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Availability and Utilization of Information and Communication Technology Facilities for the Implementation of Computer Studies Curriculum in Universal Basic Education Schools In Rivers State

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ABSTRACT: The study evaluates the availability and utilization of Information and Communication Technology facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State. A descriptive survey research design was adopted in this study. This study was carried out in Rivers-West education zone of Rivers State. The population for the study comprised 312 primary school heads and 1244 class teachers in the state owned primary schools zone.The instrument used for data collection was a structural questionnaire. Two research questions and two null hypotheses were formulated to guide this study. The data collected were analyzed using mean ($\bar{x}$) and Standard Deviation (SD) in answering the research questions, while t-test was used to test the hypotheses at 0.05 level of significance. The findings of the study revealed that information and communication technology facilities for the implementation of computer studies curriculum are available in schools, ICT facilities were inadequate and under-utilized for the implementation of Computer Studies Curriculum. The study recommends that competent and qualified computer studies teachers and IT personnel's should be engaged and retrained regularly in UBE schools, and Rivers State Government through the Ministry of Education should provide the recommended ICT facilities to ensure effective implementation of Computer Studies Curriculum at the UBE schools.

I. INTRODUCTION

Evaluation has been defined in various ways by different scholars and educationists. To evaluate is to find out information about something in order to determine or decide on the value of that thing. Evaluation as a process for determining the achievement of specific educational goals. Evaluation is a process of ascertaining whether certain changes are taking place in the learner as well as to determine the amount or degree of changes in individual student. It stresses on the effectiveness of the program me in bringing about desired behavioral change in the learner, which means questioning the merit of the program me. The definition focuses on the process of getting evidence in learners' performance. It considers evaluation as goal-oriented, due to the fact that it focuses on the effectiveness of the programme and measurement of outcome. Bloom stresses the importance of evaluation in determining the effectiveness of a course, curriculum or form of instruction. Curriculum evaluation is concerned with the total evaluation of the entire curriculum process begin inning with the objectives, content, learning activities and the organization (Agina, 2003). It is also concerned with the critical examination of the appropriateness, relevance, adequacy, suitability and functionality of the various elements of the curriculum.

Curriculum Implementation: According to Mkpa (1987), curriculum implementation is the translation of the curriculum document into the operating curriculum by the combined efforts of the students, teachers and others concerned. It is the execution of the curriculum document, which is putting into action the planned curriculum. Jeremiah and Alamina (2007) noted that after the curriculum objectives, content and learning experiences have been selected, organized and the evaluation procedure determined, what follows is implementation process.Curriculum implementation process entails interactions between the curriculum, plan, the teacher, the learner and the learning environment, Agina (2003). During the implementation process, the human, environment and material factors have to be considered to ensure effective implementation. According to Dike (1998) curriculum implementation is concerned with what happens in die classroom. It is the interaction of teacher, the learner and the curriculum document and the educational environment. It is of the view, that a planned curriculum contains realizable educational goals but the extent of actualization of the set goals depends on the effectiveness of the implementation process.Curriculum implementation is the process of putting the various decisions made in the field trial stage of curriculum development process into practice (Jeremiah, 2004).

Factors that affect Computer Studies Curriculum Implementation : It is sad to note that a good curriculum plan can be marred at the implementation stage due to challenges and some prevailing circumstances at the time of operation beyond immediate control thus jeopardizing the much effort expended in the planning. These factors includes among others:teacher factor, learners factor, teaching/learning factor, gender factor, Instructional material factor,Teacher/students ration factor, utilization of Information and Communication Technology (ICT) service factor, environmental/Infrastructural facilities factor, Inadequate funding. (Iloputeife, Maduewesi and Igbo, 2010: 450-458)

Computer Studfies Curriculum Development in Nigeria : The Federal Government of Nigeria decided to introduce Computer Education into the nation's primary school system in 1987. This followed by the inauguration of the National Committee on Computer Education (NCCE) in 1987 (Okala, 2009). The function of the committee include "planning for a dynamic policy on computer education and literacy in Nigeria as well as devising clear strategies and terminologies to be used by the federal and state government in introducing computer education (Nigerian Tribune, April 11, 1988). The general objectives of the program as stated in the National Policy on Computer Education (NPCE) include:

Bringing about a computer literate society in Nigeria by the mid-1990. Enabling the present school children to appropriate the use of computer in various aspects of life in future employment. (Report on National Committee on Computer Education; 1988) The value and importance of computer education is universally accepted. So is the need to give young people a head start in computer education at the basic education level. It is therefore, recommended that there should be at least two (2) computer lesson periods in the primary schools (lower and middle basic education levels) and three lesson periods at the upper basic education level (Junior secondary school (JSS). By so doing, and with well-qualified, competent and highly motivated teachers, adequate coverage of the curriculum materials would have been guaranteed. The following recommendations if implemented would further ensure the actualization of the objectives of the curriculum.

1. Competent and qualified teachers should be engaged and retrained regularly.
2. In order to raise sufficient manpower in this area, university graduates holders or NCE and HND degrees in mathematics, statistics, physics and chemistry should be engaged and retrained (with incentives) for teaching at the basic education level.
3. Tertiary institutions should be given incentives to design special computer education programs for the categories of the people mentioned in (ii) above.

Similarly, holders of HND and University degrees in computer science should be given incentives to undertake science should be given incentives to undertake some basic training in education to enable them adequately impart the knowledge (Adeniyi (2007 in FME (2007).

Statement of the Problem: The Computer Education Curriculum (CEC) for Universal Basic Education schools was adopted and has been in use in Rivers State since 2003. The researcher is not aware of any study that has evaluated its implementation in primary schools in Rivers State since its adoption. Non evaluation of the implementation of such programme presents a serious threat to the achievement of the objective. In order to ascertain if the goals of any educational programme is being achieved, there is need for empirical studies to ascertain if the implementation process would lead to the achievement of the expectation of the curriculum.Considering the numerous problems facing curriculum implementation in Nigeria, and no effort known to the present researcher in the form of empirical study to determine problems that affect the implementation of Computer Education Curriculum is the worry of this study. Evaluation of Computer Education Curriculum in primary schools is considered to be long overdue in view of the role and importance of computer literacy in today and future world. The problem of this study therefore is; what is the status of the implementation of Computer studies Curriculum with respect to basic indices of appropriateness for curriculum implementation?, how and with what is the Computer Studies Curriculum actually being implemented in Rivers State UBE schools?.

Purpose of the Study: This study evaluates the availability and utilization of information and communication technology facilities for the implementation ofcomputer studies curriculum for universalbasic education schools in rivers state. Specifically, the study sought to:

1. Determine available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State.

2. Determine theextent of utilization of the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State.

II. RESEARCH QUESTIONS

The following research questions guided the study:

1. What are the available ICT facilities for the implementation of Computer Studies Curriculum forUniversal Basic Education schools in Rivers State?
2. What is the extent of utilization of the available ICT facilities for the implementation of Computer Studies Curriculum forUniversal Basic Education schools in Rivers State?

Research Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

Ho_1: There is no significant difference between the mean responses of school heads and the teachers on availability of ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State.

Ho_2: There is no significant difference between the mean responses of school heads and teachers on the extent of utilization of the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State.

Design of the Study : The study adopted survey research design, which means describing the implementation process of the computer studies curriculum in UBE schools in Rivers State This study was carried out in Primary schools in the Rivers-West Education Zone of Rivers State which is made up of eight (8) local government areas namely: Abua/Odua, Ahoada-East, Ahoada-West, Akuku-Toru, Asari-Toru, Bonny, Degema and Ogba/Egbema/Ndoni Local Government Areas.The structured questionnaire was used in collecting data for the study. The data collected through the questionnaire were analyzed using mean statistic (X) and standard deviation (S D) while the hypotheses were tested using t-test.

Research Question One: What are the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State?

Table 1: Means responses of the school heads and teachers on the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State?

Descriptive Statistics

	N			Sum	Mean	Std. Deviation	Decision
Electricity	294			357	1.21	.521	Not Avaliable
Generators	294			327	1.11	.366	Not Avaliable
Telephone services	294			820	2.79	.409	Avaliable
Housing (classrooms)	294			507	2.72	.781	Avaliable
Computer laboratory/ICT	294			451	1.53	.723	Not Avaliable
School library	294			765	1.60	.672	Avaliable
Relevant PC education text	294			790	2.69	.493	Avaliable
Real computer sys	294			442	2.50	.724	Avaliable
Toy computer	294			745	2.53	.760	Avaliable
GSM handset	294			746	2.54	.643	Avaliable
Calculator	294			769	2.62	.606	Avaliable
Typewriters	294			332	1.13	.383	Not Avaliable
Flash card/disc	294			801	2.72	.603	Avaliable
Mouse	294			734	2.50	.680	Avaliable
Printer	294			741	2.52	.719	Avaliable
Speaker	294			753	2.56	.682	Avaliable
Keyboard	294			358	2.52	.554	Avaliable
Joystick	294			797	2.71	.549	Avaliable
Plain sheet of paper	294			782	2.66	.624	Avaliable
Computer software	294			739	2.51	.594	Avaliable
Monitors	294			743	2.53	.816	Avaliable
Sticks/stones/seeds	294			744	2.53	.812	Avaliable
Abacus	294			809	2.75	.569	Avaliable
Diskette	294			736	2.50	.738	Avaliable

Digital video disc	294			524	1.78	.901	Not Avaliable
Compact disc	294			746	2.54	.820	Avaliable
Digital wristwatch	294			811	2.76	.515	Avaliable
Cardboard papers	294			762	2.59	.684	Avaliable
Drawing instruments	294			772	2.63	.598	Avaliable
Computer textbooks	294			806	2.74	.439	Avaliable
Computer education	294			565	2.92	.933	Avaliable
Overhead projectors	294			342	1.16	.475	Not Avaliable
Micro projectors	294			549	1.87	.991	Not Avaliable
Opaque projectors	294			798	2.71	.496	Avaliable
Radio	294			771	2.62	.533	Avaliable
Television set	294			511	1.74	.936	Not Avaliable
Film strip	294			728	2.48	.714	Avaliable
Slide	294			482	1.64	.862	Not Avaliable
Valid N (listwise)	294						

The data presented in table 4 shows the availableICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State?

The data in table 4 indicates that in the mean response of school heads and teachers, the following ICT facilities (items): Generator (1.11. Typewriter (1.13), overhead projector (1.16), and electricity (1.21), were not available in schools. Computer laboratories/ICT Centres (1.53), school library (1.60), DVD (1.78), Television set (1.74) and slides (1.64) were available but not functional in schools. Therefore, the items are considered not functional in Rivers State primary schools for the teaching and learning of computer education curriculum (CEC).However, twenty seven (27) of the prescribed computer education teaching and learning equipment and materials were 2.50 and above the mean cut-off point. Specifically, the items numbered 3, 4, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 35 and 38 were available in Rivers State UBE schools for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State.

$H0_1$: Hypothesis 1 : There is no significant difference between the mean responses of school heads and the teachers on availability of ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State.

Comparison of t-test difference on the mean rating of the school heads and teachers on the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State.

Group Statistics

	Category	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Avaliability of ICT facilities implementation of Computer studies curriculum	Head Teachers	58	2.4290	.34595	.04543
	Teachers	236	2.1966	.61183	.03983

Independent Samples Test

	Levene's Test for quality of		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Siq.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Differenc e	Lower	Upper
Avaliabilty of ICT Facility implementation of	Equal variance (assumed	29.634	.000	2.783	292	.006	.23236	.08350	.06801	.39670
	Equal variance not			3.846	155.957	.000	.23236	.06041	.11302	.35169

Results in table $H0_2$: shows that the calculated t-value (2.78) is greater than the critical t-value (1.96) at the 292 degree of freedom and 0.05 level of significance. The result indicate that the school heads and the teachers have different perception on the availability of ICT facilities for the implementation of computer Studies

Curriculumin Rivers State UBE schools. Therefore, the implication is that the null hypothesis of no significant differences between the mean perception of school heads and teachers on the availability of ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers Stateis rejected. H_1 is accepted.

Research Question Two: What is the extent of utilization of the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State?

Descriptive Statistics

	N				Sum	Mean	Site. Deviation	Decision
Electricity	294				490	1.67	.885	Seldomly Used
Generators	294				637	2.17	.918	Seldomly Used
Telephone services	294				557	1.83	.367	Seldomly Used
Housing (classrooms)	294				520	2.77	.921	Often Used
Computer laboratory/ICT	294				579	1.97	929	Seldomly Used
School library	294				501	1.70	915	Seldomly Used
Relevant PC education text	294				762	2.59	.969	Often Used
Real computer system	294				744	2.53	1.079	Often Used
Toy computer	294				711	2.42	1.162	Often Used
GSM handset	294				662	2.25	1.147	Seldomly Used
Calculator	294				771	2.62	1.010	Often Used
Typewriters	294				664	2.26	1.139	Seldomly Used
Flash card/disc	294				476	1.62	.765	Seldomly Used
Mouse	294				563	1.91	.933	Seldomly Used
Printer	294				523	1.80	.366	Seldomly Used
Speaker	294				520	1.77	.851	Seldomly Used
Keyboard	294				574	1.95	.896	Seldomly Used
Joystick	294				533	1.81	1.146	Seldomly Used
Plain sheet of paper	294				877	2.98	1.187	Often Used
Computer software	294				551	1.87	1.087	Seldomly Used
Monitors	294				564	1.99	1.209	Seldomly Used
Sticks/stones/seeds	294				612	2.08	1.139	Seldomly Used
Abacus	294				619	2.11	1.171	Seldomly Used
Diskette	294				670	2.28	1.207	Seldomly Used
Digital video disc	294				531	1.81	.946	Seldomly Used
Compact disc	294				543	1.86	.887	Seldomly Used
Digital wristwatch	294				876	2.98	1.186	Often Used
Cardboard papers	294				843	2.87	.878	Often Used
Drawing instruments	294				796	2.71	.969	Often Used
Computer textbooks	294				860	2.93	1.032	Often Used
Computer education	294				770	2.62	.892	Often Used
Overhead projectors	294				513	1.74	.890	Seldomly Used
Micro projectors	294				360	1.22	.588	Not Used
Opaque projectors	294				459	1.56	.823	Seldomly Used
Radio	294				522	1.78	.799	Seldomly Used
Television set	294				566	1.93	.921	Seldomly Used
Film strip	294				413	1.40	.678	Seldomly Used
Slide	294				455	1.55	.848	Seldomly Used
Valid N (listwise)	294							

The data presented in the table showsthe extent of utilization of the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State?

Result in the tableindicates that in the mean response of school heads and teachers, the following ICT facilities (items: Housing (2.77), relevant PC education textbooks (2.59), real computer system (2.53), Calculator (2.62), plain sheet of paper (2.98), digital wrist watch (2.98), cardboard papers (2.87), drawing instrument (2.71), computer textbooks (2.93) and Computer education Curriculum (2.62) were between 2.50-3.49 mean. Therefore, the ICT facilities were Often Used (OU) in the implementation of computer studies curriculum in Rivers State primary schools. However, twenty seven (27) of the ICT facilities (items) were between 1.50-2.49 mean. Basically, the items numbered 1, 2, 3, 5, 6, 8, 9, 10, 12, 13, 14, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 32, 34, 35, 36, 37, 38 were Seldomly Used (SU) in the implementation of computer studies curriculum in Rivers StateUBE schools, while the micro projector with the mean of 1.22 is considered Never Used (NU) in the implementation of CSC in Rivers State UBE schools.

Hypothesis Two (Ho_2): There is no significant difference between the mean responses of school heads and teachers on the extent of utilization**of the** available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State.

Table Ho_2: Comparison of t-test difference on the mean rating of the school heads and teachers on the extent of utilization of the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State

Group Statistics

Category		N	Mean	Std. Deviation	Std. Error Mean
Utilization of facilities, equipment and materials	Head Teachers	58	2.5036	.15318	.02011
	Teachers	236	2.3528	.15169	.00987

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Siq.	t	df	Sig. (2-tailed)	Mean Differenc e	Std. Error Differenc e	Lower	Upper
Utilization of facilities, Equal variance equipment and material assumed	.005	.945	6.771	292	.000	.15082	.02227	.10699	.19466
Equal			6.731	86.563	.000	.15082	.02241	.10628	.19536

Results in table $H0_2$: show that the calculated t-value (6.77) is greater than the critical t-value (1.96) at the 292 degree of freedom and 0.05 level of significance. The result indicates that the school heads and the teachers have different perception on the extent of utilization of the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State. Therefore, the implication is that the null hypotheses of no significance difference between the mean perception of the school heads and teachers on the extent of utilization of the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State is rejected. H_1 is accepted.

III. DISCUSSION OF FINDINGS

Most of the ICT facilities for the implementation of Computer Studies Curriculum were available but inadequate while few were completely absent in the schools.The available ICT facilities for the implementation of Computer Studies Curriculum are under-utilized by the teachers during the implementation process.The findings regarding null hypothesis (Hoi) revealed that there was significant difference between the mean responses of school heads and teachers on the **extent of utilization of the** available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State. The calculated t-value (6.77) was greater than the critical t-value (1.96) at 0.05 level of significance.The findings regarding null hypothesis (Ho_2) revealed that there was significant difference between the mean responses of school heads and teachers on the available ICT facilities for the implementation of Computer Studies Curriculum for Universal Basic Education schools in Rivers State.

The calculated t-value (2.78) was greater than the critical t-value (1.96) at 0.05 level of significance.This study also revealed that the available ICT Facilities in the schools are under-utilized by the computer studies teachers. The underutilization is attributed to the facts that ICT facilities were often locked up in school stores, lack of competence on the use of ICT facilities, lack of resource personnel to ensure the use and management of such ICT facilitieseg a computer technologist, lack of basic amenities e.t.c. The result of this study corresponds with that of Jack (2010), Philip and Josiah (2005) which stated that lack of power supply is a major factor affecting the utilization of computer Studies program in schools.

IV. CONCLUSION

Based on the findings of this study, the following conclusions were made:

1. Most of the ICT Facilities prescribed for the implementation of the Computer studies Curriculum are available while others are completely absent in schools.
2. Most of the available ICT facilities recommended for the implementation of Computer studies Curriculum are inadequate in the schools.
3. The available ICT facilities recommended for the implementation of Computer studies Curriculum in the UBE schools are under-utilized by the Computer teachers during the implementation process.

Recommendations

Based on the finding of the study, the researcher makes the following recommendations:

1. Competent and qualified teachers and associated personnel should be engaged and retrained regularly. Areas of specialization of teachers should be considered during training and assignment of subjects in schools. Special teachers' e.g, computer studies teacher should be posted to UBE schools in Rivers State to teach computer Studies.
2. Rivers State Government through the Ministry of Education should provide the recommended ICT facilities to ensure effective implementation of Computer Studies Curriculum at the UBE schools.

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