

THE INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGY ON ACADEMIC PERFORMANCE OF JUNIOR SECONDARY SCHOOL STUDENTS IN MAKURDI METROPOLIS

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ABSTRACT

This study was an exploration of the influence of Information Communication Technology (ICT) on academic performance of Junior Secondary School (JSS) students in Makurdi Metropolis. The study adopted survey research design method. Questionnaire was used as instrument for data collection. Data was collected from 343 participants which were made up of 188 (54.8%) females and 155 (45.2%) were males. Descriptive statistics involving mean and standard deviation was used to analyse data for the study, while Chi-square was used to test the hypotheses at 0.05 level of significance. The findings revealed positive impact of ICT on academic performances among JSS students in Makurdi metropolis with $F(1,341)=2.861$, $P<.05$). This agreed with hypothesis one which stated ICT would significantly influence academic performances among JSS students in Makurdi metropolis. The findings of hypothesis two revealed a positive impact of Information Communication Technology on the academic performance of JSS students in Makurdi metropolis with $X^2(450, N=343)=780.738$, $P<.01$. The implication of these findings revealed that the more students get access to ICT tools, the higher their academic performances. In conclusion, the study revealed many challenges confronting the influence of ICT on the academic performances among junior secondary school students in Makurdi metropolis. The study therefore recommended among others that all Secondary School Students in Makurdi Metropolis should have access to ICT facilities and employ their effective use in learning.

Keywords: Academic performance, Information and Communication Technology, Junior Secondary School Students

INTRODUCTION

There has been increasing demands for the use of information technology in teaching and learning in recent times (Hussain et al., 2017). Advancement in the information system has provided contemporary and emerging technologies that are effective and efficient in teaching and learning. Information communication technology has become a global phenomenon and help students in personalised learning, collaboration, internet connectivity and creativity in thoughts as well as innovation.

ICT has revolutionized the educational sector and changed the way teachers' impact knowledge to their students in secondary schools. Many educational institutions are now adopting the use of ICT and associated gadgets such as the Computer Based Instructions (CBI), which refers to virtually any kind of computer used in the educational setting for the purpose of instructional delivery. These include facilities such as laptops, electronic white boards, storage devices, video conferencing facilities, application packages such as office packages, statistical packages, graphic packages, Googlesuites (Google docs, Google slides, Google forms to mention but a few) and Learning Management Systems (LMS) such as Moodle and Google Classroom. Studies have shown that these facilities enhance and facilitate teaching, learning and research, and, time and space are no more barriers to education (Yushau and Nannim, 2018). These ICT facilities have offered great flexibility to instructional delivery as opposed to the difficulties of the traditional method of teaching which sees lecturers as knowledge repository pass to students. ICT expands access to education and raises educational quality by transforming teaching and learning into an engaging active process connected to real-life (Behal, 2011). By applying information technology tools in this contemporary world, it is expected that ICT can enhance high academic performance (Mensah et al., 2023).

Academic performance is an essential and central part of learning by creating avenue for students and teachers to interact in order to ensure or enhance knowledge acquisition. In academic performance, every action and interaction is based on learning or teaching for which rewards are given. The rewards for academic performance are measured in grades and award of certificate be it in primary, secondary and tertiary levels. Every academic performance is associated with grade for every level. In order word, every failure or success associated with academic performance is dully rewarded as specified in curriculum of education or as outlined in educational code of conduct or academic rules and regulations. Law-Insider (2021) argued that several academic performance such as research, assignment, project and project writing, test, quiz, examination are designed to provide students with academic credit, which can be knowledge, certificate or success in passing tests and examinations as well as successful completion of project/thesis/dissertation writing. Academic performance give every students equal chance and opportunities to prove their commitments and dedication to learning as well as their readiness to demonstrate high knowledge and skills for future responsibilities.

The capacity to swipe and manipulate or use the information communication technologies to achieve collaborative and personalised learning has both visible and invisible consequences on the academic development and achievements of the students. These consequences gives rise to high cost of the Information Communication Technologies which sometimes hinders its effectiveness on the students especially those that are from rural areas as well as those that are vulnerable in one way or the other. Information technology is integral to human society and a modern way of learning. It is generally accepted as a modern instrumental tool for easy access to learning that enables teachers to

modify the teaching methods to suit their theme and students, nevertheless, there is always a barrier because of the cost. (Mbaeze et al., 2010).

All over the world there is high demand on Information Communication Technology. This has made people to cloud the Internet thereby, making it ineffective to function well. Young people especially have turned themselves to cyber natives due to high dependency on the use of Information Communication Technology tools. Information technology contains products that have the capacity to store, retrieve, manipulate, transmit or receive information electronically in a digital form. It consists of hardware, software, networks and media for collection, storage, processing, transmission and presentation (Tanuja, 2018).

These processes pave way for information technologies which are information handling tools and application of goods and service delivery for the production and storage of processes that enhances distribution and exchange of information using these information technological devices like the internet, satellite and wireless technologies as well as digital platforms. These influence teaching and learning in the classroom because of its impact on teaching and learning procedure.

Statement of the Problem

The importance of ICT use in secondary school education cannot be overemphasised. It is undisputable that the benefits of ICT on those who embrace it are immense as it is the major channel of sourcing for and dissemination of information.

It has been observed that there is contradictory situation on the influence of Information Communication Technology (ICT) especially among Junior Secondary School (JSS) students in Makurdi Metropolis for their academic performance. From researcher's preliminary investigation, the ICT facilities in the secondary schools studied are very limited and the available facilities are not adequately used among students and teachers to support academic performance. In addition, some teachers and students are phobic towards the use of ICT facilities for teaching and learning. As such, this has negatively affected the academic performance of students. It is against this backdrop that this study investigated the influence of Information Communication Technology (ICT) on academic performance of Junior Secondary School (JSS) students in Makurdi Metropolis.

Aim and Objectives of the Study

The aim of this study is to investigate the influence of Information Communication Technology (ICT) on academic performance of Junior Secondary School (JSS) students in Makurdi Metropolis. The specific objectives were to:

1. identify the influence of Information Communication Technology on the academic performances among junior secondary school students in Makurdi Metropolis;
2. identify how Information Communication Technology will independently curb academic performances among Junior secondary school students in Makurdi Metropolis.

Research Questions

The following research questions guided the study.

1. What is the influence of Information Communication Technology on academic performances of junior secondary school students in Makurdi Metropolis?

2. Will Information Communication Technology independently curb academic performances among Junior Secondary School Students in Makurdi Metropolis?

Research Hypotheses

H₀₁: Information Communication Technology will significantly influence academic performances among junior secondary school students in Makurdi metropolis.

H₀₂: Information Communication Technology will independently curb academic performance among junior secondary school student in Makurdi metropolis.

Conceptual Review

The concept of information technology:

Harold J. Leavitt and Thomas L. whistler (1958) opines that information technology is a new technology which does not have an establish name but decided to give it the name based on its operation. According to these scholars, information technology is a system approach which is generally an information system and a communication system or a computer system which include all hardware and software equipment used for storing, retrieving, manipulating and communicating information since decades ago. This systems network exists ever before new technologies came into play. The term information technology is a synonym for computer application and computer networks. It encompasses other information distribution technologies like the television and or telephones.

Bigelow (2023) agrees that information technology is the use of any physical device to create, process, store, secure and exchange electronic data. The Harvard business coined Information technology to mean that device that is capable to make a distinction between purpose built machines that are designed to perform few tasks and a general machine which was design for general tasks. Information technology is also a branch of computer science which defines the study of procedure, structure and processing of various types of data. The field of information technology continues to evolve and grows across the world as its importance and priority begins to expand to the extent that computer application has found their relevance in the classrooms.

Influence of information technology on academic performances of students

Walsin and Okanu (2019) in their study asserted the use and the incorporation of Information Communication Technology in education system. They reiterate that, the use of technology has now found itself in the classroom and has gradually changes the tradition system of education where the teacher interacts directly with learner to an internet type of learner which is collaborative, innovative and personlised. It is done in an electrical learning environment. However, the internet is found to be very weak sometimes, making it difficult to access needed information.

Syed & Naqvi (2006) opines that student's attitude towards their studies is reflected through the hours they spend in their studies as compare to those hours spend in the internet. According to these view students invest their time more on exploring and surfing the internet than reading their books and writing. Their valuable time is being spent more on chatting on WhatsApp, Facebooking to mention but a few rather than investing in their academic work that will be of more value to them. Therefore, information technology has negative effects on both youths and students' performances in the sense that most of their

time is spent on sharing information files as against their academic achievements and performances.

Theoretical Framework

Constructivism

This theory is propounded by Jean Piaget (1971). It is a theory of cognitive development that explains the construction of human knowledge. This theory dwells on developing the existing knowledge and experiences. It is a learning theory that focuses on individual interaction with his world and or environment. This theory states that knowledge is a product of integration of new information with the already acquired knowledge. Constructivism is based on the premise that people learn by taking active part in constructing their own knowledge rather than passively absorbing the message being transmitted. According to this theory, learners' acquisition of knowledge and understanding cannot be through direct process of knowledge transmission only, rather it includes linking what is already acquired with what is taught to bring out the meaning. This implies that student learn through experience and social environment. Constructivism is based on one's environment. Therefore, this explains the use of information technology as it affects the development of the students and their academic performance.

Constructivism involves the process of assimilation and knowledge accommodation. The basic principle being that knowledge is not discovered rather, knowledge is constructed actively and not passively. This means that learners acquire knowledge. Knowledge is not gained through mere transmission of information. The theorist postulated that knowledge is well constructed by what learners have already known and are aware of through social interaction and experiences. This theory draws the attention to the fact that learning is a process whereby, learners receive and retain information based on their prior knowledge

In congruence with this, Bada (2015) posit that in teaching and learning, teachers alone cannot transmit knowledge to students. Student also has their role to play. They need to actively construct their knowledge by bringing into the scene what they already acquired in the social environment. This according to the researcher is called mental construction whereby a student takes active participation while being taught. This theory explains the students encounter with information technology based on the fact that man is a socialized animal and children acquire their first experiences in the environment. It explains the social construct within students where learning starts as a way of socialization using local technology.

The home being the first point of learning. In the home, children learn by imitation, in this way, they make local technology by making images of things and imitating flying kite, eye glasses, wrist watches to mention but a few using local materials like sticks and bamboo wood. Also, they mould objects using clay. This explains why students already has some technology even as they interact with the social environment before coming to school. The theory is criticised on the ground that it cannot explain teaching and learning beyond students applying their previous knowledge to learning.

METHODOLOGY

The study employed descriptive survey design to investigate the challenges of information technology on the academic performances among junior secondary school student in Makurdi metropolis. The population of the study was 343 which comprised junior

secondary school students drawn from schools across Makurdi metropolis. Questionnaire was used as instruments for data collection. The research instrument was validated by an expert in Science Education, Federal College of Education, Odugbo for necessary input, observations and suggestions. Errors pointed out were effected by the researchers. Descriptive statistics was used for data analysis.

RESULTS AND DISCUSSION

Testing of Hypotheses

Table 1: Influence of Information Communication Technology on Academic Performance

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	34.291 ^a	1	.009
Likelihood Ratio	1.063	1	.000
Linear-by-Linear Association	.119	1	.001
N of Valid Cases	184		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 24.53

The result of the Pearson Chi-square analysis on table 1 revealed that p-value is greater than our chosen significance level ($\alpha = 0.05$), ($\chi^2 (1) > = 34.291, p = 0.009$). This tells us that there is significant influence of ICT on academic performance of junior secondary school students. Therefore the research hypothesis which states that Information Communication Technology will significantly influence academic performances among junior secondary school students in Makurdi metropolis is accepted.

Table 2: Information Communication Technology will independently curb academic performance among junior secondary school student in Makurdi metropolis

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	42.765 ^a	1	.0129
Likelihood Ratio	37.281	1	.007
Linear-by-Linear Association	.619	1	.081
N of Valid Cases	184		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 24.53

The result of the Pearson Chi-square analysis on table 4.15 revealed that p-value is greater than our chosen significance level ($\alpha = 0.05$), ($\chi^2 (1) > = 42.765$, $p = 0.129$). This revealed that there is no significant influence that Information Communication Technology will independently curb academic performance among junior secondary schools. Therefore, the research hypothesis which states that Information Communication Technology will independently curb academic performance among junior secondary school student in Makurdi metropolis is rejected.

Discussion of Findings

This study examined information technology on academic performance among junior secondary students in Makurdi Metropolis and the findings are discussed based on the stated hypotheses for the study.

The findings of hypothesis one shows that there was a significant influence of information technology on academic performances among Junior Secondary School Students in Makurdi Metropolis. This result showed that Junior Secondary Schools Students in Makurdi Metropolis are influence regarding the use of information technology on academic performance. Observation by the researcher indicated that many Secondary Schools in Makurdi Metropolis do not have a seamless access to internet and computers that can help and shape students learning and achievement on academic performance. More so, lack of power supply (electricity) was observed as one of the challenges information technologies posed on academic performance. Inadequate manpower was yet another challenges of information technology on academic performance. Having teachers who are experts in Information Technology is a challenge. Some Secondary Schools only have computer laboratory without qualified teachers which posed as challenge on academic performance among junior secondary school students in Makurdi metropolis. The findings of hypothesis one is in support of that of Adelakun's (2023) study on the benefits, challenges and prospects of electronic learning system. He identified access to internet as one of the challenges in electronic learning.

In hypothesis two, the findings indicated that, Information technology significantly and independently curb academic performance among junior secondary school student in Makurdi metropolis. This means that with the help of information technology alone can improve academic performance significantly among students. Having internet and other means of communication can facilitate academic performance. This finding is supported by the work of Boyed, et al; (2007) who observed that internet connection significantly enhances quality of lives of a people including academic performance, Ahlan, et al. (2016) study on information technology enhances Students' Academic Performance: A Case of University of Ilorin. Findings revealed that there was a significant relationship between information technology and academic performance among university students in Nigeria.

Conclusion

Based on the findings of the study, the study concluded that there are many challenges confronting information technology and academic performances among junior secondary school students in Makurdi metropolis. Information technology independently curbed academic performance among junior secondary school students in Makurdi metropolis.

Recommendations

Based on the findings, it was recommended among others that:

- i. Benue State Government through the Ministry of Education and knowledge creation should provide the needed environment and facilities for the information technology to thrive. Those challenges of information technology should be tackled headlong by Benue State Government to enhance academic performance.
- ii. Also, every student should be made to have access to Information Communication Technology tools since ICT can independently curb academic performances among Students.

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