STRATEGIES FOR IMPROVING ICT LITERACY SKILLS OF SECONDARY SCHOOL TEACHERS IN ANAMBRA STATE

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ABSTRACT

The major purpose of this study was to determine the Strategies for improving ICT literacy skills of secondary school teachers in Anambra state. Descriptive survey design was used to generate data for the study. The population of the study consisted of principals, vice-principals and teachers from secondary schools in Anaocha Local Government Area of Anambra State. The sample size for the study was 182 respondents from the 59 secondary schools in Anambra state. These were made up of 59 principals, 59 vice-principals and 64 teachers. Two research questions were answered and two null hypotheses. Structured questionnaire was used to elicit information for the study. The instrument was face validated by three research experts from the department of computer education, Federal college of education (Technical), Asaba. The questionnaire was pilot tested with a sample of 15 respondents from five secondary schools in Asaba, Delta state. Cronbach Alpha reliability test was used to determine the internal consistency of the instrument

and this yielded a reliability coefficient of 0.87. Data were analysed using mean statistics for the research questions and ANOVA was used to test the null hypotheses. Based on the findings, it was revealed that there was no significant difference in the mean rating of principals, vice-principals and teachers on the strategies for improving the availability of ICT equipment required for ICT literacy skill of secondary school teachers. It was concluded that there are some basic strategies that could be adopted in order to improve the ICT literacy skill of secondary school teachers in Anambra State. It was recommended amongst others that school administrators should sponsor teachers on retraining programmes such as workshops, seminars and conferences to enable them learn the modern technological skills in their chosen fields of endevour.

Keywords: Information and Communication Technology (ICT), ICT literacy skills, Technological skills, Secondary education

Introduction

The development of a nation is measured by the quality of her education. Education holds the key to the economic, political, sociological and human resources development and well-being of any society (Oriafo, 2002). Idogho (2002) asserted that the objective of education is to prepare students to view their own society with some detachment; to compare it with other societies; to discover discrepancies and to acquire the will as well as the political and technological skills needed to work for change. Also, education prepares the individual for challenges of life. Consequently, Gujjar, Khan, Baig, Ramzan and Saifi (2010) posited that education does not only deliver information, but is also for developing complete personality of a child. In Nigeria, there are three levels of education: Primary, Secondary and the Tertiary levels. In developed countries, secondary school is seen as the gateway to providing not only an educated citizenry but also a capable workforce. It therefore means that quality Secondary education is indispensable in creating a bright future for individuals and nations alike.

In line with the above statements, Jacob and Tomoko (2001) stated that secondary education is crucial for economic growth. The authors maintained that globalization, the increasing importance of ICT in the twenty-first century and rapid technological changes have made knowledge essential for competing in the world economy. Secondary education therefore provides countries with the skills and knowledge needed for economic growth, including furthering learning and training of professionals such as technicians, scientists and entrepreneurs. Secondary education can also be decisive in fostering positive social and civic values and yields considerable private returns, offering young people the chance to acquire skills that were unlikely to be developed in the primary grades. This in turn enables youth to develop job-oriented skills, participate fully in society, take control of their own lives, and continue learning. Sequel to advances in science and technology which continues to revolutionize the global world, the Federal

Ministry of Education introduced Information and Communication Technology (ICT) and computer studies at all levels of education in Nigeria (Federal Republic of Nigeria, 2013).

Information and communications technology (ICT) is an extended term for Information Technology (IT). In whatever way it is used, they mean the same thing. Generally, the term ICT has no universal definition, as the concepts, methods and applications involved in ICT are constantly evolving on an almost daily basis (Ajibade, 2006). According to Okorie (2002), ICT encompasses infrastructure that store, retrieve, manipulate, transmit or receive information electronically in a digital form, e.g. personal computers, digital television, email, robots. It could also be referred to as any arrangement that is capable of capturing, storing, retrieving, manipulating, transmitting or receiving of information or data through the use of television sets, bulletin boards, radio, record players, disc players, still camera, video camera projectors, computers, interactive white board, internet and the internet resources among others (Blaise, 2010). Mejiuni and Obilade (2006) defined ICT as the electronic and non-electronic technologies and infrastructure systems used to create, store, manipulate, retrieve, and communicate or disseminate information. ICTs are computer based tools such as computer hardware and software, the network, and other digital devices like video, audio, camera, and so on, used by people to work with information and communication processing needs of an organization to convert information (text, sound, motion, etc.) into digital form (Moursund & Bielefeldt, 2002). ICT is therefore seen as all the electronic and non-electronic infrastructure or technologies which include, CD plates, recorders, projectors, still cameras, video cameras, computer systems, interactive white boards, printers, scanners, bulletin boards, among others, which may be utilized by the teacher for teaching and learning, to facilitate understanding among students.

The purpose of ICT in education is generally to familiarize students with the use and workings of computers, and related social and ethical issues. ICT has also enabled learning through multiple intelligence as ICT has introduced learning through simulation games (Gateway, 2010). The use of different ICTs has become inevitable for students in learning. By using modern ICTs, students can retrieve their required information within a short time. They can access and disseminate electronic information like e-books, e-journals and can improve their learning by using different modern ICTs in form of wireless networks, internet, search engines, databases, websites and web 2.0 technologies. It therefore means that to achieve these objectives as stated in the National Policy on Education, strategies are needed.

According to Zahra (2003), strategies offer a framework within which an organization defines possible means of achieving its goals and objectives. The objective of every strategy is to put the organization in a position to carry out its mission effectively and efficiently (Schewe, Charles & Alexandra, 2004). Wakefield (2001) pointed out that an educational program facing difficulties needs to develop and implement strategies to improve its fortunes. In line with this, the Federal Government adopted a strategy: The introduction of a scholarship award scheme known as Technical Teacher Training Program (TTTP). This scheme took off in the month of January, 1992. One of its aims is the training of serving science and technical teachers in computer studies throughout the country. Obioma (2009) however declared that the greatest challenge facing the improvement of the new program was to train pre-service teachers or to re-tool the skills of adequate number of serving teachers.

Improvement according to Robbinson (2000) is the development of circumstances in which something is lacking to a better standard or quality. In line with this, there is need for qualified computer teachers since according to Kersh in Bada (2009), the classroom teacher will never be

replaced by programme of self-instruction. Rather, he will be free to guide the learning of his students in ways that only a human being can. The authors went further to assert that in using computer for instruction, the teacher's role is hypothesized as changed basically from that of informer to learning facilitator. His duty of delivering lectures changes to that of a guide and problem solver. On the other hand, there is need for computer literate teachers. According to Sloan in Edhuze (2003), the need for computer literate teachers can lead to improved students performance in thinking logically, formulating problem, solving procedures and understanding relationships. Having computer literate teachers, make the supervision of computer studies possible as pointed out by Hall in Edhuze (2003) that when supervised, virtually all homework, can be done on computer, essay can be written since computer takes the drudgery out of doing calculation or writing and tackling of more complex mathematical problems. It therefore means that the single most important determinant of what students learn is what their teachers know. Teacher qualifications, teacher knowledge and skills, make more difference in students learning than any other single factor.

Skill according to Uga (2006), is a well-established way of doing things. According to Business dictionary (2012), skill is the ability and capacity acquired through deliberate, systematic and sustained effort and adaptively carrying out complex activity or job function involving ideas (Cognitive), things (Technical skills) and or people(Interpersonal skill). Okorie (2009) stated that skills are acquired when procedures, instruction and facilities are matched with performance activities and for it to be acquired, the learner should be exposed to the relevant activities embodying the skill.

The growing need for ICT literacy has made it imperative that increased attention be given to the improvement of ICT literacy skill of teachers in secondary schools especially in Anambra

state. It has been observed that teachers in secondary schools in Anambra state lack the necessary ICT literacy skills required to teach their students either because there are no ICT equipment available in the school or at their disposal or because they simply have not been utilized where they are available.

It therefore means that without proper improvement on the ICT literacy skills of secondary school teachers in Anambra state, they are bound to become rusty and obsolete, thereby making their students upon graduation, obsolete in our contemporary society where knowledge of ICT has become a prerequisite for employment, interview and in some cases for promotion. It is on this basis that the researcher deems it necessary to conduct a study on Strategies for improving ICT literacy skills of secondary school teachers in Anambra state.

Purpose of the study

The major purpose of the study is to determine strategies for improving ICT literacy skills of secondary school teachers in Anambra state. Specifically, the study sort to determine:

1. Strategies for improving the availability of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra state.
2. Strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra state.

Research Questions

1. What are the strategies for improving the availability of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State?
2. What are the strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State?

Hypotheses

Two null hypotheses were formulated to guide the study and were tested at 0.05 level of significance.

$H0_1$: There is no significant difference in the mean response of principal, vice-principal and teachers on the strategies for improving the availability of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State.

$H0_2$: There is no significant difference in the mean response of principal, vice-principal and teachers on the strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State.

Methodology

This study adopted a descriptive survey design. According to Nworgu (2006), a descriptive survey is a type of study that examines and describes existing and on-going observable occurrence on the particular study. Thus, survey design was considered suitable for this study because it uses a representative sample of the entire population, and because it enabled the researcher to collect data and describe facts on the strategies for improving ICT literacy skills of secondary school teachers in Anambra state.

The population of the study comprised principals, vice-principals and teachers of secondary schools in Anaocha Local Government Area of Anambra State. The sample size for the study was 182, which was made up of 59 principals, 59 vice-principals and 64 teachers from the 59 secondary schools in Anaocha Local Government Area of Anambra State. Simple random sampling technique was used to select the schools and respondents. The method involved balloting, such that every member of the population had equal chance of being selected from the ballot.

The instrument for data collection is a 10 item-questionnaire which was constructed by the researcher. The items were graded on a 4 point Likert scale rating of: Strongly Agree (SA) – 4, Agree (A) – 3, Disagree (D) - 2, Strongly Disagree (SD) – 1. The questionnaire is titled "Questionnaire on the strategies for improving ICT literacy skills of secondary school teachers" (QSIILSSST) and consists of two sections 'A' and 'B'. Section 'A' deals with the demographic information of the respondents and section 'B' deals with information on the specific purpose of the study.

The research instrument was subjected to face validation by three (3) experts from the department of Computer Education, Federal College of Education (Technical), Asaba. Delta State. A pilot study of 15 respondents made up of 5 principals, 5 vice-principals and 5 teachers from 5 secondary schools in Asaba, Oshimili-South Local Government Area of Delta State. The data collected were tested using the Cronbach Alpha and yielded a reliability index of 0.87 which is a high index, thus indicating the consistency of the instrument in measuring what it intended to measure.

The data collected with the use of the questionnaire was analyzed using descriptive statistics of mean and standard deviation to answer each of the two research questions. The analysis was computer based with the use of the Statistical Package for Social Sciences (SPSS). Any item with a mean of 2.50 or above was regarded as agree while items below 2.50 were regarded as disagree.

However, each of the two hypotheses was tested using ANOVA (Analysis of Variance) statistics at 0.05 level of significance. The hypotheses of no significant difference was accepted for any item whose F-calculated value is equal to or less than the F-ratio value and rejected for any item whose F-calculated value is greater than the F-ratio value.

Results

Research Question 1:

What are the strategies for improving the availability of ICT equipment required for ICT literacy skills of secondary school teachers in Anambra State?

Table 1: Mean responses of respondents on strategies for improving the availability of ICT equipment required for ICT literacy skill of secondary school teachers

SN	STATEMENT	$\overline{X}$	SD	DECISION
1	Securing grants from the Government through TETFUND sponsorship to buy ICT equipment is a good strategy for improving availability of ICT equipment	4.24	1.05	Agree
2	Donations of Computers by Non-governmental organizations (NGOs) is also a strategy for improving availability of ICT equipment	3.92	1.07	Agree
3	Purchase of ICT equipment by the school administrators will help improve the availability of ICT equipment	3.91	1.06	Agree
4	Parents contribution to purchase ICT equipment can be a good strategy for improving availability of ICT equipment	3.91	1.21	Agree
5	Teachers should own their personal ICT equipment as a strategy for improving availability of ICT equipment	4.15	.99	Agree
	Cluster mean/SD	**4.03**	**1.07**	**Agree**

Table 1 reveals that respondents are in agreement on all statements raised as they met the average mean score of 2.50. The cluster mean of 4.03 further indicates that the majority of respondents used for this study agreed with these statements as strategies for improving the availability of ICT equipment required for ICT literacy skill of secondary school teachers. The standard deviation of the statements which ranged from 0.99 to 1.21 also reveals that the respondents were close to one another in their opinions thus indicating that their responses are not far from the mean.

Research Question 2: What are the strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State?

Table 2: Mean responses of respondents on strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers

SN	ITEM	$\overline{X}$	SD	DECISION
6	Organizing ICT literacy workshops/seminars is a good strategy for improving the utilization of ICT equipment required for ICT literacy skill	3.97	1.12	Agree
7	Prioritizing the use of ICT equipment for teaching as a strategy will help improve the utilization of ICT equipment	3.92	1.13	Agree
8	Educating teachers on the importance of ICT use is also a very good strategy for improving the utilization of ICT equipment	3.89	1.14	Agree
9	Another good strategy for improving the utilization of ICT equipment required for ICT literacy skill is provision of steady power supply	3.92	1.14	Agree
10	Teachers should use ICT equipment anywhere they are outside the classroom as a strategy for improving the utilization of ICT equipment required for ICT literacy skill	3.95	1.15	Agree
	Cluster mean/SD	**3.93**	**1.13**	**Agree**

Table 2 reveals that respondents are in agreement on all statements raised as they met the average mean score of 2.50. The cluster mean of 3.93 further indicates that the majority of respondents used for this study agreed with these statements as strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers. The standard deviation of the statements which ranged from 1.12 to 1.15 also reveals that the respondents were close to one another in their opinions thus indicating that their responses are not far from the mean.

Test of Hypotheses

The two hypotheses were tested using ANOVA. Summary of the analysis for the two null hypotheses are shown in tables 3 and 4

Hypothesis 1

$H0_1$: There is no significant difference in the mean response of principal, vice-principal and teachers on the strategies for improving the availability of ICT equipment required for ICT literacy skills of secondary school teachers in Anambra State.

Table 3: ANOVA on the strategies for improving the availability of ICT equipment required for ICT literacy skills of secondary school teachers in Anambra state.

		Sum of squares	Df	Mean Square	F-ratio	Sig. (2-tailed)	Rem
SUMM	Between Groups	.142	2	.071	.104	.901	NS
	Within Groups	191.152	179	.685			
	Total	**191.300**	**181**				

The one-way ANOVA presented in table 3 above shows the result of Fraction not to be significant at 0.05 level of significant: F (2, 179) = .104; p>0.05. The F-ratio of .104 with a p-value as .901 calculated at 0.05 level of significance and at 179 degree of freedom to be greater than 0.05. The null hypotheses was therefore accepted as postulated not to have any significant difference in the mean ratings of principals, vice-principals and teachers on strategies for improving the availability of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra state.

Hypothesis 2

$H0_2$: There is no significant difference in the mean response of principal, vice-principal and teachers on the strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State.

Table 4: ANOVA on the strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State.

		Sum of squares	Df	Mean Square	F-ratio	Sig. (2-tailed)	Rem
SUMM	Between Groups	.137	2	.068	.085	.918	NS
	Within Groups	223.583	179	.801			
	Total	**223.720**	**181**				

The one-way ANOVA presented in Table 4 above shows the result of Fraction not to be significant at 0.05 level of significant: F (2, 179) = .085; p>0.05. The F-ratio of .085 with a p-value as .918 calculated at 0.05 level of significance and at 179 degree of freedom to be greater than 0.05. The null hypotheses was therefore accepted as postulated not to have any significant difference in the mean ratings of principals, vice-principals and teachers on strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra state.

Summary of findings

The following findings emerged from the study based on the research questions answered and hypotheses tested:

1. Grants from the government, donations of computers by NGOs, purchase of ICT equipment by school administrators among others are strategies required for improving the availability of ICT equipment for ICT literacy skills of secondary school teachers in Anambra State.
2. Organizing ICT literacy workshops/seminars, prioritizing the use of ICT equipment for teaching, provision of steady power supply are strategies required for improving the utilization of ICT equipment for ICT literacy skill of secondary school teachers in Anambra State.
3. There was no significant difference in the mean response of principal, vice-principal and teachers on the strategies for improving the availability of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State.

4. There was no significant difference in the mean response of principal, vice-principal and teachers on the strategies for improving the utilization of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State.

Discussion of findings

The result of the analysis presented in table 1 showed that for the improvement of the availability of ICT equipment for ICT literacy skills of secondary school teachers in Anambra State, some strategies are required, such as grants from the government, donations of computers by NGOs, purchase of ICT equipment by school administrators among others as revealed in the cluster mean and standard deviation of 4.03 and 1.07 respectively. This is similar to the findings of Nwanze (2014) who listed purchase of ICT equipment by school administrators and donation of computers by NGOs as strategies for improving computer studies in secondary schools in Oshimili North and South local government of Delta state.

The result of the analysis presented in table 2 showed that organizing ICT literacy workshops/seminars, prioritizing the use of ICT equipment for teaching, provision of steady power supply are strategies required for improving the utilization of ICT equipment for ICT literacy skill of secondary school teachers in Anambra State. This is in consonance with the findings of Uzomah (2017) who also listed workshops attendance and prioritizing the use of ICT equipment as teacher initiatives for utilizing ICTs for teaching and learning.

The result of the analysis presented in table 3 showed that there was no significant difference in the mean response of principals, vice-principals and teachers on the strategies for improving the availability of ICT equipment required for ICT literacy skill of secondary school teachers in Anambra State. This is in contrast with the findings of Okorie (2009) where all the respondents were not in agreement of the importance and barriers of ICT usage.

The result of the analysis presented in table 4 showed that majority of the principals, vice-principals and teachers were in agreement on the strategies for improving the utilization of ICT equipment required for ICT literacy skills of secondary school teachers in Anambra State, which is also in tandem with the findings of Uga (2006) where majority of the teachers were in agreement of the factors affecting the utilization of ICT.

Conclusion

The study concludes that there are some basic strategies that could be adopted to improve the ICT literacy skills of secondary school teachers in Anambra state. The study is of the view that ICT literacy skills should provide a sound basis for further training even at the tertiary level of education. This should be relied upon to enable teachers and by extension students acquire the basic skills and knowledge needed to either secure jobs and earn a living or to pursue further studies in ICT and other relevant areas.

Evidence from the study also revealed that strategies for improving the availability and utilization of ICT equipment could be used in improving the teaching of computer studies (ICT) in secondary schools, thereby, giving the students the prerequisite knowledge to function in today's digital world.

Recommendations

The following recommendations were made based on the findings and implications of the study:

1. School administrators (Education secretaries and principals) should ensure that teachers are sponsored on retraining programmes through workshops, seminars and conferences to enable them learn the modern technological skills in their chosen field of endeavour.
2. School administrators should as a matter of urgency liase with the private sectors to provide ICT equipment for teaching and learning so as to improve the teachers' literacy skills
3. All the levels of government should provide funds to equip secondary schools with ICT equipment so that teachers can have access to these ICT gadgets
4. Teachers should do their best to expose themselves to ICT gadgets by ay of purchase, so as to improve their ICT literacy skills

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