THE INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) INTO CLASSROOM TEACHING FOR EFFECTIVE TEACHING AND LEARNING IN SCHOOLS

Dr. Sarah Oben Egwu

Abstract

The use of information and communication technologies (ICTs) such as internet application, CD-R, video technology and various computer attachments and software programmes have caused many changes in society. Information and communication technology has made the world become a global village and it has contributed immensely to the growth and development in human society. The paper discusses how information and communication technology can be used in education. It points out that information and communication technology improve teaching and learning relationship, improving school administration and expanding professional networks, facilitating access to remote learning resources, transcend time and space, motivate learners to learn and facilitating the acquisition of basic skills. The benefits of ICT and the conditions for effective use of ICT in education are also discussed. It is recommended that conferences and workshops should also be organized for teachers and lecturers in order for them to have life experiences of hardware and software in the classroom.

Education is a veritable instrument for human capital development. It aims at the provision of knowledge, skills, attitude and values so as to equip individuals for effective existence in his or her environment (Offorma, 2009). It is through education that the required labour force for the development of the society is provided, no wonder, Kofi Annam former United Nations (UN) Secretary General once remarked that,

education is the premise of progress in every society and in every family (United Nations Children's Fund [UNICEF], 2005). According to Okeke (2009), education is widely accepted as a human right and one of the most powerful tools the society have to reduce global poverty.

In Nigeria this position is clearly spelt out in the National Policy on Education which sees education as an 'instrument par excellence' for sustainable national development (Federal Republic of Nigeria [FRN], 2004:4). Definitely, if we are able to ensure that all persons receive education they deserve, we will be able to overcome inequality, improve health, and promote economic growth as well as maintain political stability.

It is in recognition of the great importance of education for personal and national development that Nigeria and other developing countries are striving to integrate this new technology into their educational system in order to get education fulfills its social, economic and political roles. Thus, the focus of this paper is the integration of information and communication technology (ICTs) into classroom teaching.

What is Information and Communication Technology (ICT)?

ICT is an acronym that stands for information and communication technology. However, apart from explaining an acronym, there is not a universally accepted definition of ICT. This is because the concepts, methods and applications involved in ICT are constantly

evolving on almost daily basis. It is difficult to keep up with the changes.

However, Tino and Cuban (2002) provided working definitions. According to Tino (2002), information and communication technology is a diverse set of technological tools and resources used to communicate, and to create, disseminate, store and manage information. Cuban (2002) also defined ICT as forms of technology that are used to transmit, process, store, create, display, share, or exchange information by electronic means. ICT by this definition includes such technologies as radio, television, video, DVD, CD-R, telephone and computers as well as the equipment and services associated with these technologies such as e-mail and video conferencing. So, ICT is concerned with the storage, retrieval, manipulation, transmission or receipts of digital data and most importantly, how these different uses can work with each other.

Many educational researchers have agreed that technology can improve education if appropriately used (Tino, 2002). So whether technology should be used in school is no longer the issue in education. Instead the current emphasis is in ensuring that the technology is used effectively to create new opportunities for learning and to promote students' achievement. As this new technology continues to play an important role in modern industrial society, integrating it into the classrooms will help prepare students to succeed in a rapidly changing world.

How ICT can be Used in Education

Developments in ICT are making information-exchange faster, easier and more cost effective (World Bank, 1998). These changes have brought about improvement in speed and modes of communication in recent years and are resulting in significant changes in the way we live and work. However, the impact on education may just begin to be felt as teachers integrate this new technology into their teaching. The question asked is how does the use of ICT improve the work of teachers? To answer this question there is need to discuss how ICT can be used in classroom teaching for effective and efficient teaching and learning.

1.   **Improving Teaching**

A number of things can be done with web-sites from giving students note to copy to getting students to create their own web pages. A teacher can use a website to enhance an actual field trip. The websites introduce students to animals for instance, and tell them what they are going to do while on the field trip. It shows them techniques they can use to analyze the ecosystem and record the data. The prior preparation through the website will also help students benefit from the actual field trip.

Teachers can use power point and other computer programmes to improve their presentation of materials to the class. Technology helps teacher to deliver more materials to students and it also eliminates several basic problems such as poor hand writing, poor artistic skills, lighting and visibility.

Teachers can also make extensive use of software programmes in teaching physics. The students go into the laboratory and collect their data using the computer. They can use word processing programme along with Excel to do graphs and presentations. The software allows the students to collect different kinds of data using various attachments that are plugged into the computer. Again, using computer technology, students have more time to explore beyond the mechanisms of counting dots and setting up the experiment. It actually lets them look at it and understand the concepts better.

2. **Improving the Teaching and Learning Relationship**

The relationship between teachers and students (learners) is sometimes reversed using information technology. Teachers testify that students show them how to use technology and this increases the students' confidence in themselves. Thus the use of information technology increases socialization in some ways. People may be able to find someone who has similar interest to converse with through the internet.

3. **Administration and Expanding Professional Networks**

The use of information technology has changed school administration in several ways. In the past, teachers are not expected to know how to type their own test. Now teachers are expected to know how to use word processors and have their tests done in a proper format. Teachers are now expected to move toward recording grades and attendance electronically. Teachers are expected to check their e-mails, and a lot of things that were formerly done manually are now done through e-mail. Also, e-mail is becoming an important communication tool between parents and teachers. In addition most teachers use e-mail to keep in touch with each other and friends.

4. **Access to Remote Learning Resources**

Teachers and learners no longer have to rely solely on printed books and other materials in physical media housed in libraries (and available in limited quantities) for their educational needs. With the internet and the world wide web, a wealth of learning material in almost every subject and a variety of media can be accessed from anywhere at any time of the day and by an unlimited number of people. ICTs also facilitate access to resource persons, mentors, experts, researchers, professionals, business leaders, and peer all over the world.

5. **Time and Space**

One defining feature of ICTs is their ability to transcend time and space. ICTs make possible asynchronous learning or learning characterized by a time lag, between the delivery of institution and its reception by learners. Online course materials, for example may be accessed 24 hours a day, 7 days a week. ICT-based education delivery (e.g., educational programming broadcast over radio or television) also dispenses with the need for all learners and the teachers to be in one physical location. Additionally, certain types of ICTs such as teleconferencing technologies enable instruction to be received simultaneously by multiple, geographically dispersed learners (i.e., synchronous learning).

6. **Motivating to Learn**

Teacher can use ICTs to motivate learners to learn. For example, ICTs such as videos, television and multimedia software that combine text, sound, and colourful, moving images content that will engage the student in the learning process. Interactive radio likewise makes use of sound effects, songs, dramatizations, comic skits, and other performance conventions to compel the students to listen and become involved in the lessons being delivered.

7. **Facilitating the Acquisition of Basic Skills**

The transmission of basic skills and incepts that are the foundation of higher order thinking skills and creativity can be facilitated by ICTs through drills and practice. Educational television programmes for children use repetition and reinforcement to teach the alphabets, number colours, shapes and other basic concepts. The computer based learning (also called computer assisted instruction) focused on mastery of skills and content through repetition and reinforcement.

Benefits of ICT in Education

Using ICT effectively in education can help to improve the reach and quality of education. In particularly ICT can:

1. Expand educational opportunities by making education available anywhere, anytime and to anyone.
2. Improve learning outcomes by making learning more attractive and getting learners involved in the subject matter.
3. Enable education to be tailored to individual learning needs and abilities.
4. Enable locally relevant teaching materials in local languages to be created and disseminated quickly and affordably.
5. Facilitate technology-skill formation, team work abilities and other '21st century skills' among learners.
6. Bring about pedagogical improvements and learner-centred teaching.
7. Provide conditions that permit and promote lifelong learning.
8. Increase the effectiveness and efficiency of education planning and delivery.
9. Improve motivation to learn by improving relevance of content and making learning more fun.

Conditions for Effective Use of ICT in Education

The right conditions need to be in place, however, before the educational benefits of ICT can be fully harnessed. The conditions include:

1. Political and financial commitment (at both government and school level).
2. Conducive policy and careful planning for integration of ICT into education.
3. Adequate infrastructure.
4. Equipment and ICT tools (such as desks, chairs, radios, televisions and computers that are appropriate for local needs and affordable in the long term.
5. A system of ongoing professional development for teachers.
6. Enthusiastic teachers' equipped with the skills required to make good use of ICT tools for enhancing education.
7. Appropriate curricula that permit the use of ICT in teaching and learning.
8. Institutional flexibility and monitoring and assessment systems.
9. Adequate and timely technical support (trouble-shooting, maintenance and repair of equipment) in schools and learning centres.

Conclusion

The use of ICT is improving teaching in several ways. With ICT, teachers are able to create their own materials and thus have control over the materials used in the classroom more than they have had in the past. In addition, using web pages to enhance activity demonstrates that technology can be used to complement other aspects of good teaching rather than replace them. It is evident that involving students in the creation of useful materials as a part of learning exercise is a way to make school more meaningful for student. The use of peripheral devices on computers to help with physics experiments again shows how ICT can be used to aid learning process and help students focus on his/her level concepts rather than less meaningful tasks.

The changes caused by the introduction of information technology into learning environment, are not without some potential problems which must be considered by the administration. Such problems include maintenance of the equipment, information overload, pace of changes and stress, teachers' time, electricity and need for training (professional development). Thus, some fundamental rethinking of the education process may be necessary because of the use of ICT. This will put pressure on the school system to restructure the way education is organized.

Recommendation

For effective use of information communication technology (ICT) in education, the followings are recommended:

i. Teacher should ensure that the use of ICT is an integral part of the school curriculum
ii. Fund should be provided to all schools to establish ICT centers.
iii. Conference and workshop should also be organized for teachers and lecturers to have life experiences of hardware and software in the classroom.

References

Cuban, L. (2002). *Oversold and underused computers in the classroom.* Cambridge: Harvard University Press.

Federal Republic of Nigeria. (2004). *National policy on education.* Lagos: Nigerian Educational Research and Development Council (NERDC).

Offorma, G.C. (2009). *Challenges and prospects of the boy-child education in the South East States of Nigeria.* A paper presented at the 23rd Annual Congress of the Nigerian Academy of Education. University of Nigeria, Nsukka, 4th-6th November.

Okeke, E.A.C. (2009). *Access in Nigerian education.* Lead paper presented at the 23rd Annual Congress of the Nigerian Academy of Education. University of Nigeria, Nsukka, 4th – 6th November.

Tino, V. (2002). Survey of ICT utilization in Philippine public high school: Preliminary findings. *Journal of Information and Communication Technology, 2*(1), 34-45.

Tino, V., & Cuban, L. (2002). *ICT in education.* New York: United Nations Development Programme Bureau for Development Policy.

United Nations Children's Fund. (2005). *Evaluation of African Girls Education Initiative (AGEI).* Abuja: United Nations Children's Fund.

World Bank. (1998). The world development report 1998/99. In C. Bluton (Ed.), *New direction of ICT-use in education.* New York: World Bank.

Dr. Sarah Oben Egwu
Faculty of Education,
Ebonyi State University,
Abakaliki.