Impact of Computer Education on Students Interest and Performance in Automobile Trade, in Nigerian Secondary Schools and Colleges

Name: Ohwojero Chamberlain

Address: Delta State University Secondary School, P.M.B 1, Delta State, Nigeria, West Africa

Email: ohwojero@gmail.com

Abstract

Computer education has become one of the vital tools necessary for promoting education worldwide. Information are sourced, disseminated, stored through the use of computers and internet facilities etc. Today all over the world teaching and learning, searching for information's within educational circle is done through internet. It has become necessary to incorporate computer education into Nigerian system of education. Hence this study tends to determine what impact will computer education have in the training of students in automobile trade at the secondary school or college level in Nigeria schools.

Data collected for this study was done through the use of questionnaire that was pre-tested and post-tested using two schools as control group (NCAI) and experimental group (CAI). The data were analyzed and tested at 0.05 significant level using mean and t-test analysis to check for level of significance. Findings were made and stated as follows:

- That students pre-tested in the two schools had low score performance.
- That the use of computer to teach student in the two schools helped to arouse student's interest etc. Based on the findings the following recommendations were made:
- That computer education should be fully implemented in schools and colleges, to assist students in the operation of modern tools and equipment in the workshop.
- Government should equip automobile workshops with computers, to enhance student interest and performance etc.

1.0   Introduction

The use of computer (Information and Communication Technology) has become the most popularized means of facilitating, teaching and learning in the recent times in this 21st century. Computer usage has turned out to be the fastest means of passing information to every educational sector and business world. The focus and emphasis on the use of information and communication technologies (ICT) in all areas of life has long become global. Information and Communication Technology (ICT) is not only limited to computer applications only. But also includes other computer applications like internet, news, and print etc (Ayelaugbe 2005).

Information and communication technology is defined as "diverse set of tools and resources used to communicate, create, disseminate, stored and manage an information" (Ayelaugbe 2005). Other Information and Communication Technology (ICT) component includes internet, broadcasting (radio and television) and telephone. Because of the advantage of (ICT), Federal Government of Nigeria has shown great interest on how computer and internet facilities can be used to improve educational standard in the country. Hence, there is emphasis on computer education in the country today. Internet has made the world a global village. Information's are received, sent, downloaded, stored, processed within seconds. Almost all educational knowledge are stored in the internet such as written text books, Journal publications, examination registrations that are down online. Manual methods of searching for information about teaching and learning are now getting obsolete.

Today many automobile products are designed, manufactured, assembled and produced through the use of computers for the purpose of accuracy in production. Addah (2008) define computer as a "device that receives any information, process the information and give it out as a processed message, that become an output". A complete computer system is made up of the hardware and software (Moreau. R.1984), the work of computer involves the input of some data that are processed to produce results called an output (Encyclopedia Britainnica 2003). Example is an automobile factory that requires finished products like steering wheel, engine parts and tires etc. The suppliers of these products send them to the factory. These activities constitute the input part while the processing is the actual building of the automobile, thus the input provides, processed and the finished product (Automobile) that become the output. This process is referred to as the I-P-O Cycle.

Figure I: IPO Cycle

INPUT (Raw Material)	→	PROCESS (Assembly)	→	OUTPUT (Finished Automobile)
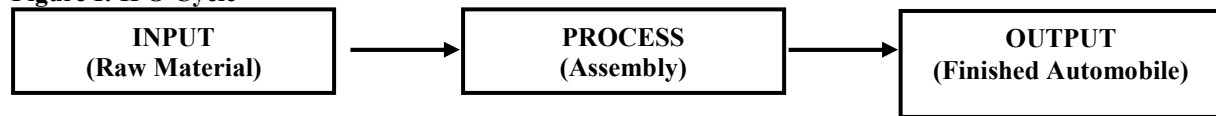
Developed Countries like America, Britain, Germany, China South Korea etc, have made computer education popularized because it is one of the fastest means of transferring knowledge and performing jobs; like the use of robot in the western world. The advantages of computer have compelled many developing countries in Africa like Nigeria, to plan and restructure ways of impacting knowledge. Computer education is now being gradually incorporated into Nigeria educational system (curriculum). The teaching of computer in schools started from secondary education to tertiary institutions. Many high institution in Nigeria now have information and communication technology (ICT) center as a means of sourcing for information, knowledge, storage of information, payment of school fees, and also been abreast of what happens around them.

2.0   Statement of Problem

The impact of computer education has not been fully recognized and appreciated by the society and many people. Many secondary school graduates cannot operate and make use of computerized tools and equipment found in most ultra modern automobile workshops.

Student interest in automobile trade is on decrease, which has affected their performance in workshop practice. Skills acquired is low, because many secondary school students lack computer skills that made them not being able to understand and operate most workshop equipment that are computerly designed.

Without computer knowledge, most of the modern automobile machine, tools and equipment cannot be operated when performing any task in the workshop. This study therefore, aimed at finding out the impact of computer education on student's interest and performance in automobile trade, when computer education is incorporated into secondary school system and colleges.

3.0   Research Questions

The study sought answers to the following two research questions:
1.   Does the use of computer in automobile workshop motivate student's interest?
2.   Does the use of computer in teaching students in the classroom and work shop improve student's performance?

4.0   Hypothesis

Two hypotheses were formulated and tested at 0.05 level of significant to guide the study.
HO_1: There is no significant difference between the study of computer education and students interest in an automobile workshop.
HO_2: There is no significant difference between the use of computer to teach students and their performance in automobile workshop.

5.0   Methodology

The quasi experiment research design was used in this study. Gay (1976) refers to experimental research, as the most valid approach to the solution of educational problems and also to the advancement of education as a science. Two schools were used in the study, they are Delta State University Secondary School Abraka (DSS) and Federal Government College Warri (FGC) both in Delta State was subjected to pre-test as the control group (NCAI) meaning none computer assisted instruction and post-test as the experimental group (CAI) computer assisted instruction, after two weeks.

All the students in the senior secondary school were used as the population of the study. A sample size of 80 students was used as the sample of the study. Students were selected randomly from the three classes of the senior secondary schools (SSI – SSIII). Forty (40) students were selected from each school and were taught for two weeks in their respective schools, using computer before carrying out the post-test.

5.1   Instrument

The instrument used to collect data was questionnaire. The instruments consist of two sections. Section A that contain two questions about the socio demography of the students. Section B contains ten (10) items that the students will read and respond to. The questionnaire for this study was designed using liket type scale method and was validated by two experts from the Department of Measurement and Evaluation in faculty of Education and the Department of Information and Communication Technology Department (ICT) both in Delta State University, Abraka.

Table 1

S/NO	ITEMS	4	3	2	1
		SA	A	D	SD
1.	I have knowledge of computer				
2.	My school workshop have computers				
3.	I can browse from internet				
4.	I can design vehicle parts using computer				
5.	I can diagnose fault using computer				
6.	I can carry out minor repairs using computer				
7.	I can operate computerized tools and equipment in the workshop				
8.	Computer make the study of automobile interesting				
9.	Computer has improve my performance in automobile technology				
10.	I can source for information faster than reading the test books				

Person product moment correlation reliability test was used to test the internal consistency and the instrument was validated. The result was 0.79 showing that the reliability of the instrument was high. Meaning all the items contained in the questionnaire are reliable.

5.2   Data Analysis

The instrument was administered to the students in their classroom in the two different schools through the assistance of the subject teachers to pre-test, students interest and performance on the items stated on the questionnaire to get data for comparism. The instrument was retrieved back immediately after administering the questionnaire, the return was 100% successful.

After the pre-testing of the two groups, the two groups were taught for two weeks using computers. The instrument was post-tested by administering the instrument to both schools, after a period of two weeks. The data collected in the course of the study was analyzed and presented in tables in line with the research questions and hypothesis stated,

TABLE II

Raw scores of pre-test and post test of students collected after administering the questionnaire before data analysis.

CONTROL GROUP (NCAI) DELTA STATE UNIVERSITY SECONDARY SCHOOL (DSS)		EXPERIMENTAL GROUP (CAI) FEDERAL GOVERNMENT COLLEGE (FGC)	
Pre-Test	Post-Test	Pre-Test	Post-Test
10	30	20	60
22	41	30	50
31	60	10	58
10	32	9	45
5	15	20	61
8	12	30	62
20	70	15	63
13	43	40	52
25	50	18	33
30	65	21	41
5	10	29	80
10	14	60	70
13	31	10	72
14	32	35	70
40	80	40	85
5	10	60	67
9	17	67	90
10	28	70	91
20	34	14	68
5	60	18	52
13	66	18	59
15	39	60	73
2	15	30.	73
31	60	45	80
15	45	60	84
10	38	71	83
10	60	11	90
10	30	10	60
9	32	9	80
5	41	13	70
12	20	18	56
11	34	19	60
20	60	21	70
21	35	22	71
11	40	20	64
10	26	15	68
10	54	30	69
6	26	18	61
7	30	14	61
9	38	10	65

5.3   Research Question I

Does the use of computers in automobile workshop motivate student's interest?

In answering research question one, data collected were subjected to statistical analysis and the result is shown below

Table III
Data analysis of pre-test and post-test scores of research question I.

Group	N	Mean	SD
Post –Test (CAI)	40	63.8500	14.17573
Pre-Test (NCAI)	40	28.2500	18.87333

From the above table III, it shows that the mean of post-test (63.8500) is > than the mean of pre-test (28.2500). Therefore there is a significant difference between the pre-test and post-test scores in favour of post-test scores of group taught using computer.

Hypothesis 1 (Ho$_1$)
There is no significant difference between the study of computer education and students interest.
In testing hypothesis I (H0$_1$) the t-test of analysis was used to determine the level of significant difference and the results are shown in the table below.

TABLE IV
Summary table of t-test analysis of research question I.

Group	N	Mean	SD	DF	T-CAL	T-CRITICAL	REMARK
Post-Test	40	63.8500	14.17573	78	9.507	1.98	HO$_1$ accepted
Pre-Test	40	28.2500	18.97333				

From table IV shown above in the t-test analysis, t-cal. value (9.507) is > than the t-critical value (1.98). Therefore, it means that there is a significant difference between students that was thought using computer in the automobile workshop, that lead to the motivation of student's interest. In conclusion, the use of computer to teach students in an automobile workshop has help to arouse student interest. Therefore hypothesis I HO$_1$ is accepted.

5.4   Research Question II
Does the use of computer in teaching students in the classroom and workshop improve students' performance?
Data collected were subjected to statistical analysis and result shown in Table VI below:

Table VI
Data analysis of pre-test and post-test scores of research question II.

Group	N	Mean	SD
Post Test (CAI)	40	63.8500	14.17573
Pre Test (NCAI)	30	40.7667	20.75254

From the above Table VI, it shows that the mean of post-test (63.8500) is > than the mean of pre-test of (40.7667). Therefore, there is a significant difference between post-test score group that was taught using computer.

Hypothesis II (H0$_2$)
There is no significant difference between the use of computer to teach students and their performance in automobile workshop.
To test hypothesis II (H0$_2$) the t-test analysis was used to determine the level of significance difference. The result is shown in the table below:

Table VII
Summary table of t-test analysis of research question II

Group	N	Mean	SD	DF	T-CAL	T-CRITICAL	REMARK
Post-Test	40	63.8500	14.17573	68	5.244	1.98	HO$_2$ accepted
Pre-Test	30	40.7667	20.75254				

From table VII of the t-test analysis shown above calculated t-values (5.244) is > than the t-critical value (1.98). It therefore means, there is a significant difference between the use of computer to teach students and improvement in student performance. In conclusion, the use computer to teach student in automobile workshop improved student performance. Therefore hypothesis II HO$_2$ is accepted.

6.0   Discussion of Findings
The findings from this study are based on the data collected that were analyzed from the research questions and hypothesis stated in the study. The findings are discussed as follows:
Students that were pre-tested had low score performance compared to the post-test score performance, after teaching them with computer. The low performance was as a result of lack of computer skills. This shows that there was a significant difference. Meaning computer will have impact in the study of automobile trade in Nigerian Secondary Schools and colleges. This study is not in support of (Hall 1982), that reported that lecture

method of teaching is as good as other method of teaching.

The use of computer to teach students from the two schools help to arouse their interest from the scores that was analyzed, which shows that student interest can be motivated using instructional materials like internet facilities during teaching process in the workshop. This study supports (Alexander 1987) report, that interest can be developed by individual or stimulated by another person or using instructional material in form of motivation.

The level of skill acquired by student after the post-test was high, based on their performance as shown from the data analyzed. Because students could operate some of the computerized equipment used in the course of this study, by being able to diagnose fault using the computer. Performance is not defined by the action itself but by the judgment and evaluative process (IIgen Schneider 1991).

7.0   Recommendation

Based on the above stated findings, the following recommendations were made;

1. Computer education should be fully and well implemented to assist students in the operation of modern tools and equipment in automobile workshops in Nigerian secondary schools and colleges.
2. Students should be given assignment on internet facilities to motivate students' interest.
3. Government should equip automobile workshops to enhance student's interest in automobile trade.
4. Automobile trade as a subject should be made compulsory to enhance student's interest towards technology advancement.
5. Computer education should be inculcated into primary school curriculum to be a starting point for computer education in Nigerian school system.

8.0   Conclusion

Based on the findings and recommendations from the study. The conclusion of the study was that computer education, when well planned and implemented it will have a great impact in the study of automobile trade in Nigerian secondary schools and college automobile workshop. Also it will help to enhance student interest and performance in the trade, that will enable them to acquire good skills which will prepare them for job in automobile industries or self employment after graduation from school.

9.0   Reference

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