Impact of Information Communication Technology (ICT) on Students Academic Performance in Public Secondary Schools in Nigeria

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Abstract: Information communication is vital for the realization of educational objectives. It plays a critical role in the implementation of school programs. It is useful for school administrators, teachers and students. This paper examined the impact of information communication on students' academic performance in public secondary schools in Nigeria. Secondary data were employed to provide empirical facts for the points raised in the paper. This study concludes that information communication technology (ICT) enhances academic performance of students, improves learning programme of students, and makes learning programme fast and flexible. The paper also established that students that are ICT literate perform better than those without ICT skills in term of online learning. The paper identified factors preventing public secondary schools students from effectively using ICT for their academic work to include inadequate ICT facilities, poor implementation of ICT policies, unstable internet services, unstable electricity, high cost of ICT facilities, poor ICT literacy among teachers and students and high cost of internet services.

Keywords: Academic, Challenges, Information Communication Technology, Public Secondary School, Performance

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Introduction

Public secondary schools are educational institutions established by the government to provide educational services to the general public. Public secondary schools are schools owned and managed by the government. It is established by act of law for the provision of social services to the people.

Post-Basic Education and Career Development (PBECD) is the education children receive after a successful completion of ten years of Basic Education and passing the Basic Education Certificate Examination (BECE) and Junior Arabic and Islamic Studies Certificate Examination (JAISCE). It includes: (i) senior secondary education, (ii) higher school; and (iii) continuing education given in Vocational Enterprise Institutions (VEIs) to either Basic Education graduates who are not proceeding to Senior Secondary Schools, or Senior Secondary graduates that are not proceeding to the tertiary level, as a means of preparing them for the world of work, wealth creation and entrepreneurship (Federal Republic of Nigeria, 2013).

The objectives of Post-Basic Education and Career Development (PBECD) are to: a. Provide holders of the Basic Education Certificate and Junior Arabic and Islamic Studies Certificate with opportunity for education of a higher level, irrespective of gender, social status, religious or ethnic background; b. offer diversified curriculum to cater for the differences in talents, disposition, opportunities and future roles; c. provide trained manpower in the applied sciences,

technology and commerce at sub-professional grades; d. provide entrepreneurial, technical and vocational job-specific skills for self-reliance, and for agricultural, industrial, commercial and economic development; e. develop and promote Nigerian languages, art and culture in the context of world's cultural heritage; f. inspire students with a desire for self-improvement and achievement of excellence; g. foster patriotism, national unity and security education with emphasis on the common ties in spite of our diversity; and h. raise morally upright and well-adjusted individuals who can think independently and rationally, respect the views and feelings of others and appreciate the dignity of labour.

The secondary school education is an educational institutions that is designed to function with the following people, the school administrators, the teachers and the students. The students are strong member of the educational institutions especially the secondary schools. The students are regarded as the most important member of the school system because the schools were established for the students. The students are in the school to learn and acquire necessary skills that will enable them participate in the development of the society. The achievement of the students learning programme hinges on the availability of the quality of human and materials resources available in the school. Abara, Ogunode&Olatunde-Aiyedun (2021) submits that the students or learners are learning groups of people that needs instruction from an organized system. ICT resources are some of the learning aids students need to improve their performance in the school. Also, the realization of the objectives of Post-Basic Education and Career Development (PBECD) according to oguno (2021) depends on the availability of materials and human resources available in the educational institutions. The human resources are made up of the teachers and non-teaching staff while the materials resources include ICT resources etc. Based on this, this paper aimed to discuss the influence of information communication technology on academic performance of public secondary schools in Nigeria.

Concept of Information Communication Technology

Information communication technology refers to technological facilities designed for sending, receiving, storing and processing information. Information communication technology is the application of electronic devices to send, collect, receive, process and store, retrieve and transmit information from one device to another device. Ezeugo (2010), sees Information and Communication technology (ICT) as: convergence or combination of micro-electronics, computers (hardware and software) and telecommunication for acquiring, processing, storing of huge amounts of information and the rapid dissemination of vocal, pictorial, textual and numeric information while Orji (2014) observed that ICT is simply put as the use of computers and telecommunication equipment in capturing, processing, storing and dissemination of information. It is also seeing as the science of information processing which deals with the use of computers, and other electronic devices to collect, process, store, retrieve and transmit or disseminate information to any part of the world. Duta and Martinaz-Rivera (2014) defined ICT as a set of two electronic technologies comprising computer systems which collect, store and process information, and the telecommunication system which disseminate the information.

Orji (2014) observed that in teaching and learning endeavour, ICT tools which are integral part of the required educational media could play vital role in creating such a conducive learning environment and facilitating effective teaching and learning. ICT comprises technological devices which help in transforming the process and method of teaching and learning including school administration and practice which are key issues in our guest for quality service delivery in education. Just as in other educational media, ICT is an electronic medium through which the contents of the lesson could be communicated effectively to the learners. Sharon (2011) submitted that Information and Communication Technology (ICT) offers a range of powerful tools to help pupils to learn and to achieve high standard in Religious Education. He further opined that the key message to the use of ICT depends on it offering the best means of achieving a particular Religious Education objective. The use of ICT for teaching and learning in public secondary schools makes the implementation of lesson easy. The potential of computer technology to enhance teaching and learning has been recognized for some time. Generally, it is

accepted that computer technology has potential to enhance teaching and learning and provide student with a learning experience that other strategies cannot provide (Idris2016, Wellington, 2005). Information and Communication Technologies also includes handset, radio, projectors, computers, television, telephone,e-mail, satellite radio and other facilities with their accessories that enables transfer of information from a sender to the intended receiver without undue distortion.

Information and Communication Technologies is use in all the educational institutions by the school administrators, teachers and students. Information and Communication Technologies is more appreciated in the secondary school education. Ugwoke, Onu, Agangan and Ugwuanyi, (2015) submitted that Organizations including secondary schools across the globe have found information as a very valuable resource that gives competitive edge, economic prospects, legal, fiscal and risk management opportunities. Information and communication technology (ICT) is the use of computers and other technology in the management of information and other organizational activities. ICT offers new capabilities that resulted in significant changes in organizations, enhanced new methods of information dissemination within and also outside theorganization.Faith (2020) observed that ICT plays a fundamental role in an educational sector by offering many opportunities to access universal education that gear toward quality instruction, quality teaching and learning, teacher's professional development, efficient management and administration of educational systems. The above roles are relevant to advancing the teaching and learning among Nigerian Senior Secondary School students.

Impacts of Information Communication Technology on Academic Performance of Students of Public Secondary schools in Nigeria

There are many impacts of information communication technology (ICT) on students' academic performance in public secondary schools. Some of the ICT impacts include enhances academic performance of students, improves learning programme of students, and makes learning programme fast and flexible for students and improves the academic performance of students.

Enhances Academic Performance of Students

ICT enhances academic performance of students in public secondary schools. This submission is established by Adegbite, (2017) who examined the effect of ICT on the performance of Students in Secondary School in Oyo State, Nigeria. Findings showed that1% increases in ICT increases the performance of Students in Secondary School by 0.37%, there is significant effect of ICT on performance of Students in Secondary School in Oyo state. The entire statistic outcomes Wilks' lambda (0.3722), Pillai's trace (0.4438), Lawley-Hotelling trace (1.1021) and Roy's largest root (1.1021) suggest the positive significant effect of ICT on performance of Students in Secondary School. It was concluded that ICT has positive significant impact on performance of Students in Secondary School in Oyo state. Also, Faith (2020) investigated the application of Information Communications Technology (ICT) in Home Economics Education in public secondary schools. The findings of the study showed that ICT has significant influence in the lives of senior secondary school students of Home Economics Education. Mohammed, Muhammad &Garba, (2019) conducted a study that examined the effect of Information and Communication Technology (ICT) tools on student learning in senior secondary schools in Sokoto South Local Government Area of Sokoto State, Nigeria and found out that Information Communication Technology (ICT) has tremendous impact on student learning in secondary schools. Balanskat, Blamire and Kefala (2006) as cited by Ojo (2018) on the advantages and benefits of ICT in European school achievements, findings revealed a positive impact on student performance in higher institution, particularly in the faculty of social sciences, education and arts, although the effects are less significant in the sciences. The study also shows that Schools with higher levels of electronic maturity show a rapid increase in performances in scores compared to those with lower levels. In a review conducted on the effectiveness of integration of ICT in pedagogy in contrast to conventional teaching in India, the result obtained showed that computer-related technologies change the teaching-learning process rapidly in tertiary institutions, it improves

students' achievement and creating learning environments which are more interesting, effective and interactive (Kumar & Singh, 2013; Kaur 2014; Anboucarassy, 2010; Patil, 2011). Also, Mbaeze, Ukwandu and Anugu (2010), posited that there is influence of information and communication technology (ICT) on students' academic performance.

Improve Learning Programme of Students

Deployment of ICT for teaching and learning programme in public secondary schools in Nigeria improves the students' academic performance. Learning programme connotes all activities associated with students learning in schools such as reading, doing assignment, carrying out research etc. The utilization of ICT for teaching and learning facilities high performance among students. Students taught with ICT related facilities understand better and tend to performance better in classroom. This was confirmed by Dalsgaard, (2013) who did a study that was designed to find out the extent to which the use of photographic series with sound in teaching Religious Studies could enhance the performance of students in selected Junior Secondary School in Remo Educational zone. After exposure to treatments, the post-test mean score for the experimental was 61.90 and control mean store 54.3. When the mean scores were subjected to t-test analysis, the obtained t-value of 4.02 was found to be significant (t= 4.02; df= 198, P< 0.05). It implied that students in the experimental group performed significantly better than those in the control group at the end of the treatment thus implying that the use of photographic series with sound produced more sustainable and valuable learning than the traditional methods of teaching. Also,Kosoko-Oyedeko&Tella (2009) conducted a study on teacher's perception of the contribution of ICT to pupils' performance in Christian Religious Education (CRE). The result collected shows that the majority of the teachers (78.5%) indicate that pupil's performed better when ICT is used in CRE than when it is not used. Moreover,, Ezeh, (2013) did a study that investigated the effect of ICT topic-focused software programme on students" achievement in Christian Religious Knowledge in Secondary Schools in Ihiala Local Government Area (LGA), Anambra State, Nigeria. The results of the findings indicated that students who were taught using ICT topic-focused software programme achieved better scores than those taught using the traditional instructional material. The results also showed that female students" performed better than their male counterparts when they were taught Christian Religious Knowledge with topic-focused software programme.

Fast and Flexible learning programme

Information communication technology is a learning resources that provide the students with variety of opportunities. Abara, Ogunode&Olatunde-Aiyedun (2021) submits ICT provides the students with flexible learning plans and distance learning. ICT enables learners to work and learn and provide more opportunities for interaction and personal development. Apuke,&Tunca, (2020) examined the utilization of internet resources for learning and research among students. The paper affirmed that the use of internet enabled them to perform research ahead of time, tackle multiple homework, widens the scope of reading and learning, promotes self-learning, encourages and enhances peer learning as well as ameliorates student's examination preparation. Cheung and Lim (2000) who noted that hypermedia applications are well integrated in the learning environment to enhance student autonomy and thinking. Also in support Phillips (2004) asserted that it increases students' ability to use the conceptual tools of the discipline in authentic practice.

High Academic Performance

Effective deployment of ICT for academic work in school helps students to achieve their academic goals and programme. Secondary school students that use ICT for their academic work achieve a better result than those that do not applied ICT. Student that are ICT literate perform better in the application of ICT for carrying out academic work like e-assignment, e-project work, e-research and e-exam. This submission is confirmed by Aitokhuehi et al. (2014) who a did a study on the Impact of Computer Literacy on Students' Academic Performance in Senior Secondary Schools and discovered that computer literate students perform better than non-

computer literate; computer literate female students perform better than male students who are also computer literate; computer literate students who are not addicted to the use of computer facilities perform better than those who are addicted; computer literate students in co-educational secondary schools perform slightly better than those in single sex schools. Olokoba, Abdullahi, &Omosidi, (2014) and Abur&Torruam, (2013) observes that today, many students have learnt a lot about their fields of study by making a very good use of ICT in their studies. When engaged into meaningful application by students, computers tend to increase the productivity of students. ICT constitute new knowledge that students gain by accessing, and utilizing information that are related to their fields of study. As a result of learning through ICT, students are better equipped to perform very good in their studies by critically using the knowledge obtainable from the information and communication technology (ICT). Etiubon, &Akpan, (2017) show that ICT can lead to improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan (2015), proved that an increase in student exposure to educational ICT through curriculum integration has a significant and positive impact on student achievement, especially in terms of knowledge, comprehension, practical skill and presentation skill in subject areas such as mathematics, science, and social study.

Challenges Militating against Effective Utilization of Information Communication Technology (ICT) by public Secondary schools Students in Nigeria

There are many challenges preventing public secondary schools students in Nigeria from effectively using ICT for their academic work. Some of these problems include inadequate ICT facilities, poor implementation of ICT policies, unstable internet services, unstable electricity, high cost of ICT facilities, poor ICT literacy among teachers and students and high cost of internet services. This submission is confirmed by Jegede,Philip &Ogunode (2021) who identified inadequate ICT facilities, poor computer literacy of Christian Religious knowledge teachers, poor computer literacy of Christian Religious knowledge students ,unstable power supply, poor internet services, poor implementation of ICT policies, inadequate funding of ICT programme and high cost of ICT facilities is preventing effective use of information communication technologies for the teaching and learning of Christian Religious knowledge in public secondary schools. Bashar, & Umar, (2019) carried out a study that sought to find out the adequacy, management activities, and challenges that affect the ICT facilities in higher education systems in Sokoto State and discovered that institutions face many challenges in using the ICT facilities such as unreliable electricity supply, poor maintenance attitude, insufficient personnel to man the ICT facilities, high cost of ICT equipment, lack of proper orientation, and inadequate funding. Ajisafe (2014) who carried similar study in colleges of education. The study also identified some constraints to effective utilization of ICT in classroom instructional delivery. These constraints include shortage of qualified staff, disruption and network failure, and high cost of acquisition of ICT facilities.Challenges preventing Nigerian public students from using ICT effectively for their academic work was identified by Ogunode& Nasir (2021) to include inadequate funding of ICT program, inadequate ICT facilities, poor internet services, unstable power supply, high cost of ICT facilities, shortage of computer teachers, poor implementation of ICT policies, poor ICT literacy of students, corruption, and insecurity.

Conclusion

The objectives of this paper was to discuss the influence of information communication technology (ICT) on academic performance of students in public secondary schools in Nigeria. This study concludes that information communication technology (ICT) enhance academic performance of students, improves learning programme of students, and makes learning programme fast and flexible for students. The paper also established that students that are ICT literate perform better than those without ICT skills in term of online learning.

The paper identified factors preventing public secondary schools students from effectively using ICT for their academic work to include inadequate ICT facilities, poor implementation of ICT

policies, unstable internet services, unstable electricity, high cost of ICT facilities, poor ICT literacy among teachers and students and high cost of internet services.

Recommendation

Recommendations

Based on the findings and conclusions drawn from this study, the following recommendations are hereby proffered

1. The government should increase the funding of secondary school education. This will enable Secondary schools to provide all the necessary infrastructure and equipment for students academic work in the schools.

2. Governments should ensure constant training and training programme for students to enable them be computer literate. This will help to improve their academic performance.

3. In-service trainings to be organized regularly for teachers to update their skills and knowledge to achieve a higher level of job performance in the schools.

4. Government should provide adequate ICT facilities in all the public secondary schools in Nigeria.

5. Government should ensure stable electricity, stable internet services and implementation of ICT policies. This will help to improve the students usage of ICT for academic work in the school.

References

1. Aitokhuehi, Johnson Oseghale1 &Ojogho, John (2014) The Impact of Computer Literacy on Students' Academic Performance in Senior Secondary Schools in Esan West Local Government Area, Edo State, Nigeria. *Journal of Education and Human Development*, Vol. 3, No. 3, pp. 265-270

2. Adegbite, A,. F (2017) Analysis of the Impact of ICT on the Performance of Students in Secondary School, Oyo State. International Journal of Research in Business Studies and Management Volume 4, Issue 8, PP 23-29

3. Abur C.C., &Torruam, J.T. (2013): The Impact of ICT-Driven Instructional Aids in Nigerian Secondary School. *International Journal of Basic and Applied Science, 1(3), 511- 518.*

4. Bashar, S,. I. & Umar, I. (2019) ICT and the Management of Higher Education Systems in Sokoto State, Nigeria: A Survey. *Management Research Spectrum, Vol. 9, No. 1 (2019) 69-73*

5. Cheung, W. S., & Lim, S. C. R., (2000). Critical thinking in asynchronous online discussion: An investigation of student facilitation techniques. *New Horizons in Education*, 59(1), 52-65

6. Dalsgaard, C. (2013) "Social software: E-learning beyond learning management systems". *eurodl.org*. University of Aarhus. Retrieved 31 March 2013.

7. Ezeh, M, N. (2013)Effect of Information and Communication Technology (ICT) on Students' Achievement in Christian Religious Knowledge in Secondary Schools: A Case Study of Ihiala Local Government Area (LGA) in Nigeria.*African Journal of Education, Science and Technology, Sept/Oct, 2013 Vol 1, No.1, p-38-65*

8. Etejere, P.A.O. &Ogundele, M.O. (2008). Information and communication technology and administrative effectiveness of Nigerian distance education. *Journal of National Association of Educational Administration and Planning, 8*(2), 135-144.

9. Etejere, P.A.O. &Ogundele, M.O. (2013) Computer Literacy and Secondary School Teachers' Job Effectiveness in Kwara State, Nigeria.Ajote Vol. 3 No. 1 (2013) 1-9

10. Etiubon, R. U. &Akpan, A. O. (2017)Science Teachers' Perception of ICT Capacity Building Workshop in AkwaIbom State Secondary Schools, Nigeria. *AFRREV*11 (2), 201-215

11. Iyo, J.A &Daagu, J.I (2017) Factors Affecting ICT Utilization in Secondary Schools in Vandeikya Local Government Area of Benue State. *Journal of Resourcefulness and Distinction, 14(1) 1-15*

12. Idris I (2016) Assessment Of The Implementation Of Computer Science Education In Colleges Of Education In Kano And Jigawa States, Nigeria, Master Thesis Of Ahmadu Bello University Zaria

13. Idowu, A.I; &Esere, M. (2013). ICT and Higher Educational System in Nigeria. Department of Counselling Education, University of Illorin, Nigeria. 8(21), 2021-2025

14. Kosoko-Oyedeko, G.A &Tella, A (2009) Teacher's Perception of the Contribution of ICT to Pupils Performance in Christian Religious Education. *Journal of Social Science*, 22(1): 7- 14

15. Mohammed U; Muhammad. M &Garba, N,. M (2019) Effectiveness Of The Use Of ICT Tools On Students Learning In Senior Secondary Schools In Sokoto South Local Government, Sokoto State, Nigeria. *International Journal of Innovative Information Systems & Technology Research 7(3):25-33*

16. Mbaeze, Ukwandu and Anugu (2010).The influence of information and communication technologies on students' academic performance, *International Journalof Research and Technology*. 2, 48-59

17. Okeke, T.U. and Modebelu, M.N. (2011). Challenges in application of information and communication technology (ICT) by administrator in secondary school in Anambra State. *In Journal of Educational Studies and Research.* 6,(1), 76 – 86.

18. Orji F, O. (2014) Information and Communication Technology (ICT): An Integral Part of Instructional Materials Required in Teaching and Learning of Christian Religious Studies in Senior Secondary Schools in Onitsha North Local Government Area

19. Olokoba, A. A., Abdullahi, A. M., &Omosidi, S. A. (2014). Impact of information communication technology (ICT) on the management and performance of secondary school teachers in Kwara State, Nigeria. *International Journal of Education Learning and Development, 2*(3), 60-67.

20. Owulu, E. E, Ntamu, G. U &Monity, F. M (2016) ICT Utilization and Student's Academic Performance in Christian Religious Studies in Calabar Municipality, Nigeria;Vol.3|Issue 10|Pg:2925-2932

21. Phillips .B. (2004). *The Australian Journal of Emergency Management ;*19(4): 32-6, nov. 2004. ilus, tab ArtigoemInglês | Desastres | ID: des-15708 Bibliotecaresponsável: CR3.1 Localização: CR3.1, DES