	
		$\overline{X}$	Decision	$\overline{X}$	Decision
1.	Working with peers and colleagues at the college's access points in order to become more proficient in ICT.	1.22	Disagree	1.69	Disagree
2.	Training on the use of e-mail and search engines	1.22	DA	2.69	A
3.	Training on information retrieval through the use of CD-ROMS, flash drives and other storage facilities	1.39	DA	2.57	A
4.	Training on multi-media lesson delivery such as power-point presentations	1.58	DA	1.18	DA
5	Training on access to PDF files	1.38	DA	1.96	DA
6.	Training on development and use of software for	1.53	DA	1.12	DA

ICT tutorials

7	Sponsorship for ICT course, conferences and seminar	1.35	DA	2.43	DA	
8	Training on the use of statistical software	1.18	DA	1.62	DA	
9.	Training on teleconferencing	1.10	DA	1.44	DA	
10	Training on e-publishing	1.14	DA	1.48	DA	
11	Training on how to locate on-line materials and tasks for self study	1.13	DA	1.47	DA	
12	Training on-line collaborative activities/project for students	1.40	DA	1.94	DA	
13	Training on how to locate, evaluate and use on-line materials for course designs	1.18	DA	1.66	DA	
14	Training on system engineering and development data bases	0.00	DA	1.00	DA	
15	Training on virtual library use	1.12	DA	1.43	DA	
	Grand Mean	**1.11**		**1.71**		

In table 1, all the items scored below 2.50 in the first column indicating that the lecturers disagree that they have built their capacities through the assistance of their colleges. Only items 2 and 3 obtained mean rating above 2.50. Hence, the nature of ICT capacity building among lecturers is that they used self-efforts to build their capacities by training on the use of e-mail, search engines and information retrieval through the use of CD-ROMS, flash drives and other storage facilities. They have not built their capacities as stated in the rest of the items.

Table 2

Mean scores of Items on ICT Integration by the Lecturers (N246)

	Items: I integrate ICT in:	$\overline{X}$	SD	Decision
16.	Giving on-line organizational information about courses	1.93	0.63	disagree
17.	On-line registration and follow up of student learning activities	1.04	0.54	disagree
18.	Obtaining internet materials for research and publications	2.85	0.72	agree
19.	Subscription for on-line exams	0.83	1.23	disagree
20.	E-mail communication with mentors about the instructional process	0.68	0.15	disagree
21.	Locating on-line journals, magazines, thesis, newspapers, books and archives for students' research works.	1.59	0.58	disagree
22.	Sharing course content information on-line with lecturers in other higher education institutes	1.57	0.58	disagree
23.	Assigning ICT buddies to students	1.00	0.28	disagree
24.	Creating on-line discussion forum or platform for students	1.05	0.35	disagree
25.	Use of ICT for distance learners	1.53	0.54	disagree
26.	Distribution of learning and tasks for students' self study	1.12	0.34	disagree
27.	Designing collaborative activities/project for students	1.11	0.45	disagree
28.	Giving students	2.41	0.56	disagree

	assignments to download internet materials			
29.	Using e-mail to send information to students about lectures, assignments and examinations	2.34	0.39	disagree
30.	Using instructional packages in digital-audios and CD-ROMS for lectures	2.32	0.31	disagree

In table 2, only item 18 obtained a mean rating above 250. The rest of items scored below 2.50. This therefore indicates that the lecturers integrated ICT in obtaining internet materials for research and publications and not as stated in other items.

Discussion of Findings

The findings of this study have revealed that apart from training on the use of e-mail and search engines, and information retrieval through the use of CD-ROMS, flash drives and other storage facilities, the lecturers have not built their capacities in range of ICT application. Even in the areas where they built their capacities, they did them based on self efforts without assistance from their colleges.

The evidence seems glaring that the two colleges of education in Anambra State have not provided adequate capacity building to their staff to enable them competently apply ICT in performing their jobs. It appears that both the management of the COE and the lecturers did not consider that ICT plays a vital role in teacher development. Perhaps awareness of the potentials of ICT and ICT motivation of lecturers are lacking in this context. This brings to question, the several NCCE pronouncements on minimum standards for ICT compliance in Colleges of Education and the commitment of the management and staff of the COE towards bridging the digital device. In the absence of capacity building, the lecturers could not become ICT-empowered and without such ICT empowerment, Nigeria would remain very short of future ICT competent teaching personnel. Without extensive and relevant capacity building for staff, many of them might only be aware of ICT facilities but lack the requisite skills and competencies for using them. Thus even when the staff have access to desktops and laptops, using them for various ICT applications would be difficult. Many staff would then be saddled with expensive technologies, which they rarely use because of lack of knowledge and skills for using them.

Furthermore, ICT integration in the COE was quite poor as the lecturers only integrated ICT in obtaining internet materials for research and publications. This finding suggests that the colleges of education in the state are yet to maximize the potentials of ICT in course delivery. ICT integration appears to be valued as having little to no role in supporting academic programmes in these colleges. Yet one expects the students that pass through these colleges to compete favourably in an ICT-driven world. Ololube, Ubogu & Ossai (2006) also reported that Nigerian tertiary institutions were yet to integrate ICT into all spheres of academic endeavours. With this situation, one will agree with Isoun's (2006) statement that given the current ICT integration level, it might take Nigerian teacher education institutions many years to catch up with even South Africa and America. This is truly a manifestation of digital divide.

Almost every literature concerned with ICT integration in Nigerian education systems points to the inadequacy of ICT integration (Cirfat, Zumyil 2003 and Mbakwem, 2008). This inadequacy might have adverse consequences both on the psyche of lecturers and the development of applications and competencies necessary for ICT integration. It is also likely to

limit the ability of staff and students in Colleges of Education to benefit from on-line national and international assistance or from digital courses, conferences and seminars abroad that would set the pace to rapid ICT integration. Possibly another great challenge facing the application of ICT in teacher education is the need for integration of ICT into academic courses and programmes.

Conclusion

Evidence abound that the world is moving relentlessly with ICT. It is retrogressive for lecturers in Colleges of Education to lack ICT capacities and to cope without integrating ICT in every facet of teaching, learning, research and assessment. There is an urgent need to build lecturers' ICT capacities for ICT integration in the delivery of academic programmes.

Recommendations

Based on the findings, the following recommendations were made:

1. The Management of the Colleges of Education in Anambra should provide guaranteed access to the internet as a way of building the capacities of lecturers.
2. The management of the colleges could provide ICT access points at Departmental and school levels. This would create a more encouraging environment for peer collaboration towards building the ICT capacities of lecturers.
3. Government should declare ICT capacity building and integration by staff of teacher education institutions a priority issue and invest funds for ICT training in institutions.
4. The management of the COE should mount versatile ICT training for staff.
5. The lecturers should use self-help efforts such as advanced computer training, mentoring, e-learning and reading of ICT journals, to develop their ICT capacities.

6. The lecturers can integrate ICT by utilizing course elements chosen from a virtual worldwide selection. They can as well offer their own course elements for integration with other college's courses.
7. ICT competencies should be made systematic criteria for selection and recruitment of new staff in the Colleges of Education.
8. Professional development of staff in ICT should be made mandatory for all lecturers.
9. Evidences of ICT capacity building and integration should count towards the promotion of lecturers in College of Education.

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