Survey of Accessibility and Usage of Information and Communication Technology Among Students of Technical Education in Tertiary Institutions in Niger State, Nigeria

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Abstract

This research investigates the availability, accessibility and usage of information and communication technology (ICT) among students of technical education in Niger State tertiary institutions. The study adopted survey research design with a structured questionnaire consisting of 40 items developed by the researcher for data collection. The population of the study comprised of all the 1161 students of technical education department from the two tertiary institutions offering technical education programmes in Niger State. Four research questions were formulated to guide the study. The findings of the study revealed among others that ICT facilities are not available for students use at the department and as such they don't have assess to it. In terms of usage, the students mostly use commercial cybercafés for the purpose of schools registration and thus there is poor usage of ICT for academic learning. Some recommendations were made in line with the findings which among others include the urgent need for the department to make ICT available and easily assessable for the students and also the need to mandate students to create email address and also present assignments/ course projects through power point projector.

Keywords: *ICT, ICT facilities, Technical Education, Tertiary institutions, Students*

Introduction

One of the monumental transformations the human race is currently experiencing is the evolution of information and communication technology simply tagged as ICT. Perhaps, it is in support of this assertion that Nwezeh (2010) highlighted that the information and communication technology revolution is sweeping through the world and the gale has even caught up with developing countries like Nigeria. To corroborate this view further, Adomi and Kpangan (2010) opined that the rapid rate at which ICT have evolved since the mid 20th century, the convergence and pervasiveness of ICT, give them a strong role in development and globalization. Indeed, ICT have a significant impact on all spheres of human activity ranging from health to agriculture, housing to transportation, education to power generation, communication to military hardware, commerce to geography, weather forecast to banking, culture to politics, economy to sports to mention but few.

In the field of education for which this research focuses on, Kumar and Kaur (2005) reported that the current information revolution and increasing impact of information and communication technologies have modernized the processes of learning, teaching and research in education. ICT seemingly infinite information offers access to up-to-date research reports and global knowledge (Nwokedi, 2007) so it has become an important component of electronic services in academic institutions.

Information and communication technologies have therefore introduced new methods of teaching, conducting research and brought into education, facilities for online learning, teaching

and research collaborations. To sum up the impact of ICT in the field of education, Davis and Tearle, 1999 cited by Yusuf, (2005) reported that ICTs have the potential to accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools to change from the traditional chalk and talk method to a renew innovations using the numerous access of modern technology. It has therefore, become an invaluable tool for learning, teaching and research (including collaborative research) in Nigeria. As important as ICT is in the field of education, the impact can only be exerted if and only if the target beneficiaries (students) have access and use the ICT facilities for the purpose for which it is meant.

Statement of the problem

Information and Communication Technology (ICT) in education has been continuously linked to higher efficiency, higher productivity, and higher educational outcomes, including quality of cognitive, creative and innovative thinking (Adeosun, 2010). The field of education has therefore been affected by ICTs, which have undoubtedly affected teaching, learning and research (Orie, Godspower & Legg-Jack, 2011). A great deal of research has proven the benefits to the quality of education (Ademola, 2011). In response to the global imperative of Education for All by the year 2015 and not willing to be left at lower side of 'digital divide' Nigeria developed and launched an ICT policy in 2001. One of the objectives of the policy focused on integrating ICT into the mainstream of education and training for students in all fields of learning.

In the field of technical education which the federal government of Nigeria has acknowledged as skill oriented programme which leads to the acquisition of practical and applied skills as well as basic scientific knowledge (National Policy on Education, 2004) it is imperative that the technical trainees (students) be kept abreast of emerging knowledge inherent in the emerging technologies in order to have first hand information affecting their field of practice and be well armed with adequate, relevant, up-to-date knowledge and skill. This can easily be facilitated if the students or trainees have access to ICT and subsequently maximize the numerous potentials of ICT through its usage. Perhaps, it is in this regard that the Economic Commission for Africa indicated that the ability of students to access and use information is no longer a luxury, but a necessity for development. It is against this background that this research investigates the availability, accessibility and usage of ICT among students of technical education in Niger State tertiary institutions.

Purpose of the study

The purpose of the study was to investigate the extent of availability, level of accessibility and use of ICT by students of technical education in Niger State tertiary institutions. Specifically, the study sought to:

1. Determine the availability of ICT facilities within the institution
2. Find out if the students have access to ICT facilities in the institution
3. Determine how often the students use ICT facilities
4. Find out the purposes for which the ICT facilities are used

Research Questions

The following research questions were formulated to guide the study:

1. Are ICT facilities available within the institutions?

2. Do students have access to the ICT facilities in the institutions?
3. How often do the students use ICT facilities?
4. What are the purposes for which the ICT facilities are use?

Methodology

The study adopted Survey Research design. The method was considered appropriate because it involves gathering information that relates to the opinions, attitudes and beliefs of the subjects of the study. According to Kassin (2007) surveys involve asking people a series of questions about their behaviors, thoughts, or opinions. This also agrees with the views of Osuala (1982) and Uzoagulu (1998) that surveys are oriented towards the determination of status of a given phenomenon; they focus on people and their beliefs, opinions, attitudes and behaviour.

Area of the Study

The study was carried out in tertiary institutions that offers technical education courses/programme in Niger state. The tertiary institutions are two, namely: the Federal University of Technology, Minna and Niger State College of Education.

Population/sample of the study

The target population for this study consisted of the 479 undergraduate students from the department of industrial and technology education of the Federal University of Technology, Minna and the 682 students of technical education from Niger State College of Education making a total of 1161. From this population, Yaro Yamane's sampling formula was used to sample 297 students from the two institutions while purposive sampling technique was adopted to select students that have spent at least one year in the institutions under study. Thus, only students from part two and above were selected for the study. The selection was based on the fact that these groups of students are expected to be very much conversant with facilities within the departments in particular and the institution in general.

Instrument for Data Collection

In this study, a structured questionnaire developed by the researcher was employed as the instrument for data collection. The questionnaire titled: Accessibility and use of Information and Communication Technology Questionnaire (AUICT) have 40 items generated to address the research questions. The questionnaire was structured with a four point scale of Strongly Disagree=1 point, Disagree=2 points, Agree=3 points, Strongly Agree=4 points. A total of 260 usable questionnaires were returned by the students.

Validation of the Instrument

The instrument was subjected to face and content validation by three experts from the Department of Industrial and Technology Education, Federal University of Technology, Minna and three principal lecturers from College of Education, Minna. Suggestions and criticisms from these experts formed the basis for the final draft of the questionnaire.

Method of Data Analyses

The data for the study was analysed using mean and standard deviation to answer the research questions. The weighting of the responses from the questionnaire items was assigned points 1, 2, 3, and 4 using the four points scale.

Decision Rule

To determine the level of acceptance, a mean score of 2.50 was chosen as the decision point. Consequently, any item with a mean score of 2.50 and above was considered acceptable (Agree) while responses with a mean score of 2.49 and below were regarded as not acceptable (Disagree).

Results and Discussion

Table 1: *Mean response of students on availability of ICT facilities in the institutions*

S/N	ITEMS	SA	A	D	SD	$\overline{X}$	Remark
1	Computers are available for students use in my department	16	33	69	142	1.70	Disagree
2	Power point projectors are available for students use in my department	10	30	66	154	1.60	Disagree
3	Photocopiers are available for students use in my department	15	22	73	150	1.62	Disagree
4	Scanners are available for students use in my department	9	24	67	160	1.55	Disagree
5	Internet service is available for students use in my Department	22	30	50	158	1.68	Disagree
6	Printers are available for students use in the department	16	24	61	159	1.60	Disagree
7	The schools' library have computers for students learning and research	10	26	53	171	1.52	Disagree
8	The library have internet facility available for students academic work	16	33	69	142	1.70	Disagree
9	The library have printers available for students academic work	22	30	50	158	1.68	Disagree
10	The library have scanners available for students academic work	10	30	66	154	1.60	Disagree
11	Photocopiers are available for students in the library	16	24	61	159	1.60	Disagree
12	Video conferencing facility is available in the library	9	24	67	160	1.55	Disagree
13	Power point projectors are available in the library	16	20	54	170	1.55	Disagree
14	Commercial cybercafés are available in the school	120	50	40	50	2.92	Agree

N=260

The results presented in Table 1 revealed that the mean responses of items 1 to 13 are below the decision point of 2.50. In line with the decision rule, the interpretation is that the respondents disagreed that ICT facilities are available for students use in the institutions. On the other, item 14 have a mean score of 2.92 which is above the decision point, implying that commercial cybercafés are available in the schools under study.

Table 2: *Mean response on students' accessibility to ICT facilities in the institutions*

S/N	ITEMS	SA	A	D	SD	$\overline{X}$	Remarks
15	Students have access to computers in the department	10	21	70	159	1.55	Disagree
16	Students have access to scanners in the department	15	35	62	148	1.68	Disagree
17	Students have access to photocopiers in the department	15	16	64	165	1.54	Disagree
18	Students have access to printers in the department	13	14	57	176	1.48	Disagree
19	Students have access to internet in the department	15	20	55	170	1.54	Disagree
20	The institutions' library allows students to access computers	8	23	50	179	1.35	Disagree
21	The institutions' library allows students to access scanners	15	35	62	148	1.75	Disagree
22	The library allows students to access printers	13	14	57	176	1.48	Disagree
23	The library allows students to access photocopiers	10	21	70	159	1.55	Disagree
24	The library allows students to access internet facilities	16	15	64	165	1.55	Disagree

The results presented in Table 2 revealed that the mean responses of all the items fall below the decision point of 2.50. In line with the decision rule, the interpretation is that the respondents disagreed that students have access to ICT facilities within the institutions.

Table 3: *Mean response on the frequency of usage of ICT facilities*

S/N	ITEMS	SA	A	D	SD	$\overline{X}$	Remark
25	Students use ICT facilities for academic work on daily basis	10	40	51	159	1.62	Disagree
26	Students use ICT facilities for academic work at least once in a week	16	15	64	165	1.55	Disagree
27	Students use ICT facilities for academic work once in a month	15	35	62	148	1.68	Disagree
28	Students use ICT facilities for academic work once in a semester	146	53	39	22	3.24	Agree
29	Students use ICT facilities for academic work once in a session	8	23	50	179	1.46	Disagree
30	Students don't use ICT facilities through out the sessions in the school	10	21	70	159	1.55	Disagree

In table 3 above, the mean score of five items (25,26,28,29 &30) falls below the cut off point of 2.50, which implies that the respondents disagreed with those items on the frequency of usage of ICT facilities.. However, only item 27 has a mean score of 3.24 (which is above the cut off point) which therefore implies that the respondents agreed with that statement.

Table 4: *Mean response on the purposes for which ICT facilities are used*

S/N	ITEMS	SA	A	D	SD	$\overline{X}$	Remark
31	Students use ICT facilities for assignment	176	57	14	13	3.52	Agree
32	Students use ICT facilities for project work	159	51	40	10	3.38	Agree
33	Students use ICT facilities for academic discussions	15	16	64	165	1.54	Disagree
34	Students use ICT facilities to chart on face book/ to-go	15	20	55	170	1.54	Disagree
35	Students use ICT facilities to play games	15	36	44	165	1.62	Disagree
36	Students use ICT facilities for e-mail	30	40	50	140	1.85	Disagree
37	Students use ICT facilities for schools' registration (café work)	146	53	32	29	3.22	Agree
38	Students use ICT facilities to download music	10	40	51	159	1.62	Disagree
39	Students use ICT facilities to watch films	32	29	53	146	1.80	Disagree
40	Students use ICT facilities to fax	16	15	64	165	1.55	Disagree

From table 4, items 31,32, & 37 have mean scores above the cut off point of 2.50 which indicates that the respondents agreed with the purposes for which ICT facilities are used. On the other hand, items 33,34,35,36,38,39&40 have mean scores below the cut off point which is an indication that the respondents disagreed with the purposes raised in the statements.

Discussion

The first research question sought to determine the availability of ICT facilities like computers, power point projectors, scanners, printers, photocopiers, video conferencing facilities and cybercafés. The findings revealed that all the facilities except the cybercafés are not available for students use at both the department and the library. Unfortunately, even the cybercafés are being operated by private individuals on commercial basis. This finding is in consonant with the investigation conducted by Adeosun (2010) when he highlighted that although efforts have been made to ensure that ICTs are available and used in Nigerian schools, the level of uptake is still low. This also agrees with Ani (2010) in his findings on Internet access and use by undergraduate students in Nigerian universities. The implication of this finding according to Okwudishu in Adomi and Kpangan (2010) is that the non-availability of ICT components in schools hampers students' use of ICT. To sum up on the first research question with respect to the absence of ICT facilities and the common availability of commercial cybercafés as discovered from this research, Adomi, Okiy and Ruteyan, (2003) concurred that the absence of ICT equipment in most Nigerian schools leads students to resort to cybercafés, thus most cybercafé clients in Nigeria are students. To buttress this point further, Adomi et. al. reported that 77.8% of the customers/users of cafes were students. The

discovery of the findings for the first research question equally addresses the second research question on students' accessibility of ICT facilities. The findings revealed that students don't have assess to ICT facilities which becomes quite obvious against the background that the ICT facilities are, sadly enough, not available in the first instance as discovered from the study. This finding was corroborated by the result of the 2011 Annual Socio-Economic Report on Access to ICT. According to the report, a survey was conducted between February and March 2011 and completed in July 2011on access to ICT facilities in Nigeria. The report shows that the most widely used devices are radios and mobile phones, while internet usage and PC access remained considerably low. 82.9% of Nigerians had total access (those who owned and those who had access only) to radio, and 63.9% had access to mobile phones. While less than half of the population (44.7%) had access to TV, more than 95% of the population does not have access to either the PC or the internet (Annual Socio-Economic Report on Access to ICT, 2011).

With respect to the third research question which sought to determine the frequency of usage of ICT facilities by the students, the findings revealed very poor usage of the ICT facilities because the average period of usage is once in a semester. Thus, it is an indication that the students don't frequently use the facilities which might of course not be unconnected with the mere fact that the facilities are grossly unavailable in the first instance. This finding was equally supported by Ani (2010) and Adeosun (2010). On the purposes for which the ICT facilities are commonly used by students, the findings revealed that the students used the ICT facilities for their project work and online registration popularly tagged as café work. This finding is also in line with the fact that institutional registration is this days mandatory online while project work also demands for the use of ICT facilities in terms of searching for related literature materials, computational/ statistical analyses etc.

Conclusion

Despite the undisputable fact that ICT is regarded the world over as an influential instrument for the development of quality teaching, learning and research in educational systems around the world, the students of technical education from Niger state tertiary institutions are still conspicuously not carried along with this monumental transformation. This is as a result of the non availability and subsequent accessibility as well as inadequate usage of ICT facilities within the institutions under study. The revelation of this study is therefore a pointer to the fact that the students from these tertiary institutions do not benefit from the monumental transformation derivable from the use of ICT and as such the impact cannot be exerted on the anticipated learning experience of the students. This is against the background that the impact and benefits can only be exerted if and only if the target beneficiaries (students) have access to and subsequently maximize the numerous potentials of ICT through its usage.

Recommendation

The following recommendations are proffered on the basis of the findings from this study:

- There is the urgent need for the technical education departments in particular and the institutions in general to make ICT facilities available for students use in both the departmental library as well as the main institutions library.
- The students should be given assignments, course projects, group work which will involve sourcing for information from the internet as this will not only expose the students to the

use of ICT, but it will also encourage them to be conversant with it in order to tap and maximize its potentials.

- Lecturers should encourage students to organize mini seminars for presentation of assignments through the use of power point projector as this will acquaint them to tap the potentials derivable from this ICT facility.
- The department should encourage students to conduct departmental registration through the use of departmental ICT facilities (when available) in order to maximize its usage.
- The department should mandate all students to create email address and post articles/information for students use through their email
- The institution should post students related information on its web site and students should be encouraged to log on to the institutions porter for information.

References

Ademola, A.S.(2011). Information and Communication Technologies professionaldevelopment for technical teachers: A panacea for developing competent motor vehicle mechanics craftsmen for contemporary automobile industries. Proceedings of the 24th annual national conference of Nigerian association of teachers of technology (NATT) held at Umunze, Anambra State between 18th -22nd October, 2011

Adeosun, O. (2010). Quality Basic Education Development in Nigeria: Imperative for Use of ICT. CICE Hiroshima University, Journal of International Cooperation in Education, Vol.13 No.2 (2010) pp.193 ~ 211

Adomi, E. E. and Kpangan, E. (2010). Application of ICTs in Nigerian Secondary Schools. Library Philosophy and Practice (e-journal) of University of Nebraska-Lincoln. Paper 345. Retrieved May 25th, 2012 from http://digitalcommons.unl.edu/libphilprac/345

Adomi, E.E., Okiy, R.B., & Ruteyan, J.O. (2003). A Survey of cybercafés in Delta State, Nigeria. The Electronic Library 21 (5): 487-95.

Ani, O. E. (2010) Internet access and use: A study of undergraduate students in three Nigerian universities. Electronic Library, Vol. 28 Iss: 4, pp.555 – 567

Annual Socio-Economic Report on Access to ICT, (2011). Report on Distribution of Ownership and Access to ICT. Available at www.nigeriastat.gov.ng2

Federal Republic of Nigeria. (2004). National Policy on Education (4th Edition). Lagos.

Federal Ministry of Information.Kassin, S. (2007). Psychology. Microsoft student 2008 (DVD). Redmond, WA: Microsoft Corporation

Kumar, R. and Kaur, A. (2005). Internet and its use in the Engineering Colleges of Punjab, India: A case study. Webology 2(4): 1-22.

Nwezeh, C. M.T. (2010). The Use of ICT in Nigerian Universities: A Case Study of Obafemi Awolowo University, Ile-Ife. Library Philosophy and Practice 2010. ISSN 1522-0222 Retrieved May 25th, 2012 from http://www.webpages.uido.edu/htm

Nwokedi, V. C.(2007). Impact of Internet use on teaching and research activities of the academic staff of Faculty of Medical Sciences, University of Jos: A Case study. Gateway Library Journal, 10 (I): 13-22.

Orie, C.J, Godspower, K.C, & Legg-Jack, D.W.(2011). Challenges of ICT in vocational and technical schools: Teachers' managerial and personal use of instructional material. Proceedings of the 24th annual national conference of Nigerian association of teachers of technology (NATT) held at Umunze, Anambra State between 18th -22nd October, 2011

Osuala, E.C. (1982). Introduction to research methodology. Onitsha, African FEP Publishers Ltd

Uzoagulu,A. E.(1998). Practical Guide to Writing Research Project Reports In Tertiary Institutions. Enugu, John Jacobs Classic Publishers

Yusuf, M. O. (2005) Information and Communication Technology and education: analyzing the Nigerian national policy for information technology. International Education Journal 6(3),316-321