

INTRODUCING ICT IN CROSS RIVER STATE SECONDARY SCHOOLS: LESSONS FROM THE SCHOOL-NET PROGRAMME

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Abstract

The importance of ICT to teaching and learning the world over cannot be over emphasized. Introducing it to Cross River State secondary school system will be a welcome development. However, this is not without some problems. This study therefore examined the impact of the school-net programme on the training of secondary school teachers and students on the use of computers in the teaching and learning process. To achieve this, the programme was examined in terms of the state of the computer laboratories established in secondary schools, its impact on both teachers and students in the state and the problems that affected the implementation of the programme. Simple random sampling was adopted in selecting two hundred (200) students and one hundred (100) teachers who served as the sample for the study. Two questionnaires and a check list were used for data collection. The data obtained was analyzed using descriptive statistics of frequencies and percentages. The results obtained showed that almost all the computer laboratories had folded up, the students and teachers did not benefit from the programme and the it was characterized by several problems as identified by both teachers and students. Implications of the findings of the study were also discussed.

The use of computers in the teaching and learning process has been found to be generally good and cost effective. Research has also shown that the attitude of students towards

the study of some subjects especially the sciences is generally negative (Cox, 1997).

Result of studies carried out in other countries on the use of computers in teaching and learning according to Thomas and Richman (1992), indicates that it has a great advantage over the normal class teaching. They however, observed that this is not without its peculiar problems. In the same vein, Richardson and Rah(1998) identified computer assisted instruction as an interactive instructional method that uses the computer to present material track learning and direct the user to additional materials which meet the student's needs.

It can also be used to describe internet based instruction through the use of web pages, web bulletin boards, list services and news groups, most importantly, self teaching programmes for all subjects/courses are all made available and the students learn without the assistance or interference of the teacher who by the use of this teaching method, functions purely as the facilitator, rather than as a teacher with the "chalk and talk" method.

Cox (1997) and Collins (1996) both have noted that we are living today in times of great changes that the old system of education and of doing things is fast fading away, while a new system of utilizing the computer is fast replacing the old. Our interest should be to study this new system and to utilize it for human progress.

In his own contribution to the importance of computers to the teaching and learning process, Abimbade (1996) explained that e-learning demands special skills and appropriate experience and adequate exposure to computer application. To this end, the use of computer requires a computer specialist to deliver instruction directly to learners by allowing them interact with lessons programmed in the system called computer assisted instruction. He however, regretted that most schools in Nigeria lack the equipment to effectively practice e-learning.

Kathdeem in Utubaku (2005) observed that the use of e-learning as a supplement to traditional chalkboard method teacher directed instruction produces achievement effects superior to those obtained with the traditional chalkboard instruction alone.

In Nigeria, the importance of computers in teaching and learning has also been identified, hence the introduction of the school-net programme in 2003, whose main objective was to equip secondary schools with computers and train teachers who will handle them. In Cross River State, ten secondary schools have so far benefited from the programme. These schools have been provided with computer laboratories well equipped with computers and connected to the internet to enhance electronic learning.

In an evaluation of the school-net programme in Cross River State conducted by Obi,Eni, Ozang, Igiri & Asinde (2012) it was observed that the programme did not meet its objectives of training both teachers and students on ICT application to teaching and learning. The programme was characterized with so many problems that have marred it.

This study therefore is intended to ex- ray the successes and failures of the school-net programme with a view to suggesting measures to be taken to avoid such problems when the programme will be extended to other schools.

Statement of the Problem

The advantages attached to the introduction of Information and Communication Technology (ICT) in the state secondary school system cannot be over emphasized in this modern age of technological advancement worldwide.

In Nigeria, the school –net programme was introduced as a way of launching the secondary school system in to the ICT world, Cross River State inclusive. Having registered its presence in Cross River State since 2003, little has been heard about the programme in the state and neither has there been any impact of ICT in the state secondary schools. It is against this background that this study was conducted to find out the state of the programme in Cross River State and its role in enhancing teaching and learning through the use ICT in the state.

Purpose of the Study

The purpose of this study is to investigate the impact of the school-net programme on enhancing ICT compliance in Cross River State secondary schools. Specifically, the study intended to find out;

- 1 the state of the computer laboratories established by the school-net in the state.
- 2 the extent to which the programme has enhanced computer literacy among teachers and students and

3. Identify the problems affecting the implementation of the programme in the state.

This gave a total sample size of three hundred (300) respondents, one hundred (100) teachers and two hundred (200) students.

Research Questions

The following research questions guided the study:

1. What is the state of the computer laboratories established under the School-net programme in the state?
2. To what extent has the school-net programme enhanced computer literacy among teachers and students in the state?
3. What are the problems affecting the implementation of the programme in Cross River State?

Instrumentation

The instrument used for data collection was two sets of questionnaire, one for teachers and the other for the students. They were meant to obtain information on the level of computer literacy of both the teachers and the students and the problems affecting the implementation of the programme in the state. A check list was also used to obtain information on the state of the facilities in the laboratories.

The two instruments were given to two experts in measurement and evaluation who inspected them for face validity. A pilot study was also conducted to determine the reliability of the instrument. The study was conducted in two schools in the study area. Kuder Richardson formula 20 was used to determine the reliability coefficients of 0.74 and 0.68 respectively. These values were considered high enough for the study.

Methodology

Design and Sample

The research design adopted for this study was descriptive survey. The population of the study consisted of all the teachers and students in the schools where the school-net programme operated numbering about eight hundred and forty six teachers (846) and six thousand nine hundred and twenty four (6924) students.

Simple random sampling technique was adopted in the sampling of ten (10) teachers and twenty (20) students from each of the ten (10) schools where the programme operated.

Data Analysis

Descriptive statistics in terms of frequencies and percentages were used for data analysis. Results of data analysis in respect of the three research questions are presented in tables 1,2,3 and 4.

Table1: State of Facilities in the Computer Laboratories

Personnel/ Devices	Secondary Schools										
	No. Availab le.	NYSC	Big Qua.	Akim	WAPI	Uwanse	Pinn- Mag.	Army Day	Mayne Avenue	State Housin g	Tec.Ikot Efangha.
Data processing Manager	2	-	-	-	-	-	-	-	1	-	1
Programmers	-	-	-	-	-	-	-	-	-	-	-
Engineers	-	-	-	-	-	-	-	-	-	-	-
Technologists	-	-	-	-	-	-	-	-	-	-	-
Computer Operators	26	3	3	2	2	4	1	2	5	1	3
Data Entry Operators ³	13	3	3	-	-	-	-	2	3	-	2
TOTAL	41	6	6	2	2	4	1	4	9	1	6
DEVICES											
Set of Computers(fu nctional)	21	1	2	-	3	4	3	1	5	-	2
UPS	72	12	2	4	10	1	11	8	12	4	8
Stabilizers	32	6	1	2	8	-	6	3	2	1	3
Hubs	-	-	-	-	-	-	-	-	-	-	-
Routers	5	-	1	1	1	-	-	1	1	-	-
Network Cables	26	5	-	-	-	-	2	1	15	2	1
Network Sockets	30	5	-	-	-	-	2	12	8	2	1
Computer tools	28	-	-	-	-	-	-	-	28	-	-
Software	12	2	-	-	-	-	-	-	10	-	-
Air conditioners	33	4	4	4	4	-	3	4	3	3	4
Fans	20	4	2	-	-	4	2	2	2	2	2
Tables	66	9	6	4	6	8	4	9	10	4	6
Chairs	300	42	15	10	15	42	40	40	41	25	30
AC Power cables and sockets	23	-	-	-	-	-	4	4	8	4	3
Extension sockets	11	3	-	-	-	1	2	-	2	1	2
Fire Extinguishers (powder)	5	1	1	-	-	-	-	2	-	-	1
Projectors	5	1	1	-	1	-	-	1	-	-	1
Window blinds	-	-	-	-	-	-	-	-	-	-	-
Dust bins	7	-	2	-	-	1	-	2	1	-	1
Scanners	1	-	-	-	-	-	-	-	1	-	-
Printers	10	1	-	1	1	1	1	1	2	1	1
Printing papers	2	-	-	-	-	1	-	-	1	-	-
Photocopiers	2	-	-	-	-	-	-	1	1	-	-
Total	711	96	37	26	49	63	80	92	153	49	66

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Data in table 1 indicate that a total of 41 technical personnel were staff of the ten (10) computer laboratories in the ten secondary schools that had the school net programme. Out of this number, two (2) were data processing managers, no programmer, no engineer, no technologist, and twenty six (26) were computer operators, while thirteen (13) were data entry operators. A breakdown of this number show that there were twenty one (21) sets of computer, seventy two (72) UPS, thirty two (32) stabilizers, five (5) routers, twenty six (26) network cables, thirty (30) network sockets, twenty eight (28) computer tools, twelve (12) software, thirty three (33) air conditioners, twenty (20) fans, sixty six (66) tables, three hundred (300) chairs, twenty three (23) A/C power cables and sockets, eleven (11) extension sockets, five (5) fire extinguishers, five (5) projectors, seven (7) dust bins, one (!) scanner, ten (10) printers, two (2) realms of printing papers, and two (2) photocopiers. The distribution is also as indicated in table1.

Table 2: The Level of Computer Literacy of Secondary School Teachers in Cross River State as a Result of the School Net Programme

Statement.	Yes	No
Have you received any computer training?	69 (69)	31 (31)
Did you receive computer training under the school net programme?	25 (25)	75 (75)
Can you operate a computer?	64 (64)	36 (36)
Can you browse the internet?	48 (48)	52 (52)
Do you have an e-mail address?	53 (53)	47 (47)
Can you personally access your e-mail box without assistance?	47 (47)	53 (53)

Is the computer lab still functional?	38 (38)	62 (62)
Do you have access to the computer laboratory in your school at any time during school hours?	30 (30)	70 (70)
Is the number of computers in the laboratory adequate for effective teaching and learning?	05 (05)	95 (95)
Do you use the facility as an aid in teaching your students?	20 (20)	80 (80)
Is the internet service in the laboratory still functional?	13 (13)	87 (87)
Do you allow students into the laboratory to research on their own?	27 (27)	73 (73)
Can your students operate the computer?	34 (34)	66 (66)

Note: Numbers in parentheses are percentages.

Result of data analysis as presented in table 2 show that 69(69%) of the respondents received computer training while 31(31%) did not. 25(25%) received computer training under the school net programme, while 75(75%) did not.64(64%) could operate a computer while 36(36%) could not. 48(48%) could browse the internet while 52(52%) could not. 53(53%) had an e-mail address while 47(47%) had none.47(47%) could personally access their e-mail box without assistance, while 53(53%) could not.38(38%) indicated that their computer laboratory was still functional, while 62(62%) indicated that it was not.30(30%) had access to the computer laboratory in their schools at any time during school hours, while 70(70%) did not. 5(5%) indicated that the number of computers in the laboratory were adequate for effective teaching and learning, while 95(95%) indicated that they were not. 20(20%) stated that they use the facility as an aid in teaching their students, while 80(80%)stated that they do

Statement	Yes	No
Have you received any computer training	136 (68)	64 (32)
Was it done here in your school?	101 (50.5)	99 (49.5)
Can you operate a computer?	129 (64.5)	71 (35.5)
Can you browse the internet?	111 (55.5)	89 (44.5)
Do you have an e-mail address?	69 (34.5)	131 (65.5)
Can you access your e-mail box without assistance?	59 (29.5)	141 (70.5)
Do you have access to the computer laboratory in your school to practice on your own?	73 (36.5)	127 (63.5)
Have your teachers been teaching you with the help of the computers in the laboratory?	95 (47.5)	105 (52.5)
Can you access reading materials from the internet on your own?	80 (40)	120 (60)
Are the computers in the laboratory enough to go round all the students in your class at a time?	16 (08)	184 (92)
Have you benefited from the establishment of the school net programme in your school?	92 (46)	108 (54)

not.13(13%) stated that the internet service in the laboratory was still functional, while 87(87%) stated that it was not functional. 27(27%) indicated that they allow students into the laboratory to research on their own, while 73(73%) indicated that they do not.34(34%) stated that their students can operate the computer, while 66(66%)stated that s their students cannot.

Table 3: Level of Computer Literacy of Secondary School Students as a Result of the

Introduction of the School Net Programme in Cross River State

Note: Numbers in parentheses are percentages

Results of data analysis as presented in table 3 indicate that 136(68%) of the respondents had received computer training, while 64(32%) had not.101 (50.5%) indicated that the training was done in their schools while 99(49.5%) indicated that it was done outside their school. 129(64.5%) indicated that they could operate a computer, while 71(35.5%) indicated that they cannot. 111(55.5%) indicated that they can browse the internet, while 89(44.5%) indicated that they cannot. 69(34.5%) indicated that they have e-mail address, while 131(65.5%) indicated that they do not have.59(29.5%) stated that they can personally access their e-mail box without assistance, while 141(70.5%) stated that they cannot. 73(36.5%) indicated that they have access to the computer laboratory in their schools to practice on their own, while 127(63.5%) indicated that they do not.95(47.5%) indicated that their teachers have been teaching them with the help of the computers in the laboratory, while 105(52.5%) indicated that they have not. 80(40%) indicated that they can access reading materials from the internet on their own, while 120(60%) indicated that they cannot. 16(08%) indicated that the computers in the laboratory were enough to go round all the students in their class at a time, while 184(92%) indicated that they were not enough. 92(46%) stated that they have benefited from the establishment of the school net programme in their school, while 108(54%) indicated that they have not.

Table 4
Problems Affecting the School Net Programme in Cross River State

Problem category	Nature of problem	Respondents	N	Min.number of items	Max.number of items	Frequency	Percentage	Rank
A	Equipment related	Students	200	5	1000	591	59.1	3 rd
		Teachers	100	5	500	323	64.6	2 nd
B	Space related	Students	200	1	200	142	71	1 st
		Teachers	100	1	100	60	60	3 rd
C	Management related	Students	200	10	2000	1251	62.6	2 nd
		Teachers	100	10	1000	652	65.2	1 st
D	Teacher related	Students	200	3	600	218	36.3	4 th
		Teachers	100	3	300	80	26.7	5 th
E	Student related	Students	200	1	200	66	33	5 th
		Teachers	100	1	100	38	38	4 th

Data in table 4 indicate that five problem categories were identified by both students and teachers. They are those related to equipment, space, management, teachers and students.

Out of this number, the students ranked space related problems as highest as indicated by 71% of them, followed by management related problems indicated by 62.6% of them, Equipment related problems indicated by 59.1% of them, teacher related problems indicated by

36.3% of them, and then students related problems indicated by 33% of them. On the part of the teachers, management related problem was ranked first as indicated by 65.2% of them, followed by equipment related problems as indicated by 64.6% of them. Space related problems as indicated by 60% of them, student related problems as indicated by 38% of them, and teacher related problems as indicated by 26.7% of them.

Discussion of Findings

Result of findings of this study revealed that almost all the computer laboratories established under programme have folded up with some converted to staff rooms, some without a single functional computer, and none still having its internet facility functional. This situation leaves the supervisory role of the state ministry of education in doubt and questions the capability of the school principals to manage the laboratories. This result supports Abimbade (1996), whose findings indicated the importance of e-learning in our school system but regretted that most of our schools lacked the equipment to effectively implement the programme.

On the level of computer literacy of secondary school teachers in the state as a result of the introduction of the programme in the state, result of findings showed that 69% of the teachers were computer literate; however, only 25% were trained through the school net programme. If this was the only percentage of teachers who were trained through the programme and yet the programme did not cover the entire state, it therefore means that most of the teachers in the state are still not computer literate and cannot therefore implement the ICT programme in the state secondary schools.

On the part of the students, 50% of them were trained through the programme. However, only 36.5% had access to the laboratories while others were not allowed to use the laboratories which affected their computer literacy. Again, 92% of the students complained that even though they were allowed access to the laboratories, the number of systems were few and could not go round all of them, that this has affected their effective utilization of the laboratories. This implies that even the students in the schools where this programme existed

did not actually utilize this opportunity effectively; hence the impact of the programme on them was minimal. This result also supports Obi, Eni, Ozang, Igeri, & Asinde (2012) who evaluated the school-net programme in Cross River State and found that the programme did not meet the objective of training both teachers and students in ICT application to teaching and learning.

Result of findings on the problems affecting the school net programme in the state showed that five (5) problem categories were identified by both students and teachers. These include equipment related problems, space related problems, management related problems, teacher related problems and students related problems. Of these, students rated space related problems (71%) which include lack of class room space as highest, followed by management related problems (62.6) which include lack of computer instructors, poor funding of the programme, poor maintenance culture, non inclusion of computer in the school time table, lack of technical staff, government interference, none supervision of the programme etc. and equipment related problems (59.1%) which include limited number of computer systems, lack of internet facility none functioning of the computer systems and lack of furniture in the laboratories. The teachers on their part rated management related problems (65.2%) highest, followed by equipment related problems and space related problems. However, both the students and teachers also identified teacher related problems and student related problems as other minor problems affecting the school net programme. This result again supports Thamos & Richman (1992) who identified the advantage of using computers in the teaching and learning process over the normal classroom teaching but indicated that in some cases it is always characterized with problems.

Considering the identified problems, it is concluded that the programme has been characterized with so many problems that have marred the programme. This therefore calls for a quick action to revive the programme.

Conclusion

Based on the result of findings, it is concluded that the school net programme in Cross River State is a total failure. The programme has been marred by lack of effective supervision and lack of proper arrangement for sustenance after the initial funding. It is therefore the opinion of the researchers that if ICT must be sustained in the state secondary school system, drastic measures such as recommended below should be taken to sustain the school-net programme.

Recommendations

Considering the result of findings, the following recommendations are made;

- (1) In order that the aim of establishing the programme will not be defeated, E.T.F. and other NGOS should sponsor an intervention programme aimed at reviving the programme in the state.
- (2) The programme should be extended to schools in the other educational zones so as to give all the students in the state equal opportunities to benefit from the programme.
- (3) Principals of benefiting schools should be given free hand to operate the centers without government interference in the operations.
- (4) The laboratories should be made open to the public after school as this will help to generate funds which can be used to subscribe for the internet services and

effect other minor repairs in the laboratory.

- (5) Qualified and experienced technical staff should be employed and made to manage the laboratories as they will help to maintain the facilities in the laboratories.

References

- Abimbade, A. (1996). Computer assisted instruction and the teacher. *Nigeria journal of computer literacy*. 1 (1) 14-18
- Collins, T. Jr. (1996). *The effect of computer assisted algebra instruction On the achievement of mathematics and science anxiety levels and attitudes towards personal use of computers in an historically black University*. Unpublished Ph.D Thesis. University of South Florida.
- Cox, M.J. (1997). *The effect of information technology on students' Motivation. Final report: National Certificate in Education Technology*. London: College Press.
- Obi, F.G.E., Eni, E. I., Ozang, G. O., Igiri, I. E., & Asinde, F. A. (2012). *An Evaluation of the effectiveness of the school-net programme in enhancing e-learning in Cross River State secondary schools*. Unpublished paper presented at the Federal College of Education Obudu.
- Richardson, K. & Rah, I. (1998). Effect of computer assisted algebra Instruction on mathematics achievement of 4th graders. *Journal of Computer research Education*.5 (3) 1-9
- Thomas, P.G. & Richman, M. (1992). An experiment in the use of computer Algebra in the class room. *Journal of research in science laboratory teaching*.15 (2) 173-178.

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Utubaku, R. U. (2005). *Computer assisted instruction, traditional chalkboard method and senior secondary students' achievement in graphs, in Obudu LGA of Cross River State Nigeria*. Unpublished M.Ed thesis University of Calabar.

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