



Effective Use of Information and Communication Technology at Federal Government Girls Colleges in North-West Zone of Nigeria

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ABSTRACT

This research endeavors to thoroughly investigate the impact of information and communication technology (ICT) on the engagement and performance of secondary school students within the North-West Zone of Nigeria, focusing specifically on Federal Government Girls College in Zaria, Kaduna State. The study is intentionally delimited to this particular institution to provide a focused and context-specific examination. With a clear objective of contributing to the understanding of ICT utilization in the educational context, the research is guided by four main objectives, each aligned with a corresponding set of research questions and null hypotheses. These components were systematically designed to address various facets of the influence of ICT on the activities of secondary school students. Additionally, the study is underpinned by four fundamental assumptions that frame the context for data interpretation and analysis. In terms of research design, a cross-sectional survey design was employed, allowing for the collection of data at a single point in time. To draw meaningful insights, a sample of 68 teachers was meticulously selected from the population of teachers at Federal Government Girls College in Zaria, Kaduna State, utilizing a systematic random sampling technique. This approach ensures a representative sample that can effectively speak to the broader context of the school. For data collection, a self-designed questionnaire was employed. This comprehensive tool was carefully crafted to explore various dimensions of the impact of ICT on student activities. Respondents rated questionnaire items using a five-point Likert scale, providing nuanced insights into their perspectives. To facilitate data analysis, SPSS version 23.0 was employed, applying the Chi-square sample test at a significance level of 0.05. The research, guided by its methodological rigor, aims to provide valuable insights into the intricate relationship between ICT usage and secondary school student activities. By utilizing systematic sampling, a well-constructed questionnaire, and advanced statistical analysis, the study seeks to contribute substantively to the discourse on the role of ICT in shaping the educational landscape, with potential implications for policy and practice.

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INTRODUCTION

Knowledge has become a critical determinant of competitiveness in the world

economy, given the prevalent globalization and rapid technological change. The Nigerian Government realizes the key role of education

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towards the attainment of sustainable development and has made qualitative education to key component of seven- point Agenda. The attainment of qualitative education requires improving on teaching, learning, Research and educational administration. This in turn requires introduction of Information and Communication Technology (ICT) into the educational system, for it is common knowledge, globally, that the latter plays a vital role in promoting such an improvement as contained in the national policy on Information and Communication Technologies in education revised (2021). One of the basic functions of education is the preparation of student for life. For an individual to participate in an information rich society, where knowledge is regarded as the main source of socio-cultural and politico-economic development of countries and/or nations, the basic ideas of the use of these technologies are in the course of their studies so as to fit in to the information rich societies. Information rich societies are developed and dominating as well as controlling the information throughout the world.

At Federal Government Girls Colleges many teachers are facing the challenges of reaching excellence in both research and teaching. While some of them might admit that technology would be most useful if it could maximize their time for research and minimize their time for teaching, many teachers are concerned with the quality of the outcome of learning and teaching when technology is applied. Therefore, computer and information technologies are assumed to play a constructive role in education to make the teaching and learning process productive through collaboration in an information rich society. Information in society promotes new practices and paradigms for education where the teacher has to play new roles of the mentoring, coaching and helping students in their studies rather than to play the conventional role of spoon feeding in the classrooms. Student can learn independently having a wide choice of programme selection and access to information. Student can be involved in skill oriented activities in group learning environment for accumulated

knowledge. They can interact and share learning experiences with their teachers and fellow learners in knowledge construction and information dissemination process. They receive and use information of all kinds in more constructive and productive professionally rather than depending upon the teachers. Brown et.al (2021) stated that students learn not only by the teacher but they also learn along with the teachers and by interacting with one another. Indeed now students can learn much more than what teacher teaches in conventional learning environment. For productive teaching and learning process teachers and students have to use information technologies according to their requirement and availability. At present knowledge may be regarded as power and it comes from having Information encompasses and relies upon the use of different communication channels or technologies called Information Technologies (IT), for its effectiveness and equal access. IT may extend knowledge beyond the geographical boundaries of a state or country providing relevant information to the relevant people round the clock. IT "is any computer –based tool that people use to work with information and support the information and processing needs of an organization" (Haag, 2020). It includes computers and it related technologies: World Wide Web (www), internet and Video conferencing etc. It can be used to promote the opportunity of knowledge dissemination. It can help the teachers and students having up-to-date information and knowledge. Accurate and right information is necessary for effective teaching and learning with the help of effective use of information and communication technology.

In view of the forgoing, this study is set to find out the effective use of information and Communication Technology among students at Federal Government Girls College zaria, Kaduna State.

Statement of the Problem

In the National Policy on Education revised (2010), efficiency and effectiveness in the use of ICT is among the core anomalies that

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have weighed down the implementation of ICT in Education. Teacher educator and teachers are concerned with efficiency rather than effectiveness when they adopt ICT in education. Thus, ICT is used to make their job easier instead of making learning more effective. As a result, the teaching and learning process has not embraced the current educational paradigm which emphasizes on student-centered instruction with the teacher as the facilitator rather than teacher as the knowledge source. Also, there is little research on ICT in education.

Although capacity-building of teachers on ICT is going on, a higher percentage of teachers are largely non-ICT literate. There is also, a highly insufficient pool of ICT professionals in the sector. The few ICT staffs available are mostly not at the cutting edge of ICT innovation. The education sector, at the moment does not have the competitive edge in ICT and is therefore unable to attract and retain ICT professionals. These weaknesses are also compounded by the inadequate, low quality and in some cases outright non-availability and ineffective use of ICT infrastructure for teaching, learning and educational administration.

For many years, educational researchers have maintained an interest in the effective prediction of students' academic achievement in CBT examinations at Federal Government Girls Colleges. The prediction and explanation of low academic achievement was observed as a result of ineffective utilization of IT facilities at all levels. These factors relating to the academic achievements are issues of greatest concern. Studies have also shown that prior academic achievement is an important predictor of performance at other levels of education. Similarly, cognitive ability was found as the strongest predictor of academic achievement. However, some studies confirmed that the correlation between cognitive ability and academic achievement tends to decline as students' progress in the educational system at Federal Government Girls Colleges in the country.

Objectives of the Study

The following objectives are designed to be achieved for the study:

1. To determine the level of the respondents regarding the availability of ICT facilities at Federal Government Girls College in Zaria, Kaduna State.
2. To determine the level of the respondents regarding the utilization of the ICT facilities at Federal Government Girls College in Zaria, Kaduna State.
3. To Find out the level of the respondents regarding computer usage and academic achievement at Federal Government Girls College in Zaria, Kaduna State,
4. To examine the level of the respondents regarding the effectiveness of computer usage in teaching and learning at Federal Government Girls College in Zaria, Kaduna State.

Research Questions

The following research questions were addressed in the study

1. What is the level of the respondents regarding the availability of ICT facilities at Government Girls College in Zaria, Kaduna State?
2. What is the level of the respondents regarding the utilization of ICT facilities at Federal Government Girls College in Zaria, Kaduna State?
3. What is the level of the respondents regarding the computer usage and academic achievement of at Federal Government Girls College in Zaria, Kaduna State?
4. What is the level of the respondents regarding the effectiveness of computer usage in the teaching and learning at Federal Government Girls College in Zaria, Kaduna State?

Hypotheses

The study raised the following hypotheses.

1. There is no significant difference among respondents regarding the availability of ICT facilities at Federal Government Girls College in Zaria, Kaduna State.

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2. There is no significant difference among respondents regarding the level of utilization of ICT facilities at Federal Government Girls College in Zaria, Kaduna State.
3. There is no significant difference among respondents regarding the computer usage and academic achievement at Federal Government Girls College in Zaria Kaduna State.
4. There is no significant difference regarding the effectiveness on the usage of computer in teaching and learning among respondent at Federal Government Girls college Zaria, Kaduna State.

RESEARCH DESIGN

The researcher employed a survey research design for the study, specifically opting for a cross-sectional survey design. Cross-sectional surveys involve selecting samples from a defined population and contacting them at a single point in time, with decisions based on the information gathered during that moment (Schoepp, 2020). In this type of study, measurements are taken simultaneously, without a follow-up period. A cross-sectional survey aims to collect information from a sample at one point in time, whether from the entire population or a subset (Charp, 2019).

The study focused on providing a systematic description of the current situation regarding computers and ICT-related technologies at Federal Government Girls College in Zaria, Kaduna State. The target population included all teachers at the Federal Government Girls College in Zaria, with a total of 68 teachers participating in the study. The selection process involved utilizing a random sampling technique, and the sample size determination was based on the recommendations of the Research Adviser (2006) and the table for determining the sample size of a given population.

To collect data, self-constructed questionnaires were administered to both teachers and students, consisting of fifteen items. The questionnaire aimed to elicit information emphasizing the influence of ICT facilities on teaching and learning at Federal Government Girls College in Zaria, Kaduna State.

The researcher personally administered the questionnaires, assisted by two research assistants who were teachers in the college. Before the instrument was administered, the principal researcher made personal visits to the selected colleges, informing them of the purpose of the visit to secure their support and cooperation. The questionnaires were then distributed among the teachers and students, with the entire process closely monitored to ensure a higher percentage of validity and reliability of the instruments.

The collected data underwent treatment and analysis using frequency counts and simple percentages to address demographic variables and research questions. Graphical representation was facilitated through pie charts, and hypotheses formulated for the study were analyzed using Chi-square. Statistical Package for Social Science (SPSS version 2023) was utilized to process the data at a significance level of 0.05.

As previously mentioned, all 68 distributed instruments were retrieved, and the data collected from the respondents were collated, organized, and presented for analysis.

RESULTS

Hypothesis Testing

H₀₁ There is no significant difference among the respondents regarding the level of availability of ICT facilities at Federal Girls College Zaria, Kaduna State. To test this hypothesis; Chi-square X², statistic was employed. The summary of the result was presented below.

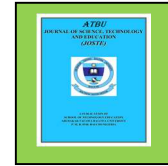


Table 1: Difference among respondents regarding the level of availability of ICT facilities at Federal Girls College Zaria, Kaduna State.

Statistic	Value	Df	Asymptotic Sign (2-Sided)
Pearson Chi-Square	55.505	33	.008
Likelihood Ratio	59.915	33	.003
Linear-by-Linear Association	6.606	1	.010
N of valid cases	68		

a. 34 cells (70.8%) have expected count less than 5. The minimum expected count is 15.

From the table above, the difference among the respondents exist regarding the level of availability of ICT facilities at Federal Government Girls College Zaria, that the ICT facilities for teaching – learning were not available in the college. The $X^2 = 55.505$ and $P=.008$. Now since the P – value was less than the alpha (.05), the null hypothesis was accepted.

H₀₂: There is significant difference among the respondents regarding the level of utilization of ICT facilities at Federal Government Girls College Zaria, Kaduna State.

To test this research hypothesis, chi-square (X^2) statistic was used. The summary of the results was presented below.

Table 2: Difference among the respondents regarding the level of utilization of ICT facilities at FGGC Zaria, Kaduna State

Statistic	Value	Df	Asymptotic Sign (2-Sided)
Pearson Chi-Square	41.089	33	.157
Likelihood Ratio	39.918	33	.190
Linear-b-Linear Association	5.360	1	.021
N of valid cases	68		

a. 33 cells (68.8%) have expected count less than 5. The minimum expected count is 15.

The table above showed that there is no significant difference among the respondent regarding the level of utilization of ICT facilities in the college. The chi-square $X^2 = 41.089$ and $P=.157$. Now since the P= value was greater than the alpha value (.05), the null hypothesis was retained.

H₀₃: There is no significant difference among the respondents regarding the level of computer usage and academic achievement at Federal Government Girls College Zaria, Kaduna State.

To test this hypothesis, chi-square (X^2) statistic was used and the summary of the results is presented below.

Table 3: Difference among respondents regarding the level of computer usage and academic achievement at Federal Government Girls College Zaria, Kaduna State.

Statistic	Value	Df	Asymptotic Sign (2-Sided)
Pearson Chi-Square (X^2)	37.928	36	.381
Likelihood Ratio	41.944	36	.229
Linear-by-linear Association	.000	1	.992
N of valid cases	68		

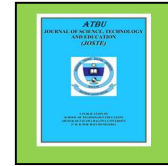
a. 39 cells (75.0%) have expected count less than 5. The minimum expected count is 15.

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The table above revealed that, there is no significant difference among the respondents regarding the level of computer usage and academic achievement of students at Federal Government Girls College Zaria, Kaduna State. This is because the respondents do not have sufficient mastery of the computer that will change their academic achievements. The chi-square computed was = 37.928 and P=381. Since the P- value was greater than the alpha

value (.05), the null hypothesis formulated was retained.

H04: There is no significant difference among the respondents regarding the effectiveness on the usage of computer in teaching learning at Federal Government Girls College Zaria, Kaduna State.

To test this hypothesis chi-square statistic was used. The summary of the results was presented below.

Table 4: Difference among respondents regarding the effectiveness on the usage of computer in teaching learning at FGGC Zaria, Kaduna State

Statistic	Value	Df	Asymptotic Sign (2-Sided)
Pearson Chi-Square (X ²)	43.343	36	.187
Likelihood Ratio	50.281	36	.057
Linear by linear Association	.007	1	.932
N of valid cases	68		

a. 33 cells (63.5%) have expected count less than 5. The minimum expected count is 15.

The table above revealed that difference exist among the respondents regarding the level of effectiveness on the usage of computer in teaching and learning at Federal Government Girls College Zaria, due to low level of competence in the mastery skills of using computer facilities in teaching learning. The X² = 43.343 and P= .187. Now since the P value was greater than the alpha value at .05 level of significant the null hypothesis is retained.

DISCUSSION OF FINDINGS

The study was conducted to find out the effective use of information and communication technology at Federal Govt. Girls College Zaria, Kaduna State. Following the analysis of the data collected it was discovered from the first finding, that there was a significant difference among respondents regarding the level of availability of ICT facilities at Federal Govt. Girls College Zaria. This finding revealed that ICT facilities were not available for teaching and learning in the college. This finding is in agreement with Bayo, (2008) and Adeogun, (2010) who conducted similar

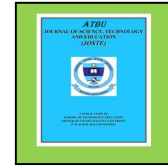
study at Federal Govt. Girls College Kano, Kano State and Daura, Katsina State on the availability of ICT facilities on teaching and learning and found out that these facilities were not available in these constitutions.

From finding two, three and four, it was discovered that, there were no significant differences among respondents regarding the level of utilization of ICT facilities, computer usage and academic achievement of students, as well as effective use of computer in teaching and learning at Federal Govt. Girls College Zaria, Kaduna State.

In support of these findings it was observed by Anyakoha, (2020), that utilization of ICT facilities was faulty by many teachers and students due to lack of mastery of skills on how to utilize ICT facilities at Federal Government Girls College, Zaria. Dede, I and Fluke C.O (2018), asserted that when teachers have low level regarding their computer is in the mastery of computer usage it affect academic achievement of students.

lastly on the affective usage of computer in teaching – learning, Dawes, I. (2021)

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share the view that a lot has to be done in relation to teachers competence in the course of using computer to promote teaching and learning. Therefore, for affective usage of computer in teaching and learning teachers have to be conversant with not only the level of mastery of computer usage but also mastery of skills of usage for effective teaching and learning for classroom operation.

CONCLUSION

In this study four major issues were raised as variables in line with availability and teachers competence in using ICT facilities. They included availability of ICT facilities, level of utilization of ICT facilities, computer usage and academic achievement of students and effective usage of computer in teaching and learning operation. The researcher therefore concluded that ICT facilities were not available in this institution and the teachers were found to be incompetent in using ICT facilities for teaching and learning in their subject master delivery.

RECOMMENDATIONS

The following recommendations were provided, based on the findings of the study.

1. Government and stakeholders should make ICT facilities availability to this college for the benefit of teachers and students.
2. Qualified ICT teachers should be trained and send to various colleges for sustainable teaching learning.
3. Every Federal Govt. Girls Colleges should have a computer system laboratory where all teachers and students should be exposed to ICT facilities and practice.
4. Conferences, seminars, workshops on relevant programmes should be organized by professional ICT personal to train teachers on varieties of skills to master it usage affectivity.

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