

ASSESSING THE RELATIONSHIP BETWEEN UTILIZATION OF COMPUTER AND ACADEMIC ACHIEVEMENT OF POSTGRADUATE STUDENTS IN DEGREE AWARDING INSTITUTIONS IN ANAMBRA STATE

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ABSTRACT

The study examined relationship between utilization of computer and academic achievement of postgraduate students in degree awarding institutions in Anambra State. The independent variable of the study is utilization of computer. While academic achievement of postgraduate students which is dependent variable was measured through individual scores of respondents in Research Methodology offered by all postgraduate students of all the sampled institutions. The study employed correlational survey design. Population of the study consists of 8500 postgraduate students in three Universities offering Postgraduate programme in Anambra State. Data was collected from 382 students randomly selected with Taro Yamane's formula through a researcher developed structured questionnaire. The questionnaire was validated. Cronbach Alpha reliability coefficient technique which yielded 0.78 was used to establish the internal consistency of the instrument. Data was analysed using Pearson correlation coefficient. The corresponding *p*-value of the Pearson correlation coefficient was used in testing the formulated hypotheses at .05 level of significance. Result of the analyses revealed that there is positive and significant relationship between utilization of computer and academic achievement of postgraduate students in degree awarding institutions. Based on the finding, it was recommended that Government through the supervising ministries and regulatory bodies should provide and encourage using computer in teaching and learning process to enhance students' academic performance.

Keywords: Instructional Resources, Utilization, Academic Achievement, Computer. Postgraduate programme.

JEL Classification: I23, L86

INTRODUCTION

Education is a key instrument in the endeavor to prepare Nigeria to become a developed country by 2030. It is a crucial basis for creating and delivering skilled people resources necessary for a country's growth and development. Search for efficient and effective process

of delivery of instruction to students has always been major concern for educators globally. This is so considering that education is one of the instruments for economic progress, social mobilization, political survival and effective technological development (Soetan et al. 2020; Osegbue, Ohamobi & Manafa, 2018). Future of any nation depends on the products of its educational system. In order to enhance the quality of our educational system, the government has implemented a number of strategies. Thus improving the quality of education deals a lot with the betterment of the teaching and learning process, well-planned curriculum and effective implementation of the curriculum.

Thus, in spite of investment by all the stakeholders in education and importance of education in the growth and development of every economy, quality of education provided by Nigerian institution has been declining over the years. One of the major problems facing education sector in Nigeria is the low level of the student's performance in both local and standardized examinations. Commenting on the performance of undergraduate students Shaaruddin and Mohamad (2017) observed that there are many problems and weaknesses among young graduates, despite the initiatives taken by the government to address the issue. The academic achievement of students in Nigeria has been a source of concern to researchers, educators, government and parents.

Little wonder the adoption and practice of blended learning approaches or technology-enabled active learning into the teaching and learning process in higher institutions is a common practice nowadays and is crucial in addressing these weaknesses among university graduates. This is particularly through considering that as a result of increase in the number of students' enrollment into the postgraduate degree programmes, there arises similar problems of adequacy of resources. With this both lecturers and students compete and scramble for the use of few available ones. (Oguntesa et al, 2013). Shaaruddin and Mohammad (2017) observed that this contributes significantly to lecturer's poor delivery in classes and students' exposure to inadequate information. In another vain, the case of obsolesce is one of the greatest weakening factors to the performance of postgraduate students in Nigeria. Materials are not available but where there are, they are grossly out of date (Olowo et al, 2020).

Moreso, Igu, Ogba and Igwe (2014) and Abdullahi and Sirajo (2020) noted that one of the factors responsible for decline in performance of students is non-use of instructional materials. In addition, efficiency and high productivity in teaching and learning transaction in the view of Tety (2016) starts from the access to quality and adequate instructional materials. No wonder Afolabi (2009) observed that students usually fail in examinations owing to improper teaching methods and lack of essential teaching aids for instructional delivery. Thus there have been concerns raised about the teaching resources and strategies used in teaching postgraduate students. While utilizing computer in delivery of lecture higher education is not new, there is little research validating its effectiveness or otherwise in degree awarding institutions in Anambra State. This study adds to the body of knowledge of previous studies into the use of computer assisted learning

This study is also important because instructional materials when properly used, can supply concrete basis for conceptual thinking and reduce meaningless word responses of pupils making learning more permanent (Mwalyego, 2014). It is also important to add that central aspect of teaching and learning is the teachers and students' own perception and experience of the process. Therefore, the study sought to analyse the relationship between utilization of computer as instructional resources and academic achievement of postgraduate (PG) students in degree awarding institutions in Anambra State

Motivation of the Study

There has not been proper utilization of modern computer in teaching and learning in postgraduate schools and this has drastically hindered the improvement of the quality of postgraduate products. In some tertiary institutions, computers are unavailable, inadequate or obsolete. In some cases, the teachers do not make use of them in delivering their lectures. The end product is half baked postgraduates. In some tertiary institutions, the computers are unavailable, inadequate or obsolete. In some cases, the teachers do not make use of them in delivering their lectures. The end product is half baked postgraduates. This has become a cause for social concern as the World Bank showed that there is deterioration in average quality of student's performance and utilization of instructional resources. This provided motivation for the study on the link existing between utilizing instructional resources and academic achievement of postgraduate students in degree awarding institutions in Anambra State.

CONCEPTUAL REVIEW, THEORETICAL FRAMEWORK AND EMPIRICAL REVIEW

Concept of Instructional Resources

Instructional aid, materials or resources are used interchangeably in literature to mean the same thing. They consist of variety of materials in form of real objects; models, charts, pictures, improvised or commercially produced which influence the student's learning and the instructor's teaching. Ali, Kura, Abdu and Aliyu (2020) defined instructional material or learning material as what is used by the teacher to assist in providing information for the attainment of required learning experience, Instructional material also refers to those alternative channels of communication, which a classroom teacher can use to concretize a concept during teaching and learning process.

Concept of Computer

According to Ibezim and Ireh (2017), a computer is a collection of related devices capable of solving problems by collecting data, conducting prescribed operations on the data, and then giving the outcomes of these operations. As a result, a computer can be defined as a man-made machine made up of electronic components that processes data at a high rate to provide meaningful results for the user. It is essentially an information processor.

Computer is of the major inventions of the twentieth century that has contributed immensely to all aspect of human activities especially the educational sector (Sife, Lwoga & Sanga 2007). Computer Aided Instruction, the instructional resources measured in this study, emanated from the computer revolution. Thus many educational institutions around the world are investing in information technology (IT) and are actively promoting computer aided instructions.

In higher education, application of ICTs in form of e-learning is already changing teaching and learning process. Factors that have driven the higher learning institutions to adopt and incorporate ICTs in teaching and learning include greater information access; greater communication; synchronous and asynchronous learning; increased cooperation and collaboration, cost-effectiveness and pedagogical improvement. Education is now supported and enhanced with the application of computer in teaching and learning process.

The impact of computer in teaching and learning are enormous. It arranges instruction in such a way that learning is facilitated; help the learners to interact individually or in groups for learning to take place; easy delivery of a lesson by the teacher; helps learners to learn at their

own pace and place; helps learners to learn faster and better; broaden students' knowledge and level of understanding.

Concept of Students' Academic Achievement

Academic achievement can be used interchangeably with such terms as: achievement, success, and performance (Sirin, 2005). Academic achievement is an indicator of student performance in school. It can be described as the academic performance of an individual and is classified as low achievement and high achievement (Cheng, Wang & Liu, 2019). In their view, Low achievement refers to the lower-than-expected standard of student achievement while high achievement refers to students with a higher academic achievement than expected.

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Several measures have been used by existing studies in measuring academic achievement of students. For instance, exam and assignment scores of students were used by existing studies to evaluate students' academic achievement performance (Alamri, 2019). Other existing literatures measured academic performance of students through assessment of perception on some indicators of performance or improvement in knowledge. This study is measured in line with the last categories of authors. Academic achievement in vivid terms is the end product of a student's journey in the academic activities which is an optional representation of the students output or performances. This operationally is used in this discourse to evaluate the performances of postgraduate students in relationship with the utilization of instructional resources in teaching and learning.

Theoretical framework

The study on relationship between utilization of instructional resources and academic achievements of Postgraduates students cannot be completed without considering the existing theory that provided the underlying assumptions. Thus to come to a better understanding of the relationship surrounding instructional resources and student's academic achievement, a concise narrative of theories and models preceding its manifestation is essential. Importance of theoretical framework (theory driven thinking and acting) in any research work cannot be overemphasized. This study is anchored on the Theory of Instruction advanced by Dales in 1954 which is an influential and widely used model for the planning and use of instructional media. The research is also supported by Technology Acceptance Model (TAM) proposed by Davis in 1989 as a means of predicting technology usage. Dale and Davis theories continue to influence instructional designers in both theory and practice even in the twenty first century.

Empirical Studies on Computer and Academic Achievement

Koomson, Safo-Adu and Antwi (2020) investigated whether utilizing computer simulation and computerised molecular modeling software enhance teaching and learning of hybridization in senior high schools. The framework for the study was hinged on A quasi experimental design, which made use of non-equivalent comparison group design on science students in Ghana. Thus Pre and post-test were used to collect the data for the study. Data obtained from participants were analysed statistically using independent-measure t-test. The results showed a statistical significant difference between the performance of students in the experimental group and the control group. The study revealed that computer simulation and computerised molecular modeling software had positive effect on the teaching and learning of hybridization. Also, student's performance in the cooperative group setting was better than the individualized learning environment. The studies are related in terms of independent variable of the study

which is using computer as an instructional resource. The study also relates to the current study in terms of dependent variable which is student academic achievement. However, the former employed quasi experimental design which this current study adopted correlational survey research design. Also the geographical locations differ because the former study was conducted in Ghana while the current study is done in Nigeria.

Johari, Azhar, Jailani, Jefri and Raizal (2020) investigated the effects of information and communication technology (ICT) on the academic performance of accounting students using data collected from questionnaires distributed to accounting students attending private universities in Malaysia. The dependent variable which is academic performance was measured using respondents' Cumulative Grade Point Average (CGPA) in recent semester at the time the data were collected. Spearman correlation analysis and ordinary least square regression analysis was used in the analysis. The findings show that educational information and communication technology facilities have a significant positive with accounting students' academic achievement. The result indicates that ICT aids in increasing flexibility in the delivery of education to students, as they have access to information at any time and from any location. This study relates to the current study in terms of the dependent and independent variables. The two studies were conducted in an emerging economy, that is Nigeria and Malaysia. The measurement of the dependent variable which is academic performance of students using CGPA of the respondent is similar to the current which used scores of respondents in course offered by all postgraduate students. However, the studies differ in the analytical tools employed in testing the hypotheses. While the previous study used ordinary least square regression, the current study used Pearson correlation coefficient.

Ullah et al (2019), in their study the effect of ICT on the students' academic performance at different private universities in Chittagong, Bangladesh. Primary data was collected from the students of those universities using a survey questionnaire. Descriptive Statistics, Reliability Analysis, Confirmatory Factor Analysis, OLS regression, Structured Equation Modeling (SEM) and Data Mining algorithms such as Association rule mining and éclat have been employed to evaluate the comparative importance of the factors in identifying the academic performance of the students. From their findings there is a significant relationship between ICT use and students' academic performance and student's addiction to ICT has a significant influence on the comparative measurement in identifying the academic performance of the students. The studies are related in terms of instructional resource. Although the former discussed the effect of ICT on the students' academic performance at different private universities, the current dealt with the relationship between utilisation of computer and academic achievement of students in degree awarding institutions. The studies differ in terms of area of study.

Youssef and Dahmani (2008) examined the relationship between the use of information and communication technologies (ICT) and student performance in higher education Barcelona, España. As economic research has failed to provide a clear consensus on the effect of ICT investments on student's achievement. Our paper aims to summarise the main findings of the literature and to give two complementary explanations. The first explanation focuses on the indirect effects of ICT on standard explanatory factors. Since a student's performance is mainly explained by a student's characteristics, educational environment and teachers' characteristics, ICT may have an impact on these determinants and consequently the outcome of education. The differences observed in students' performance are thus more related to the differentiated impact of ICT on standard explanatory factors. The second hypothesis advocates that ICT uses need a change in the organisation of higher education. While ICT equipment and use rates are

growing very fast in the European Union, the adoption of complementary organizational designs is very slow and differs from one institution to another. This may explain the observed differences in students' achievement. The studies are related in terms of instructional resources used. Although the former discussed the relationship between the use of information and communication technologies (ICT) and student performance in higher education Barcelona, the current deal on the relationship between utilization of computer and academic achievement of postgraduate students in degree awarding institutions in Anambra State. The studies differ in terms of area of study and population of study.

Augustine & Nwaizugbu (2018) carried out a study on the effect of WhatsApp when used as a tool to deliver instruction to 400 level trainee teachers who offered Computer in Education (Edu 402.1) course in the Department of Educational Management (EDM), University of Port Harcourt for 2016/2017 academic session. It adopted both experimental and descriptive survey designs. The sample size comprised of 72 EDM Accounting/Geography and 65 EDM Economics trainee teachers that were randomly selected from the population to form the experimental and control groups respectively. The experimental and control groups were respectively taught via WhatsApp group discussion platform and face-to-face discussion strategy. Researchers' developed Computer in Education Achievement Test (CEAT) and an interview were used as the study's instruments. Four (4) research questions and three hypotheses guided this study, while the analytical tools were mean, standard deviation, qualitative analysis and t-test using SPSS version 22. The findings reveal that no significant difference existed between the mean values the two groups at post-test level. Hence, university lecturers should always supplement their classroom teaching with newer technologies such as WhatsApp group discussion and other social networking platforms since they offer the students all times and on-the-go learning opportunities. The studies are related in terms of area of study. The studies differ because the former carried out a study on the effect of WhatsApp when used as a tool to deliver instruction to 400 level trainee teachers who offered Computer in Education (Edu 402.1) course in the Department of Educational Management (EDM), University of Port Harcourt for 2016/2017 academic session, the current dealt with the relationship between utilisation of computer and academic achievement of students in degree awarding institutions in Anambra State. The studies are also similar in terms of research design used.

Adekunle, Adepoju and Abdullahi (2015) examined the perception of students on computer utilization and academic performance. They used descriptive research with emphasis on survey design. The population comprised all Colleges of Education in North Central geopolitical zone of Nigeria: made up of six states and FCT-Abuja; out of which six colleges were selected as sample. A 20-item questionnaire (CUSAPQ) was designed and validated through expert judgment and reliability co-efficient of 0.86 was obtained. The null hypotheses were tested using Chi-square statistical analysis at 5%(0.05) level of significance. It was discovered that there is a significant relationship between computer utilization and students' academic performance. The studies are related in term of instructional resource and dependent variable which is students' academic performance. The studies also relate in terms of geographical scope which is Nigeria. Although the former dealt with the perception of students on computer utilization and academic performance using undergraduate students in all Colleges of Education in North Central geopolitical zone of Nigeria. While the current study focused on postgraduate students in degree awarding institutions in Anambra which is in the south of Nigeria. The former study adopted descriptive survey design and employed chi-square as a tool of analysis which the current study employed correlational survey design and use correlation coefficient and corresponding p-value as tool of analysis.

Mcdowall and Jackling (2006) assessed student perceptions of the usefulness of Computer-Assisted Learning packages in learning process in terms of the influence on academic performance. The study adopted exploratory survey research design and data used in the study was collected through questionnaires administered to 280 students undertaking the second unit in the accounting major as part of their undergraduate studies in a Bachelor of Commerce course at a Victorian university in Australia. Regression model was used in the analysis. The regression coefficients, standardized beta coefficients, t-statistics and p values revealed that Computer-Assisted Learning (CAL) packages in learning has significant positive influence on academic performance of students.

The studies are related in terms of their dependent and independent variables which are academic performance and using computer as instructional resources. They are also related in the area of research design employed. Nevertheless, the previous study was conducted using undergraduate students of Australia which an advanced economy while the current study was conducted using postgraduate students of Anambra State in Nigeria which is a developing economy.

Research Method

The relationship between utilization of computer and academic achievement of Postgraduate Students in degree awarding Institutions in Anambra State was investigated through correlational survey research design. This research design is considered appropriate as correlational research design compares two or more relevant variables and reports the relationship between them without controlling the variables. It is mostly adopted when the aim of the research is to uncover any types of systematic relationships between the studied variables but not to find a cause-effect relationship between them (Rezigalla, 2020). Survey research involve collecting information directly from the respondents. To this effect, researcher-developed questionnaire instrument titled “Utilization of Instructional Resources and Academic Achievement Questionnaire (UIRAAQ)” was used. The instrument has section A and B. Section A describes the characteristics of the respondents while section B is the main questionnaires on the relationship between utilization of computer and academic achievement of Postgraduates students in Degree awarding institutions in Anambra State. The responses to the questionnaire are scaled under Strongly Agreed (SA); Agreed (A); Disagreed (D); and Strongly Disagreed (SD). Where SA is assigned 4 points, A= 3points, D =2 Points and SD =1point making it a total of 10 points. The instrument was validated by three experts in the field of Educational Foundations while Cronbach Alpha reliability coefficient technique which yielded 0.78 was used to establish the internal consistency of the instrument.

Population consists of 8500 students from postgraduate (PG) degree awarding institutions in Anambra State. There are two public and one private degree awarding institutions with Postgraduate students in Anambra State which are Chukwuemeka Odimegwu Ojukwu University, Nnamdi Azikiwe University Awka, Madona University Okija both, in Anambra

From the targeted population of the study which is 8500 students 382 was systematically selected as shown in Table 3.1. The sample size as selected is similar to range of population and the corresponding sample size of 322 recommended by (Fox, Hunn & Mathers, 2007) cited in (Oribhabor & Anyanwu, 2019). The sample size for this study was calculated using the estimation by Taro Yamane (1967) formulae. The researcher distributed 382 questionnaires to the students as stated in the sample size of determinations. Out of which 305 were properly filled and returned by the respondents.

Table 3.1: Sample Distribution

S/No	Name of Institutions	Number of PG Students	Percentage to the Population
1	Chukwuemeka Odumegwu Ojukwu University, Igbariam	134	35%
2	Madona University, Okija	23	6%
3	Nnamdi Azikiwe University, Awka	225	59%
	Total	382	100%

Source: Field Survey

Data collected for the study was be analysed using Pearson correlation coefficient. The data was subjected to correlation test to ascertain whether or not there exists positive or negative relationship between utilization of instructional resources and academic achievement using 5% level of significance. Pearson Correlation Coefficeint was used in determining the relationship between the dependent and independent variables. To determine the direction and size of the correlation, Nworgu's (2015) guideline was used as follows:

Coefficient (r)	Relationship
+/- .00 to .19	Very Low Relationship
+/- .20 to .39	Low Relationship
+/- .40 to .59	Moderate Relationship
+/- .60 to .79	High Relationship
+/- .80 & Above	Very high Relationship

The decision of the significance of the correlation was guided by probability value (p-value). Where the obtained p-value was less than 0.05 level of significance, the null hypothesis was rejected which means that the correlation coefficient was significant. Where the obtained p-value was greater than 0.05 level of significance, the null hypothesis was not rejected which implies that the correlation coefficient was significant.

ANALYSES AND RESULTS

Research Question

What is the relationship between utilization of computer and academic achievement of students in degree awarding institutions?

Table 4.1: Pearson Correlation between Utilization of Computer and Academic Achievement of Students

(N=305)

		Utilization of Computer	Academic Achievement in Research Methods	Remark
Utilization of Computer	Pearson Correlation (r)	1	.059*	Very Low Positive Relationship
Academic Achievement in Research Methods	Pearson Correlation (r)	.059*	1	

Source: Field Survey 2022

Pearson Correlations Analysis displayed in Table 4.1 shows coefficient (r) value 0.059 which indicates that there was a very low positive relationship between the two variables. The result shows that there was very low positive relationship between utilization of computer for instructional purposes and academic achievement of the students. The respondents agree that there is relationship between utilization of computer and academic achievement of postgraduate students in degree awarding institutions though the relationship is very low.

Test of Hypotheses

Hypothesis: There is no significant relationship between utilization of computer and academic achievement of postgraduate students in degree awarding institutions.

Table 4.5: Test of significance of Pearson's Correlation between Utilization of Computer and Academic Achievement of Students (N=305)

		Utilization of Computer	Academic Achievement in Research Methods	P-value	Decision
Utilization of Computer	Pearson Correlation (r)	1	.059*	.034	Significant
Academic Achievement in Research Methods	Pearson Correlation (r)	.059*	1		

*significant at 5%

Source: Field Survey 2022

Result in Table 4.5 show the test of significance of Pearson's correlation between utilization of computer and academic achievement of postgraduate students in degree awarding institutions. The analysis showed correlation coefficient of .059 with a corresponding p-value of .034. The correlation coefficient obtained from correlating utilization of computer and students' academic achievement in research methods and the p-value indicates that there is a positive relationship between utilization of computer for instruction and academic achievements of student. The relationship based on the corresponding p-value is significant. Since the p-value of .034 is less (<) than 0.05, the null hypothesis is rejected. Therefore, the study concludes that there is significant relationship between utilization of computer and academic achievement of postgraduate students in degree awarding institutions.

Summary of the Findings

The study showed that there is significant relationship between utilization of computer and academic achievement of postgraduate students in degree awarding institutions.

DISCUSSION OF FINDING**Relationship between utilization of computer and academic achievement of postgraduate students in degree awarding Institutions**

Findings on the relationship between utilization of computer and academic achievement of postgraduate students in degree awarding institutions showed that there is significant positive relationship between utilization of computer and academic achievement of postgraduate students in degree awarding institutions. The finding is as a result of the students agreeing that there is relationship between utilization of computer and academic achievement of postgraduate students in degree awarding Institutions. Specifically, the respondents agreed that computers are adequately utilized in teaching and learning in institution; that computer helps in the use and storage of instructional materials; computer assisted instruction allows students to play an active role in the teaching and learning process; internet connections and software provide more time to evaluate progress of activities in classroom; effective utilization of

computer in teaching and learning enhances students' academic performance. The finding of this study is line with other studies that considered the relationship between using computer in teaching and learning process and students' academic performance (Koomson et al., 2020; Johari, et al., 2020; Ullah et al., 2019; Adel & Dahmani, 2018; Adekunle, et al., 2015; Mcdowall and Jackling, 2006).

CONCLUSION AND RECOMMENDATION

Introduction and application of computer in teaching and learning process in education has attracted a great deal of research as teachers and students at all levels of education use different instructional resources for effective teaching and learning outcome. This study contributed to existing literature on computer and students' academic achievement. Based on the findings, the study concluded that there is relationship between utilization of computer as instructional resources and academic performance of students in degree awarding institutions in Anambra State. The result of the study has implication for policy makers and regulators of postgraduate programmes in Nigeria Universities towards making policies that will mandate the provision and utilizations of these instructional resources considering the growing number of students enrolling for postgraduate programme. Consequently, the study recommended that Government through the supervising ministries and regulatory bodies should provide and encourage using computer in teaching and learning process to enhance students' academic performance.

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