

Information and Communication Technology (ICT): A Catalyst for Enhancing Post-Primary Education in Delta State, Nigeria

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ABSTRACT

This study was designed to look at ICT as a catalyst for enhancing post-primary education in Ethiope East local government area of Delta State, Nigeria. The study adopted the descriptive design survey type. A questionnaire titled ICT as a catalyst for enhancing post-primary education (QICEPPE) was designed for data collection. The sample size for the study was 147 teachers which is 100% of the total population. This amounts to 100% return rate as the researcher employed the services of well-trained research assistants to assist in the questionnaires administration. Tables, frequency counts and simple percentage statistical tool were used to answer the research questions. After the total collection of data, critical analysis of the study was carried out and the major findings revealed the following: that the ICT-driven instructional aids available in the secondary schools are television sets, video/VCD machines, computers and internet, that information and communication technology create effective communication, can be used for mass instruction and taking care of a wide audience and used to improve teaching methods, that there is need for improvement in the provision of ICT-driven instructional aids in the secondary schools and that the challenges facing the effective implementation of ICT in post-primary curriculum be combated to enable these aids to be used to their fullest extent.

KEYWORDS: *Information and Communication Technology (ICT), Post-Primary Education, Secondary School, Delta State and Nigeria.*

INTRODUCTION

Information and communication technology (ICT) has a significant impact in all areas of human activity (Brakel and Chisenga, 2003). According to Yusuf (2005), the field of education has been affected by ICT which has undoubtedly affected teaching, learning and research. The use of ICT in education has the potential to enhance the quality of teaching and learning, the research productivity of teachers and students, and the management and effectiveness of institutions (Kashorda, Waema, Omosa & Kyalo, 2007).

However, Al-Ansari (2006) noted that information and communication technology has the potential to accelerate, enrich, deepen skills, motivate and engage students to relate school experiences to work practices, create economic viability for tomorrow's workers as well as strengthen teaching and school change.

During the past decade, there has been an exponential growth in the use of ICT which has made pervasive impacts both on society and on our daily lives. There has been increasing interest, attention and investment being put into the use of ICT, especially in education which raises concern of how best the Information and Communication Technology (ICT) resources can be implemented and integrated to support the academic processes (Kyalo & Nzuki, 2014).

According to Balanskat, Blamire, and Kefala (2006), new technologies have the potential to support education across the entire curriculum and provide opportunities for effective communication between teachers and students in ways that have not been possible before. It is argued that although educators appear to acknowledge the value of ICT in schools, difficulties continue to be encountered during the processes of adopting these technologies.

As noted by Ali, Haolader & Muhammad (2013), ICT covers the electronic means of capturing, processing, storing and communicating information. The use of ICT in education is very important for it provides opportunities for teachers and students to operate, store, manipulate, and retrieve information, encourage independent and active learning, and self-responsibility for learning such as distance learning, motivate teachers and students to continue using learning outside school hours, plan and prepare lessons and design materials such as course content delivery and facilitate sharing of resources, expertise and advice.

Information and Communications Technology (ICT) are a diverse set of technological tools and resources used for creating, storing, managing and communicating information, and to support teaching and learning and research activities (Vajargah, Jahani & Azadmanesh, 2010). In the definition of information and communication technology in education, four main elements can be taken into consideration; ICT as an object that refers to learning about ICT, an assisting tool, a medium for teaching and learning and finally a tool for organization and management in schools (Mahmood & Bokhari, 2012).

Kiptalam & Rodriguez (2010) asserts that while noting the underlying common themes of understanding the dynamics of supply and demand to explain the benefits of ICT in education, often overlooked is the usage of such technologies that are likely to play a major role in determining the benefits and impacts being studied. Giving vent to this assertion, Tearle (2011) noted that the implementation of ICT to enhance and extend teaching and learning across a wide range of subject areas has proved challenging to many post-primary schools, and understanding the issues regarding encouragement, support and infrastructures required to achieve this has proved to be complex.

Ajayi (2008) stated that despite efforts to ensure the implementation of ICT in Nigeria post-primary education, the level of uptake is still low. Okwudishu (2005) observed that most schools, both private and government-owned do not offer enough ICT training programmes. He discovered that the unavailability of some ICT components in schools hampers teachers' use of information technologies. Access to ICT facilities, lack of adequate search skills and of access point in the secondary schools were reported as factors inhibiting the use of the ICT facilities by secondary school teachers (Kaku, 2005).

However, Adomi (2006) stated that the adoption and use of ICT in secondary schools have a positive impact on teaching, learning and research. Despite the roles that ICTs can play in education, secondary schools in Nigeria are yet to extensively adopt these tools for teaching and learning.

STATEMENT OF THE PROBLEM

The use of ICT in education especially in post-primary education has the potential to enhance the quality of teaching and learning, the research productivity of teachers and students, and the management and effectiveness of institutions (Kashorda et al., 2007). However, opportunities for realizing the benefits of using ICT in post-primary education face a number of challenges in the developing countries (Kiptalam & Rodriguez, 2010). The low rate of IT adoption and implementation in Nigerian secondary schools is attributable to several factors such as poor policy and project implementation strategies, limited or poor information infrastructure, irregular power supply, non-inclusion of ICT programmes in teacher-training curriculum, the cost of purchasing computers and lack of ICT in the secondary schools are the problems which this research tends to investigate.

PURPOSE OF THE STUDY

The purpose of this study is to examine the role of ICT as a catalyst for enhancing post-primary education in Nigeria.

The specific objectives investigated:

- (1) the ICT-driven Instructional Aids available in post-primary schools;
- (2) how ICT-driven Instructional Aids can improve post-primary education in Nigeria and
- (3) the challenges facing the effective implementation of information and communication technologies (ICTs) in post-primary education in Nigeria.

RESEARCH QUESTIONS

This study will answer the following research questions:

- (1) What are the ICT-driven Instructional Aids available in post-primary schools?
- (2) How can ICT-driven Instructional Aids improve post-primary education in Nigeria?
- (3) What are the challenges facing the effective implementation of information and communication technologies (ICTs) in post-primary education in Nigeria?

SCOPE OF THE STUDY

This study focuses on the role of ICT as a catalyst for enhancing post-primary education in Nigeria. It also identifies the ICT-driven Instructional Aids available in post-primary schools, how ICT-driven Instructional Aids can improve post-primary education in Nigeria and the challenges facing the effective implementation of information and communication technologies (ICTs) in post-primary education in Nigeria.

The scope of this study is limited to five secondary Schools in Ethiope East Local Government Area of Delta State to ensure effectiveness and high efficiency in the research. The schools are:

- (1) Erho Secondary School, Erho
- (2) Igun Secondary School, Igun
- (3) Urhuoka Secondary School, Urhuoka

- (4) Okpara Boys' Secondary School, Okpara-Inland
- (5) Agbon Secondary School, Isiokolo

RESEARCH DESIGN

This study is descriptive survey designed and it examines ICT as a catalyst for enhancing post-primary education in Delta State, Nigeria. This method was chosen because will help to determine the current status of ICT teaching in the curriculum of some selected secondary schools in Ethiope East Local Government Area of Delta State.

RESEARCH INSTRUMENT

The instrument employed for this study is the questionnaire. The questionnaire is divided into four (4) sections. Section A consists of Persona data, Section B is on the ICT-driven Instructional Aids available in post-primary schools; Section C is on how ICT-driven Instructional Aids can improve post-primary education in Nigeria and Section D is on the challenges facing the effective implementation of information and communication technologies (ICTs) in post-primary education in Nigeria.

VALIDITY AND RELIABILITY OF THE INSTRUMENT

The questionnaire for this study was first designed by the researcher and submitted to the supervisor. All relevant suggestions/corrections such as the test items and matching these items with the research questions were taken into account in the preparation of a final copy of the questionnaire to ascertain the validity of the instrument. Thus, content and face validity were ensured.

To determine the reliability of the instrument, a test and retest method was carried out by the researcher whereby copies of the questionnaire were administered to Delsu secondary school, Abraka in Delta State. This was to ensure the instrument's reliability before proceeding to the field for administration.

METHOD OF DATA COLLECTION

Questionnaires were administered to the teachers in the five sampled secondary schools in Ethiope East Local Government Area of Delta State and all were retrieved as soon as they were completed because the researcher employed the services of well-trained research assistants to assist him in the process of the questionnaire administration in the schools.

RESULTS AND DISCUSSION

Table 1: Gender of the respondents

Gender	Responses	Percentage
Male	68	46.3%
Female	79	53.7%
Total	147	100%

Source: Field survey, 2016

Table 1 displays that 68 (46.3%) of the teachers were male while 79 (53.7%) of the teachers were female.

Research Question One: What are the ICT-driven Instructional Aids available in post-primary schools?

Table 2: ICT-Driven Instructional Aids available in Post-Primary Schools

S/N	Items	Agree	%	Disagree	%	Undecided	%
1.	Computers	117	79.6%	30	20.4%	0	0%
2.	Radios/tape recorders	53	36.1%	94	63.9%	0	0%
3.	Overhead Projectors	25	17%	112	76.2%	10	6.8%
4.	Television sets	134	91.2%	13	8.8%	0	0%
5.	Video /VCD machines	121	82.3%	26	17.7%	0	0%
6.	Slides	10	6.8%	100	68%	37	25.2%
7.	Filmstrips	0	0%	140	95.2%	7	4.8%
8.	Electronic notice boards	0	0%	130	88.4%	17	11.6%
9.	Internet	101	68.7%	32	21.8%	14	9.5%
10.	Disk players	87	59.2%	50	34%	10	6.8%
11.	Bulletin boards	97	66%	40	27.2%	10	6.8%

Source: Field survey, 2016

Table 2 shows that ICT-driven instructional aids that have the highest record of availability are the television sets, video/VCD machines, computers and internet with 91.2%, 82.3%, 79.6% and 68.7% responses respectively. Bulletin boards and disk players were available in the schools as affirmed by 59.2% and 66% of the respondents respectively. Also, it is obvious that there are no electronic notice boards and filmstrips in the secondary schools and the availability of overhead projectors, slides, and radios/tape recorders are very low. The analysis clearly shows that most of the ICT-driven instructional aids are available in the secondary school under study which is in line with Babajide & Bolaji (2003), Bryers (2004), Bandele (2006) and Ofodu (2007) who listed the various ICT facilities used in teaching and learning processes in secondary schools to include: radios, televisions, computers, overhead projectors, optical fibres, fax machines, CD-ROMS, internet, electronic notice boards, slides, digital multimedia, video/VCD machine and so on.

Research Question Two: How can ICT-driven Instructional Aids improve post-primary education in Nigeria?

Table 4.3: How ICT-Driven Instructional Aids can improve Post-Primary Education

S/N	Benefits	Agree	%	Disagree	%	Undecided	%
1.	Stimulation of students' interest	137	93.2%	10	6.8%	0	0%
2.	Concretize abstract issues or topics in teaching and learning process	125	85%	22	15%	0	0%

3.	Creating effective communication	147	100%	0	0%	0	0%
4.	Use for mass instruction and taking care of a wide audience	147	100%	0	0%	0	0%
5.	Providing meaning and useful sources of information to teachers and learners	141	95.9%	6	4.1%	0	0%
6.	Helps in developing a continuity of reasoning and coherence of thought	134	91.2%	13	8.8%	0	0%
7.	It saves time and reduce verbalism or repletion of words	126	85.7%	21	14.3%	0	0%
8.	It is used to improve teaching methods	147	100%	0	0%	0	0%
9.	To promote closer relations between the community and school	115	78.2%	12	8.2%	20	13.6%
10.	To accelerate, enrich and deepen teachers' skills	133	90.5%	14	9.5%	0	0%

Source: Field survey, 2016

Table 3 discloses how ICT-driven instructional aids can improve post-primary Education in Nigeria. It is disclosed that the ICT-driven instructional aids can create effective communication, can be used for mass instruction and taking care of a wide audience and used to improve teaching methods as agreed by 100% of the respondents. Again, 95.9% agreed that ICT-driven instructional aids provides meaningful and useful sources of information to teachers and learners, 93.2% said that they stimulate students' interests, 91.2% affirmed that they help in developing a continuity of reasoning and coherence of thought, 90.5% avowed that ICT-driven facilities accelerates, enrich and deepen teachers' skills, 85.7% posited that they save time and reduce verbalism or repletion of words, 85% agreed that they concretize abstract issues or topics in teaching and learning process while 78.2% are of the view that ICT-driven instructional aids promote closer relations between the community and school. It is therefore evident that there are various ways in which ICT-driven instructional aids can improve post-primary education in Nigeria. This analysis is in support of the findings of Torruam & Abur (2013) who pointed out that ICT-driven instructional aids can enhance teaching and learning through its dynamic, interactive and engaging content, providing real opportunities for individualized instruction.

Research Question Two: What are the challenges facing the effective implementation of information and communication technologies (ICTs) in post-primary education in Nigeria?

Table 4: Challenges facing the Effective Implementation of Information and Communication Technologies (ICTs) in Post-Primary Education

S/N	Challenges	Agree	%	Disagree	%	Undecided	%
1.	Frequent electricity interruption	126	85.7%	21	14.3%	0	0%
2.	Inadequate ICT facilities	145	98.6%	2	1.4%	0	0%
3.	Non-integration of ICT into the school curriculum	137	93.2%	7	6.8%	0	0%
4.	Limited ICT skills	136	92.5%	11	7.5%	0	0%
5.	Inadequate educational software	125	85%	22	15%	0	0%
6.	Lack of funds	147	100%	0	0%	0	0%
7.	Poor governmental support to schools	110	74.8%	37	25.2%	0	0%
8.	Lack of regular review of curriculum	110	74.8%	37	25.2%	0	0%
9.	High cost of ICT facilities	109	74.1%	38	25.9%	0	0%
10.	Inadequate ICT manpower	147	100%	0	0%	0	0%

Source: Field survey, 2016

Table 4 shows the challenges facing the effective implementation of Information and Communication Technologies (ICTs) in Post-Primary Education. It is evident that lack of funds and inadequate ICT manpower were the major challenges with the highest frequencies as stated by 100% of the respondents. Another challenges with high frequencies are inadequate ICT facilities, the non-integration of ICT into the school curriculum and limited ICT skills as agreed by 98.6%, 93.2% and 92.5% of the teachers respectively. Frequent electricity interruption is another problem as stated by 85.7% of the respondents while inadequate educational software is another problem as noted by 85% of the respondents. However, poor governmental support to schools, lack of review of school curriculum and high cost of ICT facilities was agreed to pose a problem by 74.8%, 74.8% and 74.1% of the respondents. This implies that so many challenges are militating against the effective implementation of ICT in post-primary education. This is in line with Igwe (2005) that the incorporation of IT in Nigeria secondary education is thwarted by a combination of factors or challenges. Also, Ocholla (2003) asserted likewise

SUMMARY OF FINDINGS

The data collected were analyzed using a simple percentage and frequency distribution table. At the end of the analysis, findings that were made were as follows:

- Majority of the ICT-driven instructional aids such as television sets, video/VCD machines, computers and internet were available in the post-primary schools.
- ICT-driven instructional aids can create effective communication, can be used for mass instruction and taking care of a wide audience and used to improve teaching methods.
- There are many challenges militating against the effective implementation of ICT in post-primary education in Delta State.

Finally, conclusions were drawn from the findings, recommendations given as well as suggestions made for further studies.

CONCLUSION

The research topic, ICT as a catalyst for enhancing post-primary education in Delta State has shown based on research findings that the impact of ICT-driven instructional aids in any school (whether basic or post-primary level) cannot be overemphasized. The researcher therefore concludes that every post-primary school should utilize every source possible to combat the challenges facing the effective implementation of ICT into their curriculum to ensure that teaching and learning processes are optimized.

RECOMMENDATIONS

Based on the findings of this study, the following are recommended for the effective implementation of information and communication technology in post-primary education in Ethiope East Local Government Area of Delta State, Nigeria:

- More ICT facilities should be provided in the secondary schools
- ICT-driven instructional aids in secondary school curriculum should continually be awarded their prominent role.
- Teachers should always keep abreast of newer methods of teaching with the use of ICT.
- Government should provide support to the post-primary schools from time to time.
- Regular electricity supply should be provided to effectively implement ICT facilities.
- Funds should be provided to purchase ICT facilities in the secondary schools.
- Adequate ICT facilities should be provided for ICT implementation.

REFERENCES

- Adomi, E. E. (2006). Mobile Phone Usage Patterns of library and Information Science students of Delta State University, Abraka, Nigeria. *Electronic journal of Academic and Special Librarianship* 7 (1), (Spring 2006) Retrieved from <http://Southernlibrarianship.Icaap.Org/v7no1/adomi-eol.htm>.
- Ajayi, I. A. (2008). Towards Effective Use of Information Technology for teaching in Nigeria colleges of education. *Asian Journal of Information Technology* 7 (5):210-214.
- Al-Ansari, H. (2006). Internet Use by the faculty members of Kuwawt University. *The electronic Library*, 24 (6): 791 – 803
- Ali, G., Haolader, F. A. & Muhammad, K. (2013). The role of ICT to make teaching – learning effective in higher institutions of learning in Uganda. *International Journal of Innovative Research in Science, Engineering and Technology* 2 (8): 4061 – 4073
- Balanskat, C. K., Blamire, H. I. & Kefala, K. J. (2006). What stops teachers using new technology? In M. Leask (Ed.), *Issues in Teaching Using ICT* (pp. 61-79). London: Routledge.
- Brakel, P. A. and Chisenga, J. (2003). Impact of IT-based distance learning: The African story. *The Electronic Library* 21 (5), 476-486.

- Kaku, F. A. (2005). The Use of Internet by Secondary School Teachers in the rural areas of Delta State: a case study of Udu Local Government Area, Abraka. Delta State University. Unpublished B.Sc. (LIS) project.
- Kashorda, M., Waema, T., Omosa, M., & Kyalo, V. (2007). E-Readiness Survey of Higher Education in Kenya. Kenya Education Network (KENET), Nairobi.
- Kiptalam, G. K. & Rodriguez, A. J. (2010). Accessibility and Utilization of ICTs among Secondary School Teachers in Kenya. School of Computing & Informatics, University of Nairobi, Kenya.
- Kyalo, J. K. & Nzuki, D. M. (2014). Determinants of information and communication technology (ICT) integration in tertiary institutions. *International Journal of Education and Research* 2 (3): 1 – 10
- Mahmood, A. & Bokhari, N. (2012). Use of information and communication technology: Gender differences among students at tertiary level. *Journal of Educational and instructional Studies in the World* 2 (4): 1 – 9
- Okwudishu, C. H. (2005). Awareness and Use of Information and Communication Technology (ICT) among village secondary school teachers in Aniocha South Local Government Area of Delta State. Delta State University. Unpublished B.Sc. (LIS) project.
- Tearle, P. (2002). The Implementation of Information and Communications Technology for Teaching and Learning in Secondary Education in the United Kingdom. Unpublished thesis, University of Exeter, Exeter.
- Vajargah K.F., Jahani, S. & Azadmanesh, N. (2010). Application of ICTs in teaching and learning at university level: The case of Shahid Beheshti University. *The Turkish Online Journal of Educational Technology* 9 (2), 33-39
- Yusuf, M. O. (2005). Integrating ICTs in Nigeria tertiary education. *The African Symposium. An online Journal of African Educational Research Networks* 5 (2): 43-50.