



Extent of Provision and Integration of Information and Communications Technology (ICT) for Implementing of University Policies in Nigeria

Egboka Patience Ndidi (PhD) and Olibie, Eyiuche Ifeoma (PhD)

Department of Educational Management and Policy

Faculty of Education

Nnamdi Azikiwe University, Awka.

Federal College of Education (Technical) Asaba.

E-Mail: utchackonsults@yahoo.co.uk

ABSTRACT

This study investigated the extent of ICT infrastructure provision and integration for the implementation of national policies on University education in Nigeria. Two research questions guided the study. One thousand, one hundred and twenty-five lecturers were randomly selected to participate in the study. A questionnaire titled ““ICT Integration in Universities (ICTIU)” comprising 30 items was used to collect data. Mean and standard deviation were used to answer the research question. Results showed a low level of ICT infrastructure across universities. There was also a low extent of ICT integration on the institutions. Results of this study have provided evidence that adequate ICT infrastructure and integration have not been provided to enhance the implementation of policies in Nigerian Universities. Implications and recommendations are presented.

INTRODUCTION

Educational policies are set to ensure that education meets with standards that can be said to be acceptable. Policy, as defined by Mitchell (2006), is a set of guidelines for human behaviour. Oriafio (2006) defined policy as any plan of action in government or business administration. In the context of education, Ezebunanwa (2004) stated that policies are those statements, guidelines, rules and regulations, which are formulated, to monitor and regulate the effective implementation of education programmes. Such policies guide education at the pre-primary, primary, secondary and tertiary levels.

The policies guiding the Nigerian University education are clearly outlined in the National Policy on Education (Federal Republic Nigeria, 2004) as follows:

The acquisition, development and inculcation of the proper value-orientation for the survival of the individual and society.

The development of intellectual capacities of individuals to understand and appreciate their environments

The acquisition of both physical and intellectual skills which will enable individuals to develop into useful members of the community

The acquisition of an objective view of the local and external environments.

The policy document also stipulate how, where and when University education should take place, be managed and supervised. Above all, it stressed the need for Information and Communications Technology (ICT) integration in educational provision. Thus, the federal government is convinced that for higher education to make optimum contributions to national development, ICT is an essential ingredient.

Enhancing the integration of Information and Communication Technology (ICT) in the implementation of educational policies is a matter of global concern. This is because the introduction of ICT and its integration and diffusion have initiated a new age in educational methodologies and have radically changed traditional methods of teaching and learning. Ololube, Ubogu & Egbezor (2007) described Information and Communication Technology (ICT) as advances in technologies that provide a rich global resource and collaborative environment for dissemination of ICT literacy materials, interactive discussions, research information, and international exchange of ideas, which are critical for advancing meaningful educational initiatives, training a high skilled labor force, and understanding issues related to economic development.

ICT integration in Universities has to do with availability and application of the relevant ICT that are intended to improve the implementation of policy provisions for tertiary education. According to the Association of African Universities (AAU, 2004), for any tertiary institution to integrate ICT in implementation of the National policy on Education requires the provision of ICT infrastructure and encouragement of staff and students to integrate ICT in the institutions. It is not enough to give staff and the students computers, an enabling environment must be created for them to integrate ICT in research, information exchange, management information systems, data collection, records keeping and linkages with internal and external bodies.

In essence, ICT integration in the implementation of National policy on Education in higher institutions is multifaceted, targeted at the lecturers, the students, and the institution itself. For instance, some institutions have provided computers and laptops as well as set up cyber cafés in their campuses (Olibie & Agu, 2008). This points to the fact that some institutions in Nigeria are getting ready to be ICT-driven. But one cannot be sure that the amount of computers and ICT networks appearing in institutions are adequate, appropriate and will really make a difference for learners, staff and management. Without adequate infrastructure and ICT integration in policy implementation, it is still uncertain that the money and time invested in ICT makes a difference in the implementation of the national policy on education. A crucial developmental step then is to assess the extent to which Universities integrate ICT in the implementation of the national policy on Education. Such assessment will provide an insight into what the management of tertiary institutions has done to favourably position their institutions at a competitive advantage in an ICT knowledge-driven world.

Statement of the Problem

In Nigeria, the relationship between the development of ICT penetration and integration in university education is dependent upon government policies. Ololube et al (2007) noted that the ICT policy resource for Nigeria was provided for planning, research and evaluation purposes. The policy is aimed at addressing innovation, entrepreneurship, development problems/strategies and the digital divide in Nigeria. While ICT has much to offer, it has failed to deliver on these aims across universities. A lot of time and effort has been invested in developing the policy, and its implementation has not been impressive. Given the instrumental role that ICT plays in global development, growing emphasis is being placed upon Universities to contribute efficiently in meeting global challenges. The problem of this study, therefore is, what is the extent of ICT infrastructural provision and integration for the implementation of national policies on University education in Nigeria?

Research Questions

The study was based on two research questions as follows:

What ICT infrastructure is available for policy implementation in universities South-East Zone of Nigeria?

How is ICT integrated for policy implementation in the Universities?

Research Design

The descriptive survey research design was adopted for this study. This design was appropriate for this study because it elicited and analysed information from a sample of university lecturers with regard to ICT infrastructure and Integration in their Universities.

Area of the Study

The study was carried out in all governmental owned universities in South-East zone of Nigeria. The Zone comprised five states: Abia, Anambra, Ebonyi, Enugu and Imo State. There are nine government-owned universities in South-East zone of Nigeria as at March 2008. The Federal government owns four of the universities while State governments own five.

Population of the Study

The population for this study was made up of all the 6063 lecturers in the nine government-owned universities in the South East zone of Nigeria.

Sample and Sampling Technique

The sample for this study comprised 1,125 respondents selected through simple random sampling. In each of the nine universities, five faculties were randomly selected. From each of the selected faculties, five departments (n=225) were randomly selected. Then from each of the departments, simple random sampling was used to pick five lecturers. Thus the total sample size was 1,125 lecturers.

Instrument for Data Collection

The instrument used in this study was a researcher developed questionnaire titled – “ICT Integration in Universities (ICT IU). The instrument comprised 28 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

Two experts in Curriculum Studies and two other experts in Measurement and Evaluation, all from the Faculty of Education in Nnamdi Azikiwe University, Awka. The experts scrutinized the questionnaire in line with the research questions and made necessary suggestions that led to some corrections in the final copies of the questionnaire.

Reliability of the Instrument

The researchers carried out a pilot study on twenty (20) academic staff from Delta State State University Abraka, whose responses were analysed using the split-half method. Their scores were separated into two groups A and B. Person's Product Moment formula was applied and a reliability coefficient of 0.81 was obtained. This high coefficient indicated that the instrument was reliable for use in the study.

Administration of Instrument

Copies of the questionnaire were administered directly on the respondents by the researchers after which the completed copies of the questionnaire were collected and analysed. Out of the 1125 copies distributed, only 1107 were retrieved. The percentage return rate was 98.4 percent.

Method of Data Analysis

Mean and standard deviation were used to answer the research question. To enhance computation, the options were weighted on the 4-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 2.5 obtained thus: = 4+3+2+1=10. 10/4 =2.5. Items with mean above 2.50 represented agree while those with mean below 2.50 represented disagree.

Presentation and Analysis of Data

Research Question One: What ICT infrastructures are available for policy implementation in universities South-East Zone of Nigeria?

Table 1: Mean scores of Lecturers on ICT infrastructure in their institutions. (N=1797)

S/N	Items	\bar{X}	SD	Decision
1	Internet connectivity for the institution	3.18	0.60	Agree
2	Satellite connections	2.36	0.31	Disagree
3	ICT lecture rooms with internet and radio-radio connection.	1.68	0.54	Disagree
4	ICT resource centers, parks or cyber cafés.	3.27	0.80	Agree
5	GSM internet connections	2.09	0.60	Disagree
6	Stand alone computers in offices	1.54	1.87	disagree
7	Over head projectors in lecture rooms	2.43	0.43	Disagree
8	Electronic whiteboards	1.81	0.14	Disagree
9	Digital audios in conference rooms	1.64	0.39	Disagree
10	Laptops for staff	3.14	0.37	Agree
11	Management and maintenance of ICT infrastructure	2.04	0.26	Disagree
12	Technical support to regularly upgrade software licenses	2.20	0.24	Disagree

In table 1, mean ratings above 2.50 were obtained for items 1, 4 and 10. This shows that the lecturers agree that the Universities have provided Internet connectivity and ICT resource centers, parks or cyber cafés laptops for staff to

enhance policy implementation. The remaining nine items had mean ratings below 2.50 suggesting that the ICT infrastructures listed in these items have not been provided.

Research Question Two: How is ICT integrated in policy implementation in the Universities?

Table 2 :Mean scores of Lecturers on ICT integration in their institutions. (N=1797)

S/N	Items	\bar{X}	SD	Decision
13	Posting students' examination reports on-line.	2.72	0.28	Agree
14	Internet chat with staff in other institutions	1.09	0.23	Disagree
15	Participation in e-conferencing	2.14	0.34	Disagree
16	On-line search for research proposals.	1.88	0.17	Disagree
17	Communicating university staff policies through e-mails.	2.13	0.29	Disagree
18	Use of work stations in lecture delivery	1.12	0.41	Disagree
19	Use of electronic white board in lecture delivery	1.78	0.54	Disagree
20	Buying e-books through your institutions' library	1.47	0.20	Disagree
21	Accessing e-journals in the university library	1.47	0.56	Disagree
22	Giving students on-line assignments	2.29	0.39	Disagree
23	Designing worksheets for course assessments	2.12	0.48	Disagree
24	Use of ICT for distance learners	1.61	0.50	Disagree
25	Keeping data base of instructional programmes	0.11	0.59	Disagree
26	Generating learning resources for students	2.13	0.78	Disagree
27	Providing remedial work for students	1.02	0.14	Disagree
28	Multi-media lesson delivery such as power-point presentations	1.80	0.33	Disagree
29	Location, and adaptation of on-line materials for course designs	1.17	0.18	Disagree
30	Use of university portal for disseminating policy information to staff and students.	3.38	0.27	Agree

In table 2, only questionnaire items 13 and 30 scored above 2.50 indicating that ICT are being integrated mainly in posting students' examination reports on-line and Use of university portal for disseminating policy information to staff and students. The remaining sixteen items scored below 2.50, suggesting a non-integration of ICT with regards to the stated items.

DISCUSSION

Responses to research question one indicate a low level of ICT infrastructure across universities. Apart from Internet connectivity, ICT parks, and laptops that have been provided to staff in some of the universities, other ICT infrastructures are lacking. One can therefore say that there is generally, a low level of ICT infrastructure provision in the institutions. This finding is similar to a situation found in Colleges of Education in Plateau State where Cirfat et al (2003) found that ICT facilities are lacking. Ajayi (2002) also reported that lack of necessary enabling infrastructure is evident in tertiary institutions in Nigeria. Unlike Ajayi's report, the present study however, found that Internet connectivity has been achieved in many of the universities.

The finding of the present study confirms that the situation of ICT infrastructure for policy implementation in many Nigerian universities is very poor, and there is an urgent need for leapfrog. ICT infrastructure is the carriage of the ICT-driven management and without putting the necessary infrastructure in place, even the most viable ICT policies will not succeed. It is not enough to provide Internet connectivity, and laptops in the institutions. As Olibie & Agu (2008) noted, there are several emerging technologies in ICT such as digital virtual library, satellite and radio-radio connections, automated over-head projectors, digital audios and several other sophisticated facilities. An institution with a range of these ICT both in quality and quantity is poised to compete favourably in a knowledge-driven world. Therefore a situation where the ICT facilities are lacking places the institutions is at a disadvantage.

Some reasons could also be given for this finding. One of the reasons may be the inherent attitude of Nigerian educational managers over matching rhetoric of policies with action. This is because after formulating ICT policies, one would have expected the requisite ICT infrastructures to be adequately provided in the Universities. Another reason might be that the management of the institutions have invested in those areas that they consider being of utmost relevance (i.e. Internet, computers and laptops). Another reason might be high cost of ICT facilities. Nwagwu & Ahanihe (2006) found that there is high cost of equipment, software and electricity which constitute impediments to successful ICT initiatives in Nigeria. Whatever, the reasons are, the point remains that the level of ICT infrastructure in the Universities is quite low and this is likely to hinder effective implementation of the provisions of the National Policy on education relevant to tertiary education.

There was also a low extent of ICT integration on the institutions as indicated by responses to research question two. The institutions integrated ICT only with respect to posting of vital institutional information on line, and applying ICT through the University portal. ICT integration in teaching, publishing papers on-line, advertising research proposals on-line, work stations, and data bases among others are grossly inadequate. These actually show that Universities in the South East Zone are yet to maximize the potentials of ICT in the implementation of the National policy on education. This finding is in line with Ololube et al (2007) who also reported that Nigerian tertiary institutions are yet to integrate ICT in all spheres of academic endeavors. Given the current ICT integration level, it may take Nigerian higher institutions 30 years to catch up with even South Africa, and 50 years to catch up with America. This is a truly digital divide.

CONCLUSION

The findings of this study have shown that ICT infrastructure and integration in Universities in South East Zone of Nigeria are inadequate to enhance the implementation of the National Policy on education. Possibly another great challenge facing the application of ICT in Universities is the need to provide adequate emerging ICTs and encourage ICT integration into administration, academic courses and curriculum programmes. Without adequate ICT infrastructure and integration, the universities cannot optimally utilize ICT for policy implementation and cannot plan towards the utmost maximization of human capital and potential in the institutions.

RECOMMENDATIONS

In view of the findings and conclusion, the following recommendations are made:

The following recommendations are based on the findings of this study:

1. The management of universities should make more policies to cover ICT integration in the institutions.
2. The management of the universities should invest seriously in ICT infrastructures.
3. Government should assist in the provision of necessary infrastructural support, massive training and deployment of ICT skilled manpower into universities.
4. Management of universities should work with the private sector, international donors and civil society to ensure affordable and sustainable access to ICT infrastructure.
5. Universities' management should design and deliver in-service training programmes for lecturers, non-

academic staff and administrators on effective ICT integration.

6. Also, the inclusion of ICT integration competencies among the requirements for promotion of staff of the institutions is crucial.

REFERENCES

- [1] Abiogu, G. C. (2008). Retooling education for the information age: Implications for Nigerian Teacher Education. In B. G. Nworgu (Ed). *Education in the information age: global challenges and enhancement strategies*. Pp 23-26. Nsukka: University Trust Publishers.
- [2] Cirfat, A. B, Zumyil, C. F.& Ezema, M. A. (2003). The status of ICT in colleges of education. *Proceedings of the 44th annual conference of science teachers association of Nigeria*. Pp 53-58.
- [3] Edafiofho, D. O. C. (2007). Educational reforms in tertiary institutions through the application of information and communications technology. In B. G. Nworgu (ed). *Optimisation of service delivery in the education sector: issues & strategies*. Pp 170-178. Nsukka: University trust Publishers.
- [4] Isoun, D.A (2006). *e-education and the impact of information and communication technology on the higher education*. Retrieved on 25th June 2008 from <http://194.213.312.214/documents/pdf/ict3>
- [5] Legris, P., Ingham, J., & Collette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information and Management* 40, 191-204
- [6] Mac-Ikenenjima, D. (2006) *e-education in Nigeria: challenges and prospects*. Retrieved online on 26th June 2008 from <http://www.educause.edu/LibraryDetailPage/666&ID=PUB8001>.
- [7] Mbakwem, J. N. (2008). Analysis of university undergraduate students' and lecturers' need for the information age; implications for teaching and learning. In B. G. Nworgu (Ed). *Education in the information age: global Challenges and enhancement strategies*. Pp 208-213. Nsukka: University Trust Publishers.
- [8] Mohammed, A. N & Ekpunobi, E. N. (2003). The role of ICT in teacher education. *Proceedings of the 44th annual conference of science teachers association of Nigeria*. Pp 268-270.
- [9] National Council for Colleges of Education (NCCE, 2002). *Minimum standards for colleges of education*. Abuja: NCCE
- [10] Norris, P. (2001) *Digital divide? engagement, information poverty and the internet worldwide*. Cambridge University Press.
- [11] Olibie, E. I. (2008). Attaining millennium development goals through capacity building reforms for improving English language teachers' curriculum delivery competencies. In B. G. Nworgu (Ed). *Educational reforms and the attainment of the millennium development goals (MDGs): The Nigerian Experience*. Pp 125-131. Nsukka: University Trust publishers.
- [12] Ololube, N.P, Ubogu, A. E., & Ossai, A. G. (2006). *ICT and distance education in Nigeria: a review of literature and accounts*. Accessed on 26 November 2006 <http://www.educause.edu/LibraryDetailPage/666&ID=PUB8001>
- [13] Ololube, N.P, Ubogu, A. E., & Egbesor, D. E (2007) ICT and Distance Education Programs in a Sub-Saharan African Country: A Theoretical Perspective. *Journal of Information Technology Impact* Vol. 7, No. 3, pp. 181-194, 2007.