
THE AVAILABILITY AND UTILIZATION OF INFORMATION COMMUNICATION TECHNOLOGY (ICT) IN SCIENCE AND TECHNICAL SECONDARY SCHOOLS OF JIGAWA STATE

By

Abubakar Saddiq Shehu
Department of Science Education,
Sule Lamido University,
Kafin Hausa.

Abstract

This study investigated the availability and uses of information communication and technology (ICT) in Science and Technical Secondary Schools of Jigawa State. The study examined the level of availability of ICT facilities in schools, the capacity for using, ICT facilities for teaching and learning, the perceived benefits of using ICT and the problems facing the use of ICT in Science and Technical Secondary Schools of Jigawa State. The descriptive survey design was used for the study. The population consists population of the Girls Science Secondary School, Jahun and technical secondary school Birnin Kudu. The sample consists of 18 teachers and 2 principals randomly selected from the schools. A researcher designed questionnaire tagged ICT use in Science and Technical Secondary Schools (ICTUSTSS) used to collect the data for the study. The study revealed that ICT facilities were lacking in schools, teachers and students were to a little extent exposed to the use of ICT. Moreover, the study found out that the perceived benefit of using ICT in schools which include making teaching and learning interesting, helping teachers to be up to date, enhancing the quality of work by both the teachers and the students despite this perceived benefits the study also revealed some of the challenges facing ICT in Science and technical Secondary Schools as: irregular power supply, inadequate computer, literate teachers; high cost of purchasing computer in school and inadequate facilities to support full application of the ICT in teaching and learning. It was therefore recommended that government should increase the funding of the education sector. There should also be periodic training for teachers on computer and ICT skill acquisition.

Key words: Information and Communication Technology Teaching and Learning

ICT (Information Communication Technology) is an umbrella term that includes any communication device or application, encompassing; radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as video conferencing and distance learning.

According to Sanou B (2011) the term ICT is also used to refer to the convergence of audio-visual and telephone networks with computer networks through a single cabling or link systems.

According to Adedeji (2011), ICT refers to technologies that provide access to information through telecommunications.

Modern information and communication technologies have created a "global village" in which people can communicate with others across the world as if they were living next doors for this reason, ICT is often studied in the context of how modern communication technologies affect society.

Techopedia (2008) explains information and communications technology (ICT) as all the technology used to handle telecommunications, broadcast media, intelligent building management systems audio visual processing and transmission systems and network-based control and monitoring function.

Ofodu (2007) also refers to ICT as electronic or computerized devices, assisted by human and interactive materials that can be used for a wide range of teaching and learning as well as for personal use. From these definitions ICT could therefore be defined as processing and sharing of information using all kinds of electronic devices, an umbrella that includes all technologies for the manipulation and communication of information.

Today everyone needs basic understanding of ICT and how to make productive use of it just to be good students, workers and citizens. Virtually in all modern businesses and industries and in modern society in general ICT has key strategic roles to play.

Now a days, ICT especially internet in the education sector plays an important role, especially in the process of empowering the technology in to the educational activities. Education sector can be the most effective sector to anticipate and eliminate the negative impact of ICT.

The various ICT facilities used in the teaching/learning process in schools according to Babajide and Bolaji (2010) and Ofodu (2007) include; radio, television, computers, overhead projectors, optical fibres, fax machines, CD-Rom, Internet,

electronic notice board, slides, digital multimedia, video/ VCD machine and so on. Some of the facilities are not sufficiently provided for the teaching – learning process in secondary schools. This might account for why teachers are not making use of them in their teaching. According to Ajayi (2008), the use of these facilities involves various methods which include systematized feedback system computer-based operation/network, video conferencing and audio conferencing, internet/ worldwide websites and computer assisted instruction. It must however be stressed that the effective use of the various methods of the ICT in teaching learning depends on the availability of these facilities and teachers' competence in using them. Observation has shown that there are no functional internet facilities in most of the secondary schools. This appears to hinder the extent of teachers' exposure to the use of ICT in teaching. Teachers as well as students appear not to be knowledgeable in the use of ICT because there appears not to be any official training for both the teachers and the students in the schools. It has also been observed that most science and technical secondary schools in Jigawa state lack computer literate teachers and irregular power supply appears to thrive in the schools. Moreover it seems the schools could not purchase computers for use because of inadequate fund. Besides, the non-inclusion of ICT programmes in the teacher training curriculum seems to be another major challenge facing the adoption of ICT in secondary schools. Various studies have shown the multifaceted problems militating against the effective use of ICT in the teaching/learning process in schools. These include irregular power supply (Yusuf, 2005; Ofodu, 2007); inadequate computer literate teachers in adequate fund, reluctance to change among others.

Purpose of the Study

The purpose of this study is to examine the level of availability and the extent of using the ICT facilities in secondary schools. The paper also investigated the perceived benefits of using ICT for teaching and the perceived problems of using ICT in science and technical secondary schools of Jigawa state.

Research Questions

The following research questions were raised to guide this study:

- i.) To what extent are the ICT facilities available for teaching in Science and Technical Secondary Schools in Jigawa State?
- ii.) To what extent are teachers and students in secondary schools exposed to ICT Facilities?
- iii.) What are the Perceived benefits of ICT in Science and Technical Secondary Schools of Jigawa State?
- iv.) What are the challenges facing the adoption of ICT in Science and Technical Secondary Schools in Jigawa State?

Methodology

The descriptive survey design was adopted for this study. The population for the study, consisted the population of the Girls Science Secondary School Jahun and

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Technical Secondary School Birnin Kudu of Jigawa State. The sample for the study is made up of 18 teachers and 2 principals randomly selected from 2 secondary schools in the state. A researcher designed questionnaire tagged (ICTUSTSS) was used to collect the data for the study. The instrument was validated by research experts in the science education department. The reliability of the instrument was also determined the reliability coefficient was 0.75. The questionnaire was administered by the researcher with the help of research assistants in the two schools. Personal view of the researcher with the respondents enhanced good and prompt responses, from the respondents. Data collected were analyzed using frequency counts, percentage scores and t-test.

Result and Discussion

The result of the study is presented below:

Research Question 1: to What extent are the ICT facilities available for teaching in secondary schools in Jigawa state?

Table 1. Availability of ICT materials for teaching in science and technical schools

S/N	Items	Avail-able	%	Not Available	%	Avail-able	%
1.	Desktop computer	17	85.0	2	10.0	1	5.0
2.	Portable laptop	8	40.0	5	25.0	7	35.0
3.	Internet connection	0	0.0	0	0.0	20	100
4.	Printer	10	50.0	9	45.0	1	5.0
5.	Projector	5	25.0	10	50.0	5	25.0
6.	Scanning machine	7	35.0	6	30.0	7	35.0
7.	E-board	3	15.0	2	10.0	15	75.0
		46		14		40	

Table 1 showed that ICT facilities like, Desktop computer, portable laptop, printer and scanning machine were available in the schools, while facilities like internet connections, projector and e- board are not available in schools.

Table 2: Perceived Benefits of ICT in Teaching and Learning in the Secondary Schools.

Research question 2: What is the Perceived Benefit of using ICT in Science and Technical Secondary Schools in Jigawa State?

S/ N	Items	Agree	%	Dis-agree	%
1.	ICT helps in making teaching and learning more interesting	18	90.0	2	10.0
2.	ICT helps in distance learning programme	16	80.0	4	20.0
3.	ICT enhances quality of work of teachers and students	13	65.0	7	35.0
4.	It makes teachers to be up to date in their various disciplines	15	75.0	5	25.0

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5.	it makes decision making in the education sector easy and faster	14	70.0	6	30.0
			76	24	

Result in table 2 showed the perceived benefits of ICT in the science and technical secondary schools of Jigawa State as follows: making teaching and learning more interesting (90.0%) helping in distance learning programme (80.0%) making teachers to be up to date in their various disciplines (75.0%) other benefit include making easy and faster the decision making in the education sector. (70.0%) enhances efficiency of workers (65.0%).

Research Question 3: What are the Challenges Facing the Adoption of ICT in Science and Technical Secondary School?

Table 3: Challenges Facing ICT in Science and Technical Secondary Schools of Jigawa State.

S/N	Items	Available	%	Not Available	%
1.	Irregular power supply hinders the use of ICT in school	17	85.0	3	15.0
2.	Most secondary schools lack computer literate teachers	6	30.0	14	70.0
3.	There are inadequate facilities to support full application of the ICT	18	90.0	2	20.0
4.	The non inclusion of ICT programmes in the teaching/training of teachers curriculum affects its adoption in schools	15	75.0	5	25.0
5.	Teachers are very reluctant to adopt the use of ICT in teaching learning process	5	25.0	15	75.0
6.	Lack of funds hinder schools from embracing ICT	14	70.0	6	30.0

From table 3 above the result shows that the major challenges facing the adoption of ICT in science and technical schools of Jigawa State is irregular power supply (85.0%) another challenge facing the adoption of ICT is lack of facilities to support application of ICT (90.0%) non inclusion of ICT programmes in teachers training curriculum also affects its adoption in schools (75.0%) other major challenges are lack of funds in schools (70.0%).

Discussion

This study revealed that ICT facilities such as computer, projectors, electronic notice boards, internet filmstrips were not available in science and technical secondary schools in Jigawa State. This could be as a result of inadequate funding of the schools by the government. This finding has grave consequences on the resourcefulness of the teachers. Even if these teachers are willing to learn and use ICT in their teaching, the non-available of the facilities will hinder them. The study also revealed that teachers and students were to a little extent exposed to the use of ICT. This is a pointer to the low level of application of ICT in the teaching/learning in science and technical secondary schools. The implication is that most of the teachers are still fond of the old method of chalk and talk, practice which will make them lag behind in the world of ICT. It was also revealed that the perceived benefits of using ICT in schools include making teaching learning interesting; helping the distance learning programme; help teachers to be up-to-date; enhancing quality of work by both teachers and students. This finding might not be unconnected with the fact that the teachers know the importance inherent in the use of ICT in the teaching- learning. This finding corroborates Kwache (2007) who submitted that the application of ICT makes institutions more efficient and productive, enhances and facilitates pedagogical activities. Similarly, Ayeni (2007) posited that the fact that ICT is accurate, fast and reliable and has the capacity to store and disseminate large information within the shortest periods, makes it a veritable and indispensable instrument for distance education programme. The study revealed that irregular power supply is a major challenge facing the application of ICT in secondary schools in the country. The epileptic power supply is a national phenomenon that has a detrimental effect on all sectors of the economy. This can also be attributed to low level of funding in the school system. If schools are well funded, the management of the school can always make provision for alternative power supply in the schools. This finding supports Yusuf (2005) and Ofodu (2007) who submitted that irregular power supply in the country is a major obstacle to the usage of ICT in all spheres of the economy. The study showed that most schools in the sampled areas lack computer literate teachers. The lack of computer literacy might not be unconnected with the non- inclusion of ICT in teacher training programmes in school curriculum at all levels of education in Nigeria. This finding is in support of Kwache (2007), Dabesaki (2005) who submitted that lack of skilled manpower to manager available system and facilities for ICT hinders its use in schools. Kwache (2007) remarked that the most institutions lack computer literate teachers and ICT experts that would support and manage the internet connectivity and / or application of computing in the teaching – learning process. Other problems facing the application of ICT in secondary schools include inadequate facilities, high cost, reluctance to adapt to use of ICT in teacher training. This finding also corroborates that of Akubuilu (2007).

Conclusion

The finding of this study has shown that Jigawa State Science and Technical Secondary Schools are lagging behind in the level of application and usage of ICT in the teaching and learning process. The ICT facilities are lacking in schools, the capacity for using ICT by both teachers and students is also very low. Despite the perceived benefits in the use of ICT in school, there are a lot of factors inhibiting the successful application of ICT in secondary schools. In order to fit into the new scientific order, it is necessary for Nigerian institutions and individuals alike to develop a society and culture that places a high value on information and communication technology.

Recommendations

The following recommendations are therefore made. The government should increase funding for the entire educational sector with emphasis on ICT this will help improve the level of ICT facilities in the schools. There should also be continuous and periodic training of teachers on computer and ICT skills acquisition. This will help provide them with practical and functional knowledge of the computer, the internet and associated areas of ICT with the hope of integrating it with instructional methods of teaching and learning.

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