

Perception of Secondary Schools' Students on Computer Education in Federal Capital Territory (FCT-Abuja), Nigeria

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Abstract—Computer education is referred to as the knowledge and ability to use computers and related technology efficiently, with a range of skills covering levels from basic use to advance. Computer continues to make an ever-increasing impact on all aspect of human endeavours such as education. With numerous benefits of computer education, what are the insights of students on computer education? This study investigated the perception of senior secondary school students on computer education in Federal Capital Territory (FCT), Abuja, Nigeria. A sample of 7500 senior secondary schools students was involved in the study, one hundred (100) private and fifty (50) public schools within FCT. They were selected by using simple random sampling technique. A questionnaire [PSSSCEQ] was developed and validated through expert judgement and reliability coefficient of 0.84 was obtained. It was used to gather relevant data on computer education. Findings confirmed that the students in the FCT had positive perception on computer education. Some factors were identified that affect students' perception on computer education. The null hypotheses were tested using t-test and ANOVA statistical analyses at 0.05 level of significance. Based on these findings, some recommendations were made which include competent teachers should be employed into all secondary schools. This will help students to acquire relevant knowledge in computer education, technological supports should be provided to all secondary schools; this will help the users (students) to solve specific problems in computer education and financial supports should be provided to procure computer facilities that will enhance the teaching and the learning of computer education.

Keywords—Computer education, perception, secondary school, students.

I. INTRODUCTION

NIGERIA is located in West Africa and shares land borders with the Republic of Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its coast in the south lies on the Gulf of Guinea in the Atlantic Ocean. Abuja is the capital city of Nigeria. It is located in the centre of Nigeria, within the Federal Capital Territory (FCT). Abuja is a planned city, and was built mainly in the 1980s. It officially became Nigeria's capital on 12 December 1991, replacing Lagos, though the latter remains the country's most populous city. Long before the Europeans arrived, education had been part of Nigerians. The children were taught about their culture,

social activities, survival skills, and work. Most of these education processes were impacted into the children informally; a few of these societies gave a more formal teaching of the society and culture.

The world has developed technologically with reference to remarkable results obtained from the introduction and application of computers in solving societal problems. Computers have some performance characteristics which make them amenable and appropriate for educational management and decision making as stated by [9]. Such characteristics include speed, accuracy, consistency, repetitiveness, economy, security, and storage capability. In addition, some core functions of computer in different fields include: communication, business application, advanced application, file documentation, clinical analysis, mathematical analysis, financial institution, aviation industry, weather analysis to mention but a few.

Computers find a wide variety of applications in different spheres of life. Some of such applications in teaching education are: computational analysis, creation of databank, storage and management of educational data, communication (internet), instructional material (audio-visual), easy access to information, enhancement of innovation and invention. Computers used in each and every aspect of human life [2].

With these understanding and numerous advantages of computers, the Federal Government of Nigeria at the 32nd Ministerial Council meeting of the National Council of Education in 1987, decided to introduce computer education into the nation secondary school system [8]. This was followed by the inauguration of the National Committee on Computer Education (NCCE) the same year. The general objectives of the committee include;

- bring about computer literate society in Nigeria,
- enable present school children to appreciate and use the computer in various aspect of life and in future employment.

Computer education, according to [3], is gaining the know-how of the basic concept related to a computer and gaining the basic knowledge of computer operations. Computer education is gaining knowledge of the basic components of a computer, applications of computers to solve societal but specific problems as enumerated by [15]. Computer education refers to the knowledge and ability to use computers and related technology efficiently, with a range of skills covering levels from elementary application to programming and advanced problem solving. Other valuable components of computer

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education include know how computers operate, composition, configuration and safety precautions against internal and external harmful interruption [9].

With the advent of the internet, all aspect of society has been influenced including education [8]. The various factors influencing female enrolment in computer education or IT related courses could be group under the following as examined [6]: socialization, the role of computer software, the importance of role models, inaccessible to computers, school policy and classroom practice, unfamiliarity with computer and other IT accessories. According to [13], it was concluded that girls' perception towards computer is more positive than boys'. However, not all previous studies documented that female students had favourable perception on computer education than the male students. Reference [11], for example surveyed 576 high school students in Greece. They found no gender differences in students' regarding interest, usefulness, and importance of computer.

In Ondo State, Nigeria Fiwasaye [5] investigated a sample of SS III students' perception on computer Science. He concluded that science students in selected schools perceived positively towards computer education than art students. Fiwasaye also gathered that the students in urban schools perceived positively towards computer education.

In [7], 231 SS III secondary school students in Plateau State were surveyed with respect to students' perception on Science subjects; Physics, Chemistry, Computer and Mathematics, Jang reported that male students were found to have computers at home and enhanced their positive perception towards computer education at schools. Reference [7] showed that there is significant difference in students' perception towards computer education on the basis of gender and students' background.

Reference [16] stated that the purpose of teaching and learning Science, Technology and Mathematics Education (STME) is to produce scientists and engineers who will continue the research towards economic growth. Importantly, computer education is a science and technology oriented course. What is the reaction of students towards STME? In 2011, [16] study indicated that secondary schools' students in FCT-Abuja had poor (negative) attitude towards STME. Can a nation develops technologically if the learners have poor attitude towards science oriented course as computer education?

II. STATEMENT OF THE PROBLEM

The modalities and the strategies for achieving the stated objectives of NCCE include; training of teachers, curriculum development, availability of hardware facilities, software development and evaluation. Despite the strategies, some students have complained of insufficient time and limited computer access and others claimed that the mode of computer instruction lacks interactivity among the students and the teachers/instructors; resulted to lack of motivation or interest towards computer education. The finding of [1] showed that there was no gender difference in the computer characteristics demonstrated by the students. Computer education is essential

in our modern world as the education offers more job opportunities, better communication, new media for entertainment, having an up-to-date news source and being prepared for the future [12]. If computer education is the acquisition of basic concept of computer operations [3] and having knowledge on applications of computer to solve problems [15]; [10] revealed that students who utilize computer performed academically above average in the school. Since the introduction of computer education in 1987, what is the present perception of secondary school students on computer education? Based on these findings, the present study is to investigate the perception of secondary schools' students on computer education in Federal Capital Territory (FCT)-Abuja, Nigeria.

III. RESEARCH QUESTIONS

The following research questions were formulated to guide the conduct of the study:

- What is the perception of secondary school students on computer education in Federal Capital Territory (FCT)-Abuja?
- What are the factors that affect students' perception on computer education in FCT-Abuja?

IV. HYPOTHESES

This study tests the following postulated hypotheses:

- H1: There is no significant relationship between gender and students' perception on computer education.
- H2: There is no significant difference in the private and public schools' students perception on computer education.
- H3: There is no significant difference in the perception of secondary schools' students on computer education on the basis of Area Councils.

V. PURPOSE OF THE STUDY

The purpose of this study is to find out perception of secondary school students on computer education in FCT-Abuja. In addition, it will also achieve the following objectives:

- to investigate the difference, if any, between male and female schools' students pertaining to their perception on computer education.
- to identify the significant difference, if any, between private and public schools' students in respect of their perception on computer education.
- to examine the significant difference, if any, in the perception of students on computer education on the basis of Area Councils.

VI. SIGNIFICANCE OF THE STUDY

The findings of this study will help to expose the perceived problems and strategies towards effective teaching of computer education in secondary schools. It will also generally help to identify factors that affect the students' perception on computer education and provide workable options to improve the situation. In addition, the findings will

help to embrace warm perception towards achieving globalization that results to personal and national integration and development.

VII. RESEARCH METHODOLOGY

The methods adopted for this study are presented under the followings sub-headings:

A. Research Design

The research design used for this study is a descriptive survey. This was adopted to enable the researcher collect relevant data from the respondents (students) with respect to their perception on computer education.

B. Population of the Study

The population for this study consisted of the Senior Secondary III (SS III) students in six Area Councils (Abaji, Bwari, Kuje, Gwagwalada, Kwali and Abuja Municipal Area Council) of Federal Capital Territory (FCT), Abuja. According to information from West Africa Examination Council (WAEC), there are one hundred and thirty-seven [137] private and sixty-seven [67] public senior secondary schools in FCT-Abuja.

C. Sample and Sampling Technique

In all the secondary schools in the population, using simple random sampling technique, one hundred [100] private and fifty [50] public secondary schools was selected for the study on the basis of fifty [50] students per school. Therefore, a total of seven thousand five hundred [7,500] SS III respondents constituted the sample. This is made up male and female students.

D. Instrument for Data Collection

The instrument for data collection was a questionnaire designed by the researcher and titled "Perception of Secondary School Students on Computer Education Questionnaire (PSSSCEQ)". The questionnaire was designed to investigate senior school students' perception on computer education. The PSSSCEQ consisted three (3) sections. Section A was designed to elicit personal information about the respondent; Section B consisted contained ten (10) items that investigated the factors that affect students' perception on computer education and Section C had twelve (12) examined student's perception on the computer education. The respondents were required to provide responses in a four (4) point scale to their level of agreement with the statement given as "Strongly Agree", "Agree", "Disagree" and "Strongly Disagree".

E. Validation of Instrument

The instrument (PSSSCEQ) was validated through expert judgement to establish both face and content validity of the instrument and necessary corrections were effected. In addition, a re-test was used to obtain the reliability co-efficient at three (3) weeks interval and it was found to be 0.84. This was considered reliable hence suitable for use in this research.

F. Data Collection

The instrument was administered on respondents by the researcher and five [5] other research assistants from each Area Council under close supervision of the researcher.

Seven thousand and five hundred [7,500] questionnaire forms were administered, six thousand eight hundred and thirty-seven (6,837) [91.16%] form could be retrieved and used for the study. Others forms were either not returned or not properly filled. Out of this percentage, two thousand nine hundred and fifty-five [2,955] were males and three thousand eight hundred and eighty-two [3,882] were females. The data collected were scored on the basis of four-point scale of 4, 3, 2 and 1 as indicated by their level of agreement as contained in the retrieved questionnaire.

G. Data Analysis

The data collected were analysed by using mean-scores and standard deviations to answer research questions while t-test and ANOVA statistical analyses were used to test the three null hypotheses postulated for the study at 0.05 level of significance.

VIII. RESULTS

A. Answering to Research Questions

In order to determine the secondary schools' students perception on computer education, the number of items provided in Section C of the instrument was used. Since the items were twelve (12), the minimum and maximum mean-scores obtainable were zero (0) and forty-eight (48). A range of 0 to 24 was taken to as negative perception while 25 to 48 was taken to as positive perception on computer education.

RQ1. What is the perception of secondary school students on computer education?

TABLE I
MEAN AND STANDARD DEVIATION OF STUDENTS' PERCEPTION ON COMPUTER EDUCATION

Range	N	\bar{X}	SD	Perception
25 – 48	5261	36.58	5.21	Positive
0 – 24	1576	23.37	6.64	Negative

Table I shows that the 5,261 secondary schools' students had a mean of 36.58 and a standard deviation of 5.21 on computer education. Also, the table indicates that the 1,576 students had a mean of 23.37 and a standard deviation of 6.64. Out of 6,837 respondents, 5,261 [76.95%] had positive perception on computer education. Therefore, on the average 23.05% of the students had negative perception. The result could be attributed to non-availability of teaching resources such as knowledgeable and qualified computer teachers, lack of fund to procure computer accessories for the teaching and poor institutional characteristics on usage of computers by the students. The result obtained agreed with other researchers' findings. References [4] and [14] indicated negative perception on computer education by secondary schools students.

RQ2. What is the perception of secondary school students on computer education?TABLE II
MEAN AND STANDARD DEVIATION OF STUDENTS' PERCEPTION ON COMPUTER EDUCATION

s/n	Items	\bar{X}	SD
1.	Teachers' proficiency	3.18	0.95
2.	Institutional characteristics	3.52	0.71
3.	Gender	3.22	1.03
4.	Emotional and social factors	3.44	0.85
5.	Economic factors	3.50	0.82
6.	Environmental factors	3.40	0.94
7.	Curriculum contents	3.45	0.91
8.	Educational policy	3.38	0.90
9.	Parents' attitudes	3.37	0.71
10.	Technological supports	3.30	0.78

TABLE III
T-TEST ANALYSIS OF MALE AND FEMALE STUDENTS' PERCEPTION ON COMPUTER EDUCATION

Gender	N	\bar{X}	SD	Df	Cal. t	Critical t
Male	2955	31.12	5.48	6835	13.65	1.65
Female	3882	32.91	5.29			

p=0.05

TABLE IV
T-TEST ANALYSIS OF PRIVATE AND PUBLIC STUDENTS' PERCEPTION ON COMPUTER EDUCATION

Schools	N	\bar{X}	SD	Df	Cal. t	Critical t
Private	4631	31.08	5.52	6835	5.40	1.65
Public	2206	30.32	5.26			

p=0.05

TABLE V
ANOVA ANALYSIS ON THE COMPUTER EDUCATION ON THE BASIS OF AREA COUNCILS

Sources of variation	SS	Df	MS	F-Ratio	F- Critical
Between Council	28.86	5	5.77	0.19	2.22
Within Council	21076	6831	30.85		
Total	210794.86	6836			

p=0.05

Table II shows the means and standard deviations of students' perception on computer education. The items have means greater than 3.0 which is closer to the maximum mean-score of 4.0. This implies that the respondents agreed with the researcher that the teachers' proficiency, institutional characteristics, gender, educational policy, parents' attitudes and technological supports were among the items identified as factors affecting students' perception on computer education.

B. Testing of Research Hypotheses

The stated null hypotheses were subjected to test as follow at 0.05 level of significance.

H1: There is no significant relationship between gender and students' perception on computer education.

Table III shows that the perception of male students on

computer education had a mean of 31.12 and a standard deviation of 5.48 while female students' perception on computer education had a mean of 32.91 and a standard deviation of 5.29. The table reveals the calculated t of 13.65 which is greater than the critical t-value of 1.65. Therefore, the null hypothesis was rejected. This means that the means obtained from the two groups (male and female) were statistically significant. Reference [5] showed that male students in selected secondary schools perceived positively towards computer education than female students.

H2: There is no significant difference between private and public students' perception on computer education.

The data in Table IV indicate that the perception of private schools' students had a mean of 31.08 and a standard deviation of 5.52 while the perception of public schools' students had a mean of 30.32 and a standard deviation of 5.26. Furthermore, the calculated t value of 5.40 is greater than critical t-value of 1.65. Therefore, the null hypothesis cannot be accepted. This implies that there is statistically significant difference between private and public students' perception on computer education.

H3: There is no significant difference in the perception of secondary schools' students on computer education on the basis of Area Councils.

Table V shows the critical value of 2.22 based on 5 and 6831 degrees of freedom for numerator and denominator, respectively, and p-value of 0.05. Since the calculated value of 0.19 is less than the critical value of 2.22, the hypothesis was accepted. This means that there is no significant difference in the perception of secondary schools' students on computer education on the basis of Area Councils.

IX. CONCLUSION

This study was designed to find out the secondary school students' perception on computer education in Federal Capital Territory (FCT) – Abuja. In conclusion, the researcher discovered that the secondary schools' students in Federal Capital Territory (FCT) – Abuja had positive perception on computer education. The finding also identified some factors that affect students' perception on computer education. These factors include teachers' proficiency, institutional characteristics, emotional and social factors, gender, economic factors, environmental factors, curriculum contents, educational policy and parents' attitudes technological supports. The testing of the three postulated null hypotheses indicated that there is significant relationship between gender and students' perception on computer education; there is statistically significant difference between private and public students' perception on computer education and there is no significant difference in the perception of secondary schools' students on computer education on the basis of Area Councils.

X. RECOMMENDATIONS

The following recommendations are hereby made based on the findings of the study:

1. Competent teachers should be employed into all secondary schools; this will help students to acquire relevant knowledge in computer education.
2. Technological supports should be provided to all secondary schools; this will help the users (students) to solve specific problems in computer education.
3. Financial supports should be provided to procure computer facilities that will enhance the teaching and the learning of computer education.
4. Computer resources such as e-library and internet services should be provided for students at affordable cost to enhance development of positive perception on computer education.
5. Parents and teachers should be sensitive to emotional and social-cultural biases and strive to expose both sexes to the advantages of computer education.
6. Conducive environment should be provided to enhance assimilation of computer education that will promote technological skills and logical thinking among the students.
7. The link between school curriculum and computer education should focus on students' interests.

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ACKNOWLEDGMENT

The author appreciated to the entire secondary schools students in Federal Capital Territory (FCT), Abuja for their moral and academic supports during the field work to gather relevant information. The contribution of the research assistants from each Area Council is highly appreciated.

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