Investigating the Utilization of ICT and Its Applications in Teaching Computer Studies in Secondary Schools in Niger State Educational Zone

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Abstract: The researchers investigated the factors militating against utilization of Computer Hardware and internet applications in teaching computer study in Secondary Schools. The study was carried out in Minna Municipal Chanchaga L.G.A. in Niger State. Four, researcher questions and one hypothesis to guided the study. The design adopted for the study was descriptive survey. Total samples of 240 respondents were drawn from the three selected schools. A researcher structured questionnaire was used as the instrument. The instrument was validated and reliability ensured mean score and standard deviations were used to answer the research questions while t-test was used to test the hypothesis at 0.05 level of significance. The data analyzed were presented in tabular form based on each research question and the hypothesis. The findings of the study among others were; that computer teachers in Secondary school do not utilize computer hardware and internet applications in their lessons; that teachers lack the required skills to operate these ICT resources, secondary schools lack the necessary infrastructures required for utilization of the ICT resources and applications. Based on these findings'recommendations were made, among which is that, compulsory computer learning should be organized for teachers in Secondary schools by the government while their subsequent promotions should be tagged on the knowledge and certificate of such training.

Keywords: Utilization, ICT, computer studies, Niger state teaching

I. INTRODUCTION

In this modern time, the enormous benefit of integrating ICT and its applications in teaching and learning has captured the interest and attention of both the Federal and State government of Nigeria, as well as non-governmental organization and well-meaning Nigerians. The great popularity and recognition accorded to ICT stems from both its benefits and effectiveness in task performance which has been experienced in almost all facets of life (Pollward 2005). Information and Communication Technology has touched the life of many individuals in Nigeria since last few decades of 20th and early 21st century. Its benefits have been felt in the following areas; Medical and health, Agriculture, Business Education and so on (Ayola 2009). These benefits include storage of Information and retrieval facilitating dissemination of information of all levels acquiring knowledge from the internet and organizing knowledge. IT is also very effective in developing manipulative skills and skills for critical thinking, (UNESCO 2004) furthermore ICT has become very good instructional materials for teaching and packaging lessons development in information and communication technology (ICT) has broken all national and international barriers and turned the whole world into a global village, making information available to everybody, anywhere and at any time (Adeyanju 2016) put in a different way, since education is a veritable tool for national development and ICT improves the quality of education of a nation, the National development depends on the extent to which a nation integrates ICT resources in education. It was clearly realized in the wake of 21st Century in Nigeria that National Development depends largely on educational advancement which in turn depends on the technological process (Adeyanju 2016).

Advancement in ICT in developed countries and developing countries is fast increase. Its application in different sectors of life has spread fast and wide like fire and his illuminated the whole world with its bright light.

It is in recognition of its role and place in education that captured the interest of the federal government to include computer studies in the national policy of educational (FRN 2004). The federal government saw the need to equip students with skills to live effectively in the modern age of science and technology since then ICT has become one of the basic building blocks of modern society.

Schools at all level now regard understanding ICT and mastering of the basic skills. Computer has been stated to be studies one of the core subjects alongside mathematics, English, and science. To achieve this aim, the federal government and some well-meaning Nigerians have supplied many personal computers to primary and secondary and tertiary institutions. In other to ensure these computers were utilized in teaching and learning various computer training programmes were organized for teacher by the government.

This programme served as a form of teacher development programme in the area of computers literally it is believed that with this computer knowledge gained by the teachers they can effectively teach their students in schools instead of learning from the non-professional teachers whom have minimum computer knowledge. They are simply computer operators and not many teachers in both primary and secondary are computers literate and therefore cannot effectively teach students using computers hardware and internet applications.

The worry of the research is therefore what could be the reasons for not utilizing the computer hardware and internet application in teaching computer studies could it be that the numbers of pcs supplied are very few or that teachers are not competent enough to use them.

The researchers are therefore poised to investigate the factors militating against utilization of computers hardware and internet applications in teaching computer studies in junior secondary schools.

Statement of the Problem

The federal and state governments have recognized the need to include computer studies into the educational system of the nation. The aim of the computer educational being to equip the youth with manipulative skills or life coping skills for effective living. Another reason behind this gesture is that when individuals or teacher are computer literate, they will be able to share in the envours benefit derived from using computer and internet applications in their own private practices. Furthermore, individual's corporate organization and government will share in these benefits subsequent. There will be general advancement in national development.

Takings as a whole, the ministry for science and technology introduced a computer kit to be used in secondary schools called "FIX IT YOUR SELF"(FIY) in may 2000,The Federal Government has made effort to train computer teaches through state government reasonable number of personal pcs have been supplied to secondary schools by government and many philanthropist in our nation. The question is therefore are computer teachers "FIY" compliance can they effectively utilize the computer hardware and internet applications in teaching computer studies in secondary schools. The situation is really norrisome to the researcher and has prompted them to embark on this study with the aim of investigating the factors militating against utilization of computer hardware and internet applications by teachers in teaching computer study in secondary school.

Concept of Frame Work:

For the purposes of this study the researchers want to define information and communication technology (ICTs) as any computer-based resources, networked and stand-alone including both hardware and software currently available as teaching and learning resources (E-media 2008, Duru 2010). Example of such resources are tailored multi-media teaching, packaging information resources as the net and world wide web, data management tools, such as word processing software or spread sheet computer fax machine and electronics equipment. Some of them are designed to use the principle of programme instruction so that both the teacher and the learner can determine their pace of learning.

Theoretical Frame Work.

The rationale for this study can be taken in two dimensions, the first looking at modern instruction theory propounded by Sund and Trown Bridge (1971) in Gbamaja (1991). The theory asserts that every individual is born with several talents to make thing able and capable of doing several things, Example of such innate talents are academic, creative, planning, organizing, social, forecasting, communication, decision making etc. and all of the should consider the individual as a whole and then must adopt a holistic teaching approach which will stimulate various categories of talents in the learner. Computer therefore becomes a good instructional resource to achieve this purpose.

In the second dimension it is a consensus believe that knowledge is dynamic as well as the needs and suspiration of the society. It implies that evolution of new knowledge is a signal to the society new aspiration. The society has desire and to pursue the new knowledge in order to be current with knowledge advancement. This work is therefore based on the rationale that there is wide recognition and use of computers in the society. There is also strong conviction that computers should be integrated into educational settings. This is intended with dynamic nature of knowledge. Computer literacy for all has become the need and aspiration of the society equipped with computer skills necessary for driving an information highway. Through some people may argue until they win that many of the youth are better informed and skillful than their teachers and parents in the area of digital technology integrating computer in to the teaching and learning can be considered more appropriate with the reasons given above and also that the attributes of computer allowed for interactive data processing symbols transformation and information storage which seemed compatible with human information processing and knowledge construction(Dewey 1939). The personal computer is well design for teaching and learning example it is loaded with software ranging from drill and practice programmes to stimulation and operational tools. It is believed that integrating computer into educational setting enhance meaningful learning acquisition of life coping skills etc.

Purpose of the Study

The major purpose of the study is to investigate the extent of utilization of information and communication technology and its resources in teaching computer studied in secondary schools in mining educational zone.

Specifically, the study is design to find out the extent to which teachers utilize computer hardware in teaching computer studies in junior secondary schools.

- To find out the extent the teachers utilize internet application in teaching computer studies.
- To find out the problems associated with utilizing information and communication technology (ICT) in teaching computer studies.

To Proffer Solutions to This Problem:

Research Question

The following research questions are rise to guide this study.

1. To what extent do teachers utilize computer hardware in teaching computer studies in secondary school?
2. To what extent do teachers utilize internet applications in teaching computer studies?
3. What aspects is computer studies do teachers mostly teach.
4. What are the problems militating against utilization of computer hardware and internet application in teaching computer studies?

Hypothesis

There is no significant different between the perception of teachers and students on the problems militating against effective utilization of computer hardware and internet application.

II. METHODOLOGY

Research Design Process

The researcher adopted a descriptive survey design in which questionnaire were uses to collect the required information from the respondent based on the research questionnaire and inferential because of the hypothesis.

The research was carried out in Niger state educational zone and precisely in Lapai Local Government Area of Niger state. Some public secondary schools were selected and used for the study.

Population of the Study

The population of the study consisted of all the 10 junior secondary school in Lapai Local Government Area in the year 2020 which gives a total number of about 3,680 students from where the sample was selected.

Sample and Sampling Techniques of the Study

The researcher used simple random techniques to select three senior secondary schools in Lapai Local Government Area of Niger State.

The same sampling technique was used to select 150 students from the three schools. Specifically, sample of 50 students was selected from each school and for the three schools a total sample of 150 students was obtained. Also, from the 3 schools, 90 teachers were selected for the strictly through simple random techniques. A total sample of 240 respondents was used.

Instrument for Data Collection

The instrument used for data collection was research structural questionnaire. The questionnaire was divided into 2 sections. Section A was designed to elicit personal information about the respondent and section b was a four-point modified likert scale response of items designed to elicit answers from the respondents used for the study. The

response was weighed thus, strangely agreed (4) agree (3), disagree (2) and strangely disagree (1) for items related to research questions 1-4. The average mean of 2.50 was used as the minimum scale of positive result while mean score is a negative result while mean score above 2.50 indicated positive response. The hypothesis was tested at 0.05 level of significant. If to calculate is greater than table t, there is no significant difference but it in the other way around, there is significant.

Validation of Instrument

The instrument used for the study was validated by experts in the field of educational technology. The items were thoroughly screened for content validity. They made some corrections with this; some question items were restructured to reflect the information required. Some were expunged completely, in this way validation of the instrument was ensured.

Reliabilty of the Instrument

In order to ensure the reliability of the instrument test-retest method was used. It was administered to group of students in a pilot test. These students were selected from outside the study area. After 2weeks interval, the same instrument was given to the same group of people. The two sets of scores were organized and co-related using persons product moment co related formula.

A correlation co-efficient of 0.68 was obtained which was indication that the instrument was reliable enough to collect data.

Adminstration of the Instrument

The researcher visited the selected schools and personally administered the questionnaire to the students and collected they back immediately after completion by the respondent. This method was ensuring that every questionnaire was recovered from the respondent. There was no loss of any questionnaire.

Method of Data Analysis

The method for data analysis was mean score and standard deviation for the research questions and t-test analysis for the hypothesis.

III. RESULTS

Research Question One

To what extent are computer hard ware are utilized by teachers in teaching computers studies in secondary schools.

Table 1: Mean score perception and standard deviation of students on the utilization of computers hard wares in teaching computer studies

Do you ensure that teachers utilize the following computer hardware on teaching computer?	N 150	X	SD	DEC
1. Central processing units are used for computer lessons		2.24	1.20	D
2. CD projectors are used for computer lessons		1.57	0.46	D
3. CD rooms/flash are used for saving or transferring information during lesson		2.23	1.20	D
4. Scanner for scanning information / picture and diagrams are regulations used during lesson.		1.49	0.79	D
5. Printer is used for printing out information or typesetting materials in computer lessons		1.83	0.91	D

Data in table one show that the mean scores of all the items (1-5) listed in table one as computer hardware are less than 2.50 with mean range of (1-1.49-2.24) which is below the minimum mean range for positive response implies that computer hard wares are not utilized in computer studies.

Research Questions Two:

To what extent is internet application utilized in teaching computer studies in secondary school?

Table 2: Mean perception and standard deviation of respondent on the utilization of internet applications in teaching computer

Do you agree that teachers utilize the following internet applications in teaching computer?	N 150	X	SD	DEC
1. Teachers teach student browse the internet		2.05	1.06	D
2. Teach students electronics mail transfer		1.77	0.89	D
3. File Transfer		1.85	1.00	D
4. Electronic chatting		1.68	0.84	D
5. Internet calls		1.63	0.76	D
6. Web quest lesson		1.29	0.65	D
7. concept mapping and quorum project		1.83	0.91	D

Data in table 2 above show that the mean score of all the items listed in table 2 is less than 2.50(items 1-7) which is the minimum mean score for positive response. It implies that the respondents generally agreed that none of these internet applications is regulatory utilized by teachers in computer lesson in secondary schools.

Table 3: To further determine which aspect of computer do teachers mostly teach students, opinions of respondents were sought on the following lessons

Do you agree that computer teacher cover the following topics in your lessons?	N 150	X	SD	DEC
1. Meaning of computer		2.9	0.94	D
2. Origin of computer		2.7	1.16	D
3. parts of computer		2.5	1.33	D
4. Benefits of computer.		3.1	0.07	D
5. meaning of www		2.9	0.30	D
6. Browsing the internet		1.57	0.46	D
7. Typing and formatting		1.49	0.70	D
8. Printing the typeset work		1.13	0.14	D
9. Scanning with scanner		1.1	0.30	D
10. Electronic mail transfer		1.68	0.84	D
11. Web quest lesson		1.07	0.25	D
12. Concept mopping quorum project		1.2	0.40	D
13. simulations and drill practice		1.86	1.08	D
14. Saving information		1.1	0.40	D
15. Retrieving information		1.57	0.46	D
16. Transferring information		1.85	1.00	D
17. power point packages		1.83	0.91	D

Data in table 3 shows that the mean scores of the items (1-5) listed as computers lesson topics have means score greater than 2.50 which is the minimum mean rating for positive response these implies that respondents generally agreed that the aspects of computer which teachers usually teach in their schools fall within items (1-5), on the other hand items 6-17 have mean scores less than 2.50. This implies that the aspect of computer which teachers rarely fall within items (6-17).

Research Questions Four:

What are the problems meditating against utilization of computer hard ware's and internet applications in teaching computer studies in secondary schools?

Schools Students Teachers

Do you agree on the following as the problems validating against utilization of computer hard wares	N 150	X	SD	DEC
1. Inadequate support of computer set to schools		2.59	0.75	A
2. Lack of required infrastructure		2.89	0.75	A
3. Lack of required skills and competence on the part of teachers		3.09	0.73	A
4. Lack of varieties of computer required for different purposes e.g. for web quest, simulations drill and practices, quorum project		2.57	0.90	A
5. Lack of access to internet		3.23	0.90	A
6. Lack of Technical operators to service and upgrade systems.		2.89	0.79	A
7. Cluster mean		2.89	0.83	A

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Data in table four show that on the student perspective on problems militating against utilization of ICT hardware and internet applications all the items (1-6) has mean scores greater than 2.50 which are above positive mean response. It implies that respondent generally agreed on the items as problems agreed on teachers, perspective, and data in table four shows that all the items have mean score greater than 2.50. This implies that represent generally agreed on all the items as problems militating against utilization of computers hardware and internet application in teaching computer in secondary schools.

Hypothesis

There is no significance difference in the mean perceptions of teachers and students on the problems militating against utilizations of computer hardware and internet applications teachings computer studies in junior secondary schools.

Table 4: t-test of non-significance difference between the mean perception of teachers and students on the problems militating against utilization of computer hardware and internet resources

Group of respondents	N	X	SD	Df	t.can	t-cri	Dec
Students	150	2.89	0.83	238	2.8	1.645	N. S
Teachers	90	3.14	0.46				

Data in table 4 above show that the t calculated is greater than table t (2.8 >1.645). This implies that there is no significance different between the mean respondent of teachers and students on the factors militating against utilization of computer hardware and internet applications in teaching computer studies in senior secondary schools.

IV. DISCUSSION

Data in table I show that all the items (1-5) have means scores below 2.50 which is the minimum acceptance mean rang (see table 1). This indicates that the respondent generally agreed that the computer hardware listed in table I am not utilized in teaching computer study in junior secondary schools. Since the schools selected for this study were only those who have computers and teach computer lessons. The findings have revealed that they are not utilizing them due to some factors.

French (2006) describe hardware components as the physical part of a computer which one can feel, touch and see. If they are not adequate utilized in teaching computers study, how student can learn these manipulative skills required for effective living. Dum (2010) referred to these manipulative skills as life coping skills which tagged "must learn" for students and should not be ignored. With regards to research question 2, data in table 3 shows that the mean score of the six items listed as internet applications have mean scores less than 2.50 which is the minimum acceptable mean range of positive mean response (see table 2, items1-6). It implies that the respondent generally disagrees that these internet applications are utilized in teaching computer studies in junior secondary schools (Duru 2008) noted that ICT resources with

internet connectivity can increase learner's motivation. Internet application combines the media richness and interactivity of ICT resources with the opportunity to connect with the real world and participate in real world event. With internet connect students can learn how to browse the internet, construct concept maps and create giant concept maps called 'quorum project' (Duru 2008) furthermore Aribogu 2000 explain that with internet applications students can share and gain information access relevant knowledge from the internet where these internet resource are not learnt by student, how can they learn life coping skills necessary for effective living.

In research question 3, With respect to teachers table 3 shows that the mean response of all the items listed in table 3 are greater than 2.50. The mean range is between (2.57-3.59) for teachers and (3.10-3.30) for students. This implies that both the teacher and students generally agree that the items are the problems militating against utilization of computer hardware and internet applications.

To further investigate the truth of their response the researchers used t-test statistics to test the level of significance between teachers response and students responses the result of this t test in table 4 show that the t calculated (22.8)is greater than the table –t (1.645). It implies that there are no significant differences between the mean response of student and teacher on the factors meditating against the use of internet and its application in teaching computer studies. The finding is in line with that of Toomey (2001), Duru (2010). In her study an application of ICT resources in teaching and learning Duru found that there are many challenges of integrating ICT to teaching and learning. Some of the challenges enumerated by Duru include:

- Problem of curriculum and pedagogy
- Material resources and capacity building
- Language content and financing
- Problem of infrastructure, such as power
- Lack of skills and competences by teacher change in teaching role etc.
- Lack of adequate supply of these ICT resources to schools.

According to Toomey (2001) integrating computer into teaching and learning requires much than supply of few personal computers to schools. The policy makes should embark a needs assessment to discover the basic needs for integrating computers into teaching and learning. It requires that educational policy makers and administration and practitioners need to be acquainted with the multi-faceted opportunities, Challenges and constraint of integrating ICT in educational setting.

V RECOMMENDATION

Based on the findings of this study, the following recommendations are made:

1) since lack of required infrastructural is one of the major problems militating against utilizations of computer hardware internet application in teaching and learning, the federal government should Endeavour to improve on the existing power supply in the nation and construct more generating solutions.

2) The federal government should try to collaborate with state government to organize seminars conference and workshops for students and teachers from time to time to update their knowledge on ICT resources and its applications. This is one of the major reasons why computer hardware is not utilized.

3) Teachers should adopt effective methods of teaching which involve methods of teaching which will involve the use of hardware and internet applications.

4) Government should make computer train compulsory for every teacher and make it one of the conditions for promoting teachers since the study revealed that many teachers lacks the knowledge and skills operating and teaching with computers.

5) Finally, the federal government should also use these identified factors that militate against utilization of computer hardware and internet applications as sources of data when preparing budget on educational issues.

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