

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT), ACADEMIC REVOLUTION AND STUDENTS ACADEMIC PERFORMANCE IN EBONYI STATE AND NNAMDI AZIKIWE UNIVERSITIES OF NIGERIA: AN EVALUATION

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Abstract

This paper studies the impact of ICT on the academic pro-performances and growth of students in Nigerian Universities. Globalisation and new technologies have challenged and changed the traditional process of teaching and learning in the universities. ICT provides instant access to a vast array of data and publications world wide. It has equally introduced new techniques for teaching and research. This paper therefore studies ICT programmes in Nigerian universities, using Ebonyi State and Nnamdi Azikiwe University as case illustration, and evaluates its impact on students' academic performance. The use of documented materials and questionnaires were an essential part of the instruments for data gathering. The study found that the high hopes and enthusiasm for ICT do not have positive impact on students' academic performance due to inadequacies in essential services and infrastructures such as electricity, finance, equitable skills and students attitudes. Some suggestions for effective integration of ICT in the teaching and learning process, with a view to promoting academic performances in Nigerian Universities were made.

The advent of information and communication technology (ICT) has changed both the pace and nature of learning all over the world. There is a shift from the traditional approach of manual, teacher-directed to modern methods where computer and internet technologies play a significant role. Students can stay in their homes, classrooms, and cyber cafes to receive lectures (without seeing the lecturer), and access texts or publications available at a very distant location. Many have branded this form of study e-learning.

It is a fact that the quality of scholarship and of the knowledge generated by any institution of learning is determined by the exposure of researchers/ scientists to current literature, modern techniques and contemporary findings. Nigerian universities were limited in their access to these and have consequently been backward in the areas of scientific discoveries and knowledge acquisition. This has resulted in their isolation from global discourse and trends in their fields. This affected the academic performance of students they teach negatively. Only very few, who are privileged to have studied abroad, or engaged in international seminars/conferences are prone to the use information and communication technologies (ITC). According to saint (1999), the core

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medium of instruction on the African continent remains the print, with other technologies acting as a supplementary means of delivery. In Nigeria, a meaningful change came February 2007 when the Federal ministry of Education created its ICT department (WikiEducator, 2007). Since then, significant universities to support functions such as the extension of programs to distant sites and the use of ICTs to support the teaching and learning, research and other management functions (LaRocque, 2003) in addition, many universities in Nigeria went into partnership with AFRIHUB-an ICT Company to provide ICT facilities and education for their institutions. Some universities like Nnamdi Azikiwe University have also gone some miles ahead of others to provide ICT-digital libraries for their students, lecturers and its management. Many private ICT companies and internet centres equally sprang up around these universities.

On the above, it is on record that the immediate past Vice-Chancellor of UNIZIK, profession Ilochi Okafor (SAN) successfully pursued three projects, namely: the development of infrastructures particularly the digital library, introduced ICT training for both students and staff in collaboration with Afrihub, assisted the senior members of staff to acquire table tops or laptops, distributed computers to departments and very senior members of the academic staff and embarked on internet connectivity to enhance electronic administration and research. Ebonyi State University, which do not only have an ICT centre and Cyber cafes.

However, a new visitor to any of the Cyber Cafes in Awka and Abakiliki will be shocked over the number of young people present at each point in time. Yet, there is a worrisome decrease in the academic performance of these students. This study therefore is disturbed by the following questions: Are students and lecturers making use of the ICT facilities available to them for academic purposes? Has access to ICT facilities impacted positively on students academic performance, if not, why?

Conceptual Clarifications

ICT: ICT is a shorthand expression for the computers, software, networks, satellite links and related systems that allow people to access, analyze, create, exchange and use data, information, and knowledge in ways that, until recently, were almost unimaginable. This highlights innovative efforts and partnerships and promotes literacy, and facilitates interaction between all sectors of a national economy including external spheres (Yusuf, 2006).

ICT Literacy: ICT literacy is the capability (knowledge, skills and attitude) of a person to identify, search effectively and present specific information in order to build knowledge and develop critical and creative thinking pertinent to a field of study. This phenomenon has changed human life pattern, caused revolutionary impact on educational methodology and inputs.

Review of Extant Literature

There is an avalanche of literature on ICT, the relationship between technology use (the from of ICT, how it is used, in what context it is used, educational reforms, impact of ICT on the user (empowerment of teachers, changes in teaching and learning

processes, and student learning), the non-instructional uses of ICT in (university administration and management), and the digital library and information services within the broader environment in which education operates. This section reviews such works and or makes use of already existing reviews on them.

Many authors contend that ICT improves educational performance in schools. Among them are Tsolakidis (2000:197), Anastasiou et al (2000). This is done by providing enhanced learning opportunities to various students (Asogwa, 2006), consequently lead to increased graduation rates and lower drop-out rates of students (olorundare, 2006). It promotes equity by providing students with access to courses which may not ordinarily be available (NASBE in Asogwa, 2006). It enhances the effort to engage undergraduates and their lecturers in collaborative learning across the world (Ifinedo, 2006) ICT increases the information accessible to individuals to support them in trying new strategies, thinking and creativity that are reflective in practice (Ololube, 2006b). Generally, this has brought about rapid changes in technology and has caused social, political, and global economic transformation (Nwachukwu, 1994; Yusuf, 2005). Other authors such as Dornisch & Land (2000), Maushak & Chen (2000), Lim and Yu's (2000) measured teacher's attitudes toward the use of web resources in the classroom and its impact, most probably in the integrative form (integrating ICT with prevailing subjects) and concluded that using web resources in the classroom is efficient. They opined that an effective incorporation of web resources into lessons can help present subject matter in realistic situations.

However, there is extensive literature on the impact of ICT on student's performance. This literature, however, shows mixed results. On one hand, some research demonstrates that there is no evidence of a key role for ICT in higher education and students performance (Angrist and Lavy, 2002; Benerjee et al., 2004; Goolsbee and Guryan, 2002; Kirkpa-trick and Cuban, 1998, Coates et al. (2004), Anstine and Skidmore (2005), Navarro and Shoemaker (1999), Terry, Lewer and macy (2003), born and Liedholm (2002), and Leugen et al. (2004). On the other hand, some studies show a real impact of ICT on students' achievement. Such include Kulik (1999), Sosin et al. (2004), Fushs and Wossman (2004), Talley (2005), Coates et al. (2004), Kulik's (1994), Sosin et al (2004), Fushs and Woessman (2004), Attwell and battle (1999), Li et al. (2003), and Sharpe (2004). While some contend with this discrepancy of ICT effect, Reiner, Tirivayi, Jensen & Gakio (2003) using 100 universities in 50 counties in Afirca focused on the state of ICT programmes in Nigeria Universities. They found out that no Nigeria University ranked among the top ten or the bottom ten nor the middle position in bits per networked computer. Folorunso, Ogunseye and Sharma (2006), Odusanya and Bamgbala's (2002), Adomi and Anie (2006), Okhiria (2007), WikiEducator (2007) associated this to mass unawareness, low computer literacy level and costs. Almost all literature in this domain of study is concerned about the inadequacy (even outright absence) of essential services and infrastructure. Obviously, electricity, internet, computers, telecommunications and postal services must be developed to levels that can support the declared scale of open and distance education (COL International, 2001; Yusuf, 2006, cf).

It is therefore the goal of this paper to contribute to the resolution of the discrepancy in research findings on ICT impact on students' performance by empirically testing these different opinions using two Nigerian universities in two different states.

Theoretical Nexus

Basically, we have seven theories or approaches that explains the impact of ICT on the standard of Education and they include; the administrative, the curricular, the didactic, the organisational, the systemic, the cultural and the ideological theories.

The administrative approach consists mainly of the desire to achieve a certain ratio of computers (or other kinds of equipment) to students. The curricular approach stems from the conception of technology as serving some specific curricular aims as a discipline in itself and as integral part of the prevailing curriculum. The didactic approach stems from the conception that the introduction of technology can lead to, or necessitates, the introduction of new didactic or teaching/learning methods. The organizational approach is based on the understanding that the introduction of ICT to schools should involve organisational change in school, consisting of more flexible attitudes to time, place, authority, roles and curriculum. The cultural approach maintains that the ICT revolution is a deep cultural revolution changing all modes and patterns of our lives and hence bound to lead to dramatic changes in education. The ideological approach characterises those individuals oriented towards philosophical or critical social thinking-those who believe that whatever the change that takes place, it should be guided in light of the values that are taken to be the aims of education. Our study has nothing to do with values rather it is concerned with ICT contribution to qualitative education.

Consequently, this work adopts the system theory of ICT impact on higher education. The systemic approach maintains that didactic and organizational changes in schools will not be possible without systemic changes, and that the merging of ICT and education requires organizational changes on the level of the whole system (Hargreaves, 1997; Meighan, 1997). The basic principle of this theory is that for ICT to impact positively on the quality of education in higher institutions, there must be a change in the entire system. The proponents of this theory are Hargreaves (1997) and Meighan (1997). The school curriculum, time table for lectures, method of teaching and research, instruments of teaching and learning, management style etc must change. In this change lies the impact of ICT on students, performance. This theory shall help us to evaluate the introduction of ICT programmes and the changes that may have effected within the system, so as to find out the impact of the programmes on students' academic performances.

Method

The work was undertaken in two stags. The first stage was to identify recent relevant initiatives and studies carried out at natural and international levels related to measuring and demonstrating the impact of ICT on students performance. Documentary research tool enable the author to view works in the internet, libraries public and private, seminar/workshop papers and government publications. The categories of documents

used in the study include both primary secondary sources. The second stage was to empirically verify the availability and nature of ICT programme at Nnamdi Azikiwe university Awka (UNIZIK) and Ebonyi state University Abakiliki (EBSU). In each of the school, we randomly selected five faculties which include social sciences, law, management sciences, education and engineering from where we distributed questionnaires. 1000 questionnaires were distributed, five hundred to each university. Specifically, 100 questionnaires were distributed to each faculty in the five chosen faculties in each school to a randomly selected students and lecturers. The administration of the instrument was personally handled by the researcher with the aid of departmental secretaries and faculty presidents of their student union. The data collected these questionnaires were subjected to statistical analysis using descriptive statistics and simple mathematical percentage mechanisms.

Data Gathering and Analysis

Table a: Do Lecturers and students in your school have access to ICT facilities?

S/N	Name of the Faculty	Yes	No	No Idea
1	Faculty of Law	181	nil	19
2	Faculty of Education	190	nil	10
3	Faculty of the Social Sciences	177	nil	23
4	Faculty of Management Sciences	182	nil	18
5	Faculty of Engineering	191	nil	9
	Total	921	nil	79

Source: field survey, 2010

From the above table ‘a’, the data collected using our instrument reveals that both lecturers and students have high access to ICT facilities. 921 out of 1000 respondents which represents 92.1% conceded to the fact that ICT facilities, whether privately or publicly owned by the institutions abound.

Table b: Is there any ICT Centre and Programme Established by Your School Out of the Existing Facilities?

S/N	Name of the University	Yes	No	No idea
1	Nnamdi Azikiwe University	500	nil	nil
2	Ebonyi State University	nil	432	68

Source: field survey, 2010

Table c: What are the Precise Actions Taken by Your School to Establish ICT Programmes?

S/N	Name of the faculty	Yes	No	No idea
1	Compulsory ICT Training: UNIZIK	500	nil	nil
	EBSU	nil	500	nil
2	Establishment of ICT centre: UNIZIK	398	70	32
	EBSU	nil	491	9
3	Distribution of ICT materials: UNIZIK	500	nil	nil
	EBSU	nil	500	nil
4	Networking school activities: UNIZIK	nil	487	13
	EBSU	nil	485	15

Source: field survey, 2010

From tables ‘b’ and ‘c’ above, responses from our respondents at Nnamdi Azikiwe University Awka reveal that UNIZIK introduced ICT training programmes for both students and staff, after which Lap-tops and computers were distributed to senior staff, departments and faculties. 100% of our respondents from UNIZIK, i.e. 500 persons affirmed to these facts. On the contrary, there was no such programmes at EBSU though individuals devoted their times to private ICT training and activities.

Table d: Are lecturers and students of your school making use of ICT facilities that are available in the school?

S/N	Name of the faculty	Yes: Regularly	Yes: Sparingly	No
1	Faculty of Law	30	106	64
2	Faculty of Education	105	54	40
3	Faculty of the Social Sciences	153	27	20
4	Faculty of Management Sciences	143	34	23
5	Faculty of Engineering	59	147	4
	Total	480	368	152

Source: field survey, 2010

An analysis of the above table reveals that 480 respondents (48%) make use of the ICT facilities regularly, while 368 respondents (36.8%) sparingly make use of them, and the remaining 152 persons representing 15.2% do not use them at all. This reveals that a fair number of the students and lecturers of the institutions make use of the ICT facilities.

Table e: What do You Use ICT Facilities For?

S/N	Name of the faculty	Yes	No	No idea
1	chatting and messages	432	Nil	Nil
2	Academic research	280	Nil	Nil
3	forest trading	80	Nil	Nil
4	down loading of software, music and movies	56	Nil	Nil
	Total	848	Nil	nil

Source: field survey, 2010

From the above table ‘e’, out of the total number of 848 respondents that make use of the ICT facilities, 432 (43.2%) admitted that they use them primarily for chatting and messages, 280 (28%) said they use it primarily for academic exercises while the remaining 136 (13.6%) use them for other activities ranging from forest trading, down loading of software, music and movies. Of the number that uses them primarily for academic purposes, 79 (28.21%) are lecturers who said they use the internet to search for developments in their field of specialization and publications. By implication, it is 201 (20.1%) of our study sample that uses the internet for academic curriculum purposes. This number or percentage represents a very low percentage of ICT application for teaching and learning in the institutions studied.

Table f: Which of the Following Alternatives Does Your School Employ in the Use of ICT Facilities in Teaching/Learning?

S/N	Name of the faculty	Yes	No	No idea
1	Internet base assignment	871	129	nil
2	medium of teaching	nil	983	17
3	introduction of ICT programmes	1000	nil	Nil

Source: field survey, 2010

The survey as reveal by table ‘f’ further shows that internet pro-teaching/learning programmes are very low in both schools. 129 respondents i.e. 12.9 % against 871 (87.1%) said that they give or are given internet assignments in school. As a medium of teaching, 983 respondents, which represent 98.3%, affirmed that no form of ICT mechanism is used to impact knowledge in their school. It is therefore not surprising that 896 (89.6%) of our respondents maintained that the introduction or establishment of ICT projects/programmes has not made any positive impact on the improvement of students academic performance.

Table g: Which of these are Major Impediments to the Application of ICT on Teaching/Learning in Your School?

S/N	Name of the Faculty	Yes	No	No idea
1	lack of ICT knowledge and skill	938	nil	62
2	adhoc ICT training programme	689	251	60
3	lack of time to participate in ICT programmes	867	123	10
4	problem of finance	988	12	nil

Source: field survey, 2010

From the above table, 938 respondents representing 93.8% said that lack of ICT knowledge and skill are fundamental factors hindering the application of ICT to teaching/learning in their schools. While a total of 698 respondents i.e 68.9% attributed the performance of ICT application to teaching and learning on the adhoc nature of the ICT training programme organised by the management and private organisations for students and staff. They only learn how to operate the primary aspect of computer and words programme. A total number of 867 (86.7%) respondents complained of lack of time to participate fully in private ICT programmes due to school curriculum.

The problem of finance is another factor hindering ICT and its impact on students' performance in higher institutions. A total number of 988(98.8%) respondents conceded to this fact. this embraces the costs of setting up ICT facilities, paying for complete and normal ICT programmes, paying for internet browsing and that of subscribing for secured sites and publications in the net, and the cost of maintaining ICT centres. Similar to this problem, was that of light, wherein 100% of the respondents admitted that the epileptic power supply is another major factor hindering the smooth functioning if ICT centres in the schools.

Findings

A detailed analysis of data generated with questionnaires as outlined this paper discovers that:

- a) Lecturers and students in UNIZIK and EBSU have access to ICT facilities.
- b) The management of UNIZIK organised training for their students/staff and supplied them with ICT facilitates, while EBSU did not. EBSU staff and students have recourse to private ICT centres.
- c) A reasonable percentage of the lecturers and students use ICT facilities mainly for chatting and sending messages more than for academic activities.
- d) ICT facilities are not used as a medium of teaching and learning in the two schools.
- e) Lack of ICT knowledge and skill, adhoc ICT training programme, lack of time to participate in ICT programmes, problem of finance are major factors hindering the application of ICT facilities to teaching and learning in UNIZIK and EBSU.

Conclusion

In the course of investigation, this paper discovered that ICT facilities abound at both UNIZIK and EBSU and that a fair number of students and lecturers make use of them. However, it also discovered that a high percentage of the number that use the facilities do not use them for academic curriculum rather for other purposes which ranges from chatting, messages, forest trade, music and films etc. the most important discovery made by the paper is that none of the two institutions make use if any ICT programme as a means of learning/teaching.

It was equally discovered that the above problems were caused by a number of factors prominent among them include lack of ICT skills, epileptic power supply, financial problems, lack of time for private engagement in ICT projects. Therefore, though the respondents attest to the negative impact of ICT on the academic performance of students, there is no basis to conclude in that direction. This is because of many intervening variables such as the problems noted above. This paper therefore conclude that the discrepancy that exists in research findings is as a result of localized or particular factors interfering with the application of ICT programmes in various schools.

Recommendations

In view of the observations made by this paper, the following suggestions are hereby offered;

1. A scientific template for testing ICT-performance impact should be developed by theorists.
2. ICT programmes/projects should be inculcated into undergraduate curriculum of Nigerian universities to solve the problems of adhoc training, lack of time for private computer training and cost of acquiring its training.
3. Universities in Nigeria should not only pursue the use of ICT mediums for teaching and learning but should also embark on ICT pro-assignments, research and examinations.
4. The government of the Federal Republic of Nigeria should establish free internet access for all citizens particularly students as the case is with Western countries.
5. Lecturers should be involved in compulsory computer training for a full academic session with a provisio that their next promotion is dependent on the successful completion of the course.
6. The Federal government should equally pursue uninterrupted power supply as that is the bane of industrial and economic development of any country.

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