CHAPTER FIFTEEN

APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY IN CLASSROOM FOR EFFECTIVE TEACHING AND LEARNING

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Objectives
At the end of this chapter, you should be able to:
1. Define the term ICT
2. Describe the components of ICT
3. Discuss the applications of specific ICT tools in education
4. Itemize ICT facilities needed in classroom
5. Enumerate the benefits of ICT in education
6. Suggest effective ways of using ICT in schools

Introduction
Information and Communication Technology (ICT) has permeated every sector of human life and the field of education is not left behind. ICT resources are useful to teachers, students, parents and school administrators. In this module, the concept of ICT, its components, tools, benefits and suggestions for effective use in teaching and learning process are discussed.

Meaning of Information and Communication Technology
Information and Communication Technology (ICT) can be defined as diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information. It refers to all the technologies being used to handle telecommunications, broadcast media, audio-visual processing, transmission systems, and network-based control and monitoring functions. ICT is sometimes used synonymously with IT (Information Technology). However, ICT represents a broader, more comprehensive list of all components related to computer and digital technologies than IT.

ICT has to do with digital and telecommunication resources that assist in information dissemination, knowledge sharing, interactions, and transactions among people. Some of these ICT tools have been in existence for several decades (for instance, Radio, Television), the recent ones are Computer, Smartphones.

Components of ICT
Basically, there are six components of an ICT system. They are:
1. Data: Raw or unprocessed facts
2. Hardware: Physical components that can be seen and touched
3. Software: Computer applications and programs
4. Information: Processed data
5. Procedures: Processes and series of actions conducted to ensure computer programs run smoothly.
6. People: Human beings that develop, use, maintain and instruct computer to function
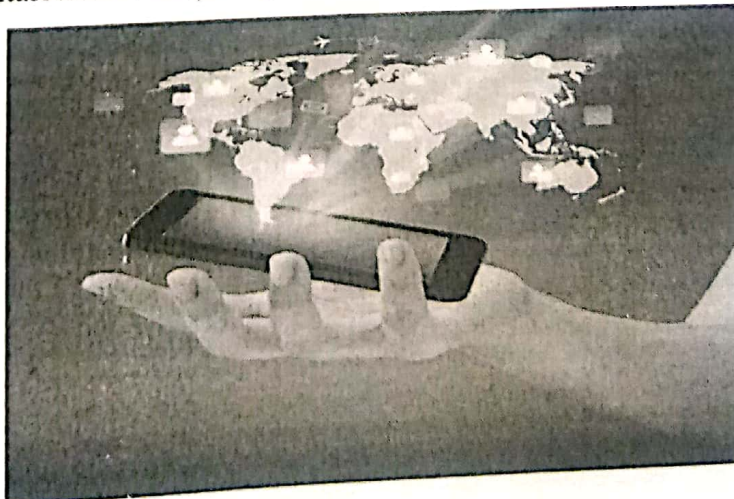
ICT Tools in Education

The application of specific information and communication technology tools that are relevant in education are briefly described as follows:

(I) **Audio Tools:** These are relatively easy, readily available and cost effective technologies that afford learners opportunities to decode learning content via their auditory sense organ. For education purposes, relevant audio contents can be packaged and accessed via mobile devices, social media platforms, compact disc and Mp3 and such content can be used with ease and everywhere. Learning contents and instructional guide can be recorded, radio programme can be scheduled and broadcast to students, and this can also be recorded for playback purposes later. Some of the facilities that support audio technology in teaching and learning process include radio set, mobile devices, compact disc player, mp3 player, and audacity software.
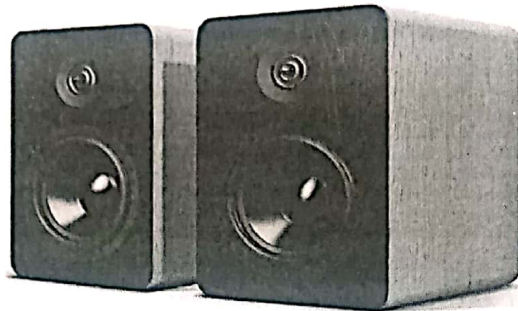

(ii) **Audio-Visual Tools:** Audio-visual ICT resources are effective means of presenting learning content to learners. It affords the learners opportunities to hear and at the same time see the content being studied. Television programs, recorded videos and computer-based programs are all effective technologies that can be used to disseminate and support learner's studies. Learners can watch live television broadcast, record and playback video learning content. Audio-visual technology is also relatively not expensive and not difficult to use by learners. Television set, computer, mobile devices, social media platforms, cable television programs, video players are some of the facilities required for successful utilization of audio-visual technology in teaching and learning process.

(iii) **Mobile Tools:** Mobile devices are hand-held and portable and are useful in teaching and learning process. They include devices like Android, Smartphones, iPad, Tablet and Personal Digital Assistance (PDA).

(iv) **Social Media Tools:** There are several social media platforms and networking sites which people use to interact with one another. Such platforms can also be effectively used to facilitate interaction among learners, and also between them and their teachers if proper care is taken. Facebook, WhatsApp, Twitter, Youtube, Instagram, SnapChat, Linkedin and several others can be used for synchronous and asynchronous interaction with regards to learning content in education.
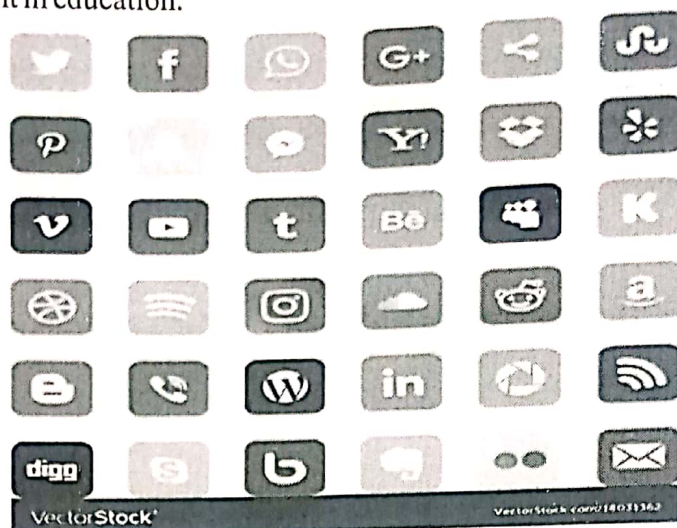

(v) **Live Streaming Tools:** Live casting or live streaming is used to describe the process of transmitting real-time live video and audio over the internet. With internet facilities and supportive encoding software downloaded on student's device, lecture presentations and demonstrations can be streamed to students on YouTube for instance.
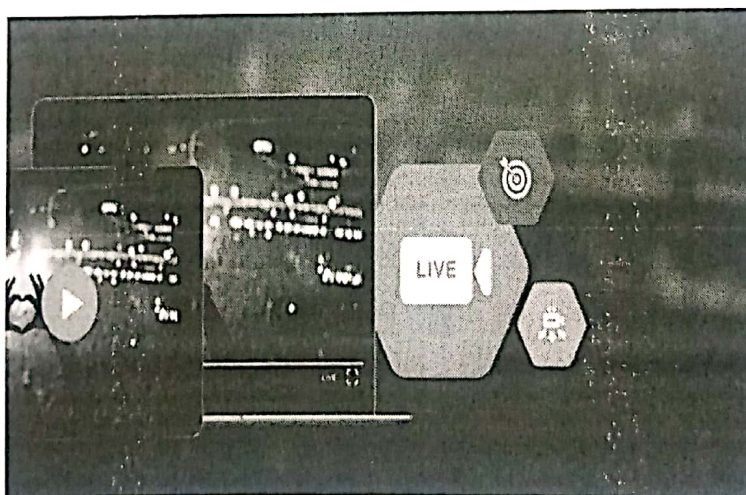

(vi) **Video Conferencing Tools:** This entails video interaction between two or more people from different locations through the use of telecommunication tools that synchronize and transmit both the sound and moving. This technology is useful in education as it allows teachers and learners to watch presentations and demonstrations, and simultaneously give a video chat face-to-face feedback from diverse locations. Skype, Google Hangouts, Oovoo, Anymeeting, Gotomeeting are some of the popular conferencing software.
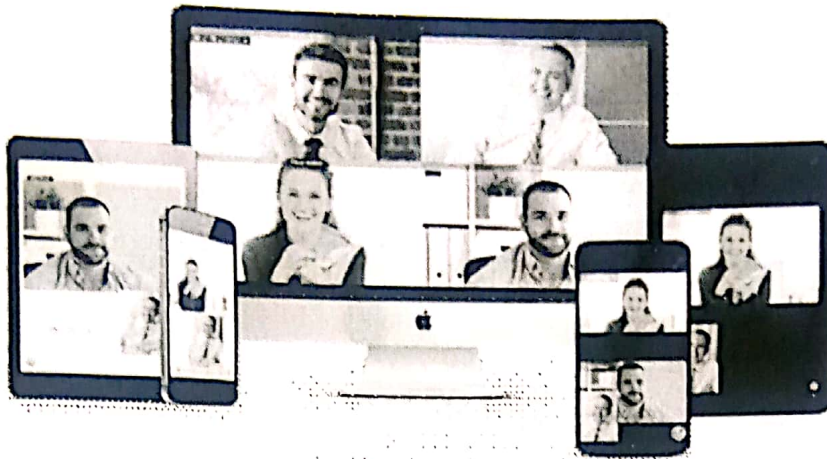
(vii) Computer Tools: Whether offline or online, computer hardware and software are used to encode and decode learning contents. Most computer supports the use of Compact Disc, DVD, Flash drives, Memory cards, downloadable and installable software and internet accessories that make independent study possible through the use of Computer Assisted Instructional Packages.
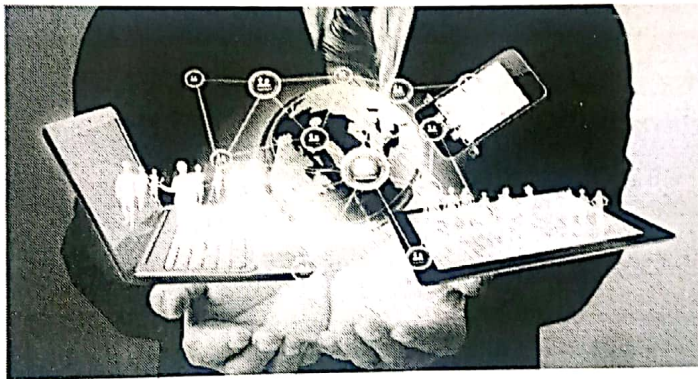
(viii) Internet/Online Tools: Through computer/mobile devices, web browser and internet connection, students can launch into the World Wide Web to source for materials and study online. They can also complete and submit assignment online. In addition, schools can have customized Learning Management System which are online based and with internet facilities, students can enrol, participate and be evaluated online.
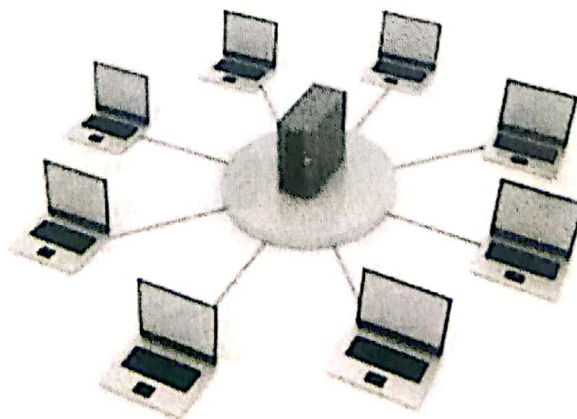
and audio content. Boyd and Ellison (2007) defined Social media as a web-based services that permit users to create apersonal profile, identify other friends on the same site, read and reply to postings made by other users on thespot, send and receive messages either privately orpublicly.

Social media allows people or group of people to freely express themselves and interact socially with others. When used in the educational environment, it allows students to learn in groups and in individual capacities in order for them to exchange views. It also enables teachers to use various approaches to solidify their teaching, giving its flexibilities and importance.

Social Media Platforms for Enhancing Teaching and Learning

Over the years, there has been a proliferation of social media platforms with new ones always coming up. Although, they are not primarily designed for teaching and learning but for social interaction and networking. Researchers in the field of education have, over the years, carried out several studies on the effectiveness of Social media platforms to teaching and learning and the results have been very promising.

Therefore, below are some social media platforms that can be used to enhance teaching and teaching:

1. **Facebook:** Facebook is the largest social media platform with billions of users worldwide. It was originally designed to accommodate Harvard University College students in the United States, but later, it turned worldwide. Although, it is a social networking site where people interact and make friends. However, over the years, it has been spread to cover many areas. It enables users to post updates, create groups and pages. Recently, Facebook has created a new feature that enables users to go live on video where others could follow and interact with one another. Over the years, Facebook has been used to enhance teaching and learning in the sense that Educators now use the platform to teach students. Teachers post updates either on their personal profile or pages or groups where students comment, share and exchange ideas amongst themselves, and with their teachers which encourages collaborative learning.

Facebook creates a very powerful learning environment for teaching and learning, especially for online instruction to effectively take place. Users of this platform subscribe to pages they like and join groups that interests them. Teachers, in this case, create pages and exchange ideas with students in a collaborative manner. It can either be live or at their convenient time. It is so flexible that teachers and students can exchange information privately in the chat box or messenger (Daraei, 2015). Teachers suggest the various platforms students can check in order to learn and interact. Facebook learning encourages active participation and collaboration.

2. **Twitter:** Twitter is one the fastest growing social media micro-blogging sites where users create profiles and send tweets to their audience. Users can add links from Facebook, Google, Youtube e.t.c. to their information so that others can be able to interact and retweet information. Twitter has a special hash tag feature that makes teaching and learning to be easy. With the help of a hash tag, teachers are able to narrow down their discussions to a specific theme, and the discussions can be followed by interested readers. Twitter encourages collaboration, engagement, active participation and stimulates interests which means students can post their questions where answers will be provided and interact with one another (Ally, 2012). In order to have an idea about the active engagement during the discussion, teachers can check engagements and make analysis of the number of audience that followed the discussion.

Conclusion

In this Chapter, the definition of ICT, its components and tools that can make teaching and learning worthwhile have been discussed. For ICT to maximally improve teaching and learning, specific tools must be put in place. These tools as well as strategies for effective use of ICT in schools were also discussed. There are various technologies that make information and communication a breeze. These devices are essential in our daily living.

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