

AN APPRAISAL OF SECONDARY SCHOOL TEACHERS' IMPLEMENTATION PROGRAMME OF COMPUTER EDUCATION CURRICULUM IN JUNIOR SECONDARY SCHOOLS

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Abstract

The need to provide data that would enable Secondary School teachers to measure the impact of previous training of teachers on information and communication technology (ICT) and access the effectiveness of current strategies motivated the study, which sought to appraise the secondary school teachers use of curriculum implementation of computer education studies in junior secondary schools. The study adopted case study design in studying ICT use of 98 teachers in secondary school in Delta State. These teachers responded to ICT application in computer curriculum studies. Questionnaire were developed and validated by the researcher.

The data obtained were subjected to descriptive statistical analysis. The results showed that the teachers has access to computer and internet more at school than at home, use Microsoft word, school website and the internet fairly regularly than other ICT applications. Factors identified as hindering effective use of ICT by the teachers include lack of regular power supply. Lack of training in ICT and internet use. It was recommended that creating awareness on need for ICT literacy, proper teacher training on ICT use, as well as provision of regular power supply should be adopted as strategies for motivating and sustaining teachers' interest in the implementation of computer education studies for teaching.

Information and communication technology is continually gaining grounds in many spheres of human Endeavour's. The rapid growth in ICT and its application makes it essential for adoption in numerous disciplines. In

teaching, much has been said about the effectiveness of computer (Etukudo, 2003).

Mathematics teachers and researchers in mathematics education have equally confirmed that computer plays conspicuous auxiliary role in mathematics education, principally, in teaching and learning of mathematics, literature dealing with technology and pedagogy attest to the powerful impact of ICT can have on the teaching and learning process (John, 2003). He indicated that the level of collaboration and communication are enhanced by the use of computers as knowledge building and thinking skills. In various subject areas there was also evidence that new technologies afford a wide range of opportunities that can transform teaching and offer improved possibilities for learning. It has also been claimed that using technology well in classroom can even enables teachers to be more successful in helping students to be more effective citizens (John, 2003).

However computer curriculum studies has been developed in Nigeria to meet the targets of the 9 – year Basic education in the context of National Economic empowerment and Development Strategies (NEEDS) and the Millennium Development Goals (MDGs). The junior secondary school curriculum were categorized into JSS1 with information age, Basic computer operations and concepts, ICT, computer ethics and Human issues while the JSS 2 as Basic computer operations and concepts, computer problem solving, computer application packages, ICT and computer ethics and human

issues. Finally JSS3 has ICT, computer packages and computer Ethics and Human issues. Teachers were encouraged to enrich the contents with relevant materials and information from their immediate environment, by adapting the curriculum to their needs and aspirations. Thus the curriculum can be adapted for such special needs as nomadic education non – formal education and physically challenged (Obioma, 2007).

Unfortunately, apart from word processing, many teachers do not know how to operate computer application software's, such as Microsoft word, Microsoft excel, Microsoft power point, internet explorer among others. This view is also shared by Ohakwe (2004). In order to encourage teachers to use ICT in teaching, different workshops and seminars should be organized for secondary school teachers. It is necessary to find out the extent to which teachers implement ICT in secondary schools and identify obstacles that hinder effective utilization of the ICT in secondary schools if any. Also the extent they exhibit confidence as well as how often they implement this computer curriculum. This is necessary because the implementation of ICT in secondary school is an important challenge for teachers training institutions as observed by Murphy and Greenwood (1998). The fact that some teachers do not possess necessary ICT skills necessitated this study. The study is significant because of the need to close gap between teachers who possess necessary ICT skills and those who do not as well as provide data that would enable teachers and administrators to measure the impact of previous training on ICT use, effectiveness of current strategies and identify best practice and initiate better approaches as suggested by Gregorian (2002).

Statement of Problem

The world is a global village. This is made possible through the use of computer.

Computer on its own, remaining dormant and useless except it is operated by a computer personnel. It then becomes imperative to equip the students with knowledge and skills that will enable them to cope with challenging world of technology. It is in recognition of this that NERDC was mandated to develop curricula for use at all levels of the education system in Nigeria.

Computer studies curricula was one of such curriculum Ivowi (2005) noted that the content of our curriculum is satisfactory, through overloaded.

Ofoma (2006) laments that the issue is not only the large amount of knowledge, skills, attitudes and values to be presented to the learners, but the availability of adequate time, and resources for the implementation of those content area. The non – coverage of the content has left the learners to be half – baked as some teachers rush to cover the contents, thereby treating the contents shabbily, while others leave a lot of grounds uncovered. The pertinent questions are: what are the content areas that are covered/uncovered? Are there adequate and qualified computer teachers? How adequate are the instructional material? Are there adequate times for the teaching of computer studies?

Purpose of the Study

The purpose of the study is to facilitate

1. Access the accessibility of ICT in secondary schools.
2. Determine the extent teachers implement ICT curriculum in secondary schools.
3. Identify the factors hindering teacher effective implementation of ICT in secondary schools.
4. Determine the extent to which secondary school teachers' exhibits confidence in the implementation of computer curriculum.

5. Examine the time allocated to computer studies in the time table in our secondary schools.

Strongly Agree =4, Agree =3, Disagree =2, strongly disagree=1. Section D consists of 36 items which sought information on teachers confidence in the implementation of computer curriculum studies in secondary schools using the following four point scale: Never =1, not confident =2, fairly confident =3, very confident =4. Section E consist of 36 items on time allocated to computer studies in the time table in our secondary schools using four point scale: never =1, Not regular =2, fairly regular =3, and very regular =4.

Research Question

The study sought to answer the following research questions.

1. How accessible are ICT facilities in secondary schools?
2. What extent do teachers implement ICT facilities in secondary schools?
3. What are the factors hindering teachers effective implementation of ICT facilities in secondary schools?
4. What extents do secondary school teachers exhibit confidence in the implementation of computer curriculum?
5. What time is allocated to computer studies in the time table in our secondary schools?

The questionnaire was subjected to face validation by two experts in measurement and evaluation from University of Nigeria, Nsukka. The reliability of the instrument was obtained using Cronbach Alpha. The reliability index is 0.79 which indicates that the instrument is reliable.

The researchers personally administered the questionnaire on the teachers and data collection lasted for four days. Based on the 4 point rating scale, the mean and standard deviation of the teacher's responses for each items were computed.

Methodology

The design adopted for this study is survey design. This is aimed at sampling opinion of teachers in secondary schools on the implementation of computer studies curriculum in Delta State. A total number of 98 teachers were randomly sampled consisting of 54 females and 44 male computer science teachers in the three senatorial districts of Delta State. The instrument used for data collection is a structured questionnaire. It consists of five sections. Section A consists of two items. The items focused on school and sex of teachers. Section B has 36 items on the extent teachers implement ICT facilities in secondary schools. This requires teachers to indicate their responses using the following four – point scale. No intention of using them = 1, likely to begin in the next 1 – 2 years = 2, beginning to use them =3, well established in using them =4. Section C consisted of 13 items, which sought information on factors hindering implementation of ICT facilities in schools using four point scales.

Results: The values of the data analyzed for answering the five research questions raised in the study are presented in table 1 to 5.

Research Question 1: How accessible is ICT facilities in secondary schools?

Table 1: Percentage Distribution of Teachers According to Access to ICT.

S/N	ICT Access	Reponses			
		Yes	%	No	%
1.	Computed at home	78	80	20	20
2.	Computed in school	80	82	18	18
3.	Internet at home	53	54	35	36
4.	Internet in school	78	80	20	20

5.	Networks	60	61	38	39					
6.	On line libraries	65	66	33	34	17.	Software Operating Systems	2.53	0.49	BU
7.	Video conferencing	70	71	28	29	18.	Number Bases	2.00	0.98	LB
8.	E – mail	90	92	8	8	19.	Units of Storage in Computers	2.53	0.91	BU
9.	Storage devices	85	87	13	13	20.	Computer Problem Solving	2.00	0.73	LB
10.	Presentation system/facilities	77	79	22	21	21.	Programming Language	2.51	0.73	BU
						22.	Basic	2.40	0.67	LB
						23.	Graphic Packages I	2.41	0.62	LB
						24.	Graphic Packages II	2.42	0.73	LB
						25.	ICT as a Transformational Tool	2.37	0.65	LB
						26.	ICT Gadgets	2.41	0.67	LB
						27.	Internet I	2.43	0.63	LB
						28.	Internet II	2.43	0.63	LB
						29.	Computer Ethics	2.38	0.72	LB
						30.	Softy Measures	2.43	0.63	LB
						31.	Digital Divide	2.33	0.49	LB
						32.	Database	2.30	0.53	LB
						33.	Spreadsheet Packages	2.37	0.62	LB
						34.	Worksheet Packages	2.36	0.71	LB
						35.	Graphs	2.17	0.69	LB
						36.	Computer Viruses	2.19	0.71	LB

Question 2: What extent do teachers implement ICT facilities in secondary schools?

Table 2: Mean and Standard Deviation of the Extent of Implementation of ICT Facilities in Secondary Schools?

S/N	ICT Facilities	Mean	S.D	Decision
1.	Technology of Different Information Age	2.51	0.62	BU
2.	Data and Information	2.62	0.71	BU
3.	Information Transmission	2.54	0.63	BU
4.	Information evolution	2.01	0.72	LB
5.	Data Processing	2.50	0.67	BU
6.	Historical Development of Computers	2.53	0.68	BU
7.	Basic Computer Concepts	2.52	0.62	BU
8.	Input Devices	2.63	0.71	BU
9.	Output Devices	2.61	0.71	BU
10.	System Circuit	2.63	0.63	BU
11.	Fundamental Computer Operations	2.53	0.53	BU
12.	Word Processing	2.53	0.81	BU
13.	ICT Applications in everyday Life	2.51	0.72	BU
14.	Classification of Computers	2.52	0.75	BU
15.	The Computer System	2.53	0.69	BU
16.	Computer	2.61	0.57	BU

Note: LB = likely to begin in the next 1 – 2 years (1.5 – 2.49) BU = Beginning to Use ICT facilities (2.50 – 3.49)

Source: Computer Curriculum Studies

Result in table 2 revealed that the teachers are beginning to use the following ICT facilities in items numbers 1 – 3, 5 – 17, 19, 21. Other areas of ICT where teachers are not sufficiently teaching are items numbers 4, 18, 20, 22 – 36 among others.

Research Question 3: What are the factors hindering teachers’ effective implementation of ICT facilities in secondary schools?

Table 3: Mean and Standard Deviation on the Factors Hindering Teachers' Effective Implementation of ICT In Secondary Schools?

S/N	Limiting Factors	Mean	S.D	Decision
1.	Difficulty in getting access to adequate computer	2.72	1.43	Agree
2.	Difficulty in getting access to internet in schools	2.62	1.09	Agree
3.	Inadequate knowledge of what to do with computer	2.23	1.20	Disagree
4.	Inadequate knowledge of what to do with internet	2.43	1.14	Disagree
5.	Insufficient time for practicals in computer	2.58	1.20	Agree
6.	Insufficient time for practicals in the internet	2.62	1.43	Agree
7.	Lack of confidence about what to do with computer	2.41	1.62	Disagree
8.	Lack of confidence about what to do with internet	2.47	1.59	Disagree
9.	Lack of internet in use of ICT applications	2.48	1.62	Disagree
10.	Lack of adequate training in use of ICT applications.	2.57	1.17	Agree
11.	Negative attitude towards the use of ICT	2.43	1.09	Disagree
12.	Anxiety about how to use computer application	2.53	1.43	Agree
13.	Lack of constant power supply	2.63	1.13	Agree

Note: Disagree (1.5 – 2.49), Agree (2.50 – 3.49)

Results in table 3 show that teachers agreed that the following factors limit their use of ICT facilities in secondary schools. Difficulty in getting access to adequate computer and

internet, insufficient time for practical applications, anxiety about how to use computer applications and lack of constant power supply.

Research question 4: What extent does secondary school teachers exhibit confidence in the implementation of computer curriculum?

Table 4: Mean and S.D of Confidence in the Implementation of Computer Curriculum in Secondary Schools

S/N	Computer Curriculum Covered	Mean	S.D	Decision
1.	Technology of different age	2.61	1.05	FC
2.	Data and information	2.72	0.90	FC
3.	Information transmission	2.75	0.92	FC
4.	Information evolution	2.25	1.07	NC
5.	Data processing	2.24	0.99	NC
6.	Historical development of computers	2.65	0.89	FC
7.	Basic computer concepts	2.76	2.50	FC
8.	Input devices	2.97	0.87	FC
9.	Output devices	2.61	0.68	FC
10.	System circle	2.51	0.94	FC
11.	Fundamental computer operation	2.80	1.45	FC
12.	Word Processing	2.13	1.99	NC
13.	ICT applications in everyday life	1.81	0.73	NC
14.	Classification of computers	2.71	0.47	FC
15.	The computer system	1.75	0.72	NC
16.	Computer software	1.79	0.89	NC
17.	Operating systems	2.75	0.99	FC
18.	Number Bases	2.25	0.71	NC
19.	Units of storage in computers	2.65	0.83	FC
20.	Computer Problem solving	2.13	0.78	NC
21.	Programming language	2.19	0.88	NC

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22.	Basic	1.90	0.84	NC	8.	Concepts			
23.	Graphic packages I	1.81	0.76	NC	9.	Input Devices	2.67	0.86	FR
24.	Graphic packages II	1.84	0.71	NC	10.	Output Devices	2.67	0.94	FR
25.	ICT as a Transformational Tool	1.81	0.81	NC	11.	System Circuit	2.95	0.82	FR
26.	ICT Gadgets	1.95	0.70	NC	12.	Fundamental Computer Operations	2.88	0.90	FR
27.	Internet I	2.77	1.23	FC	13.	Word Processing	2.61	0.92	FR
28.	Internet II	2.71	1.99	FC	14.	ICT Applications in everyday Life	2.03	0.85	NR
29.	Computer Ethics	2.61	1.77	FC	15.	Classification of Computers	2.23	0.92	NR
30.	Safety measures	2.41	0.71	NC	16.	The Computer System	2.54	0.80	FR
31.	Digital Divide	1.07	1.12	NC	17.	Computer Software	2.05	0.80	NR
32.	Database	1.56	0.51	NC	18.	Operating Systems	2.41	0.94	NR
33.	Spreadsheet packages	2.03	0.34	NC	19.	Number bases	2.11	0.75	NR
34.	Worksheet packages	2.15	0.61	NC	20.	Units of storage in computers	1.13	0.78	NEVER
35.	Graphs	1.90	0.71	NC	21.	Computer Problem solving	1.03	0.90	NEVER
36.	Computer viruses	1.76	0.61	NC	22.	Programming language	1.23	0.72	NEVER

Note NC = Not confident below 2.50, FC = Fully Confident 2.50 and above

Source: Computer Curriculum Studies

Research Question 5: What time is allocated to computer studies in the time table in our secondary schools?

Table 5: Mean and Standard Deviation on the Time Allocated to Computer Studies in the Time Table in Our Secondary Schools?

S/N	Computer Curriculum Covered	Mean	S.D	Decision
1.	Technology of Different Information Age	2.65	0.74	FR
2.	Data and Information	2.51	0.90	FR
3.	Information transmission	1.23	0.77	NEVER
4.	Information evolution	1.53	0.84	NR
5.	Data Processing	2.72	0.94	FR
6.	Historical Development Of Computers	2.66	0.84	FR
7.	Basic Computer	2.55	0.72	FR

23.	Graphic packages I	2.13	0.82	NR
24.	Graphic packages II	2.15	0.80	NR
25.	ICT as a transformational Tool	1.12	0.78	NEVER
26.	ICT Gadgets	1.56	0.65	NR
27.	Internet I	1.66	0.74	NR
28.	Internet II	1.72	0.61	NR
29.	Computer Ethics	2.03	0.52	NR
30.	Safety measures	1.75	0.50	NR
31.	Digital divide	1.23	0.21	NEVER
32.	Database	2.10	0.45	NR
33.	Spreadsheet packages	1.67	0.61	NR
34.	Worksheet packages	1.55	0.73	NR
35.	Graphs	1.50	0.44	NR
36.	Computer Viruses	1.61	0.51	NR

Note: Mean \geq 2.50; Fairly regular (2.5 – 3.49); Not regular (1.5 – 2.49); Never (1.00 – 1.49)

Source: Computer Curriculum Studies

An Appraisal of Secondary School Teachers' Implementation Programme of Computer Education Curriculum in Junior Secondary Schools

Table 5 shows that teachers teach items numbers 1,2,5,6,7,8,9,10,11,12,16 fully regularly than other items in the computer curriculum studies.

Discussion

This study was conducted to appraise computer teachers' implementation programme of computer curriculum in junior secondary schools. The answer to research question one, regarding teachers' access to computer reveal that they have greater access to computer and internet in school than at home.

The findings that the computer teachers teach Data processing, word processing fairly regularly among others but do not teach computer problem solving and graphic packages among others collaborates Ohakwe's (2004) findings that teachers do not know how to operate computer application software apart from word processing. It also reveals that teachers need to be trained on the use of these ICT facilities through workshops and conferences.

The findings from research question two show that teachers are implementing computer curriculum studies indicate that they are aware of the need to implement these computer curriculum in secondary schools. This awareness should be sustained and encouraged through regular training to make the teachers more innovative and productive in implementing computer curriculum studies.

The answer to research question four that teachers are fully confident when they are implementing some part of the computer curriculum studies indicates the need for adequate training of teachers on ICT usage which Murphy and Greenwood (1998) regarded as an important challenge for teacher training institutions.

Finally, the findings that lack of regular power supply insufficient time to plan for the implementation of ICT and lack of training on

the use of ICT in schools has implication for schools administration and teachers.

There is therefore the need for proper implementation programme of computer education curriculum in Nigerian secondary schools.

Conclusion

This study has shown that teachers in secondary schools have access to computer and internet and are beginning to implement computer curriculum in schools. The study also identify some factors that hinder effective implementation which are inadequate knowledge of what to do with computer, lack of confidence about what to do with the computer and above all, lack of constant power supply.

Recommendation

- The school administrators should think of how to provide regular supply of power for computer teaching in secondary schools.
- Teachers should be trained on the use of ICT to equip them with necessary skills and knowledge that will enable them performs their duties effectively.
- Teachers on their own should create and manage time effectively to be able to cope with the challenges of teaching and learning in schools.
- Information and communication technology awareness programme on the need for computer literacy, acquisition of computer/laptop and application of ICT in teaching should be mounted in the Universities and Colleges of Education.

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