

## EDUCATIONAL TECHNOLOGY FOR QUALITY INSTRUCTION

By

Dr. (Mrs.) Ann E. Umeh

Dr. Ahmed, Muhammed Sadik

And

Oboh, C.O.

### Abstract

*The roles of educational technology for quality instruction cannot be overemphasized. Educational technology is not a new trend in Nigeria owing to the fact that many people variously defined and 'described it as audio-visual aids, photography, teaching aid, graphic arts, information and communication technology (ICT), educational broadcasting (radio and television), computers etc. This variety in connotation of what educational technology is can be, appreciated if one realizes its effect in promoting quality instruction in teaching and learning process. This paper therefore explores some educational technology related instructional technologies that can be used for quality instruction in teaching and learning process. Some of these educational technology related instructional technology include still projection, equipment, (Animation), Computers, television, and so on. Conclusions were also made which include educational technology in all facets of life. Society can also be traced to the fact that it is an open strategy that embraces the value and quality of education in Nigeria and world in general.*

### Introduction

The term educational technology as it is relatively new in its own nature means different things to different people. To some, it is no more than a fashionable synonym for audio-visual aids. To others it has a wider connotation, implying an attempt to rationalize the whole structure of education and-training in terms of improved methods of allocating and using instructional technology to improve quality of education in Nigeria (Ahanna, 2011).

According to Genyson (2012) education technology is a "system approach to quality instruction, incorporating objectives, diagnostic testing, and criteria for student performance and the repeated-redesign of the curriculum materials until the criteria are achieved. He went further to say-that educational technology is a systems approach to the solution of any educational problem at a given time.

Thus, educational technology covers the whole process of education and aims specifically at the improvement of quality instruction for teaching and learning process. Davanus (2012) identifies three different educational technologies as applied to quality instruction. These educational technologies include: Hardware or high technology. It is

therefore the application of physical science and engineering to the problem solving in education. In view of this, educational technology is seen as a means of mechanizing or automating quality of instruction in teaching and learning process with certain.

### Advantages

Educational Technology can also be referred to as software, which stresses the importance of instructional aids and application of behavioral science to solve the problem of education. This is therefore the application of technology to the areas of curriculum, courses and instructional planning and development. This approach involves the identification of appropriate aims, goals and objective; the selection of relevant and suitable subject-matter; the choosing of effective and contrasting learning and teaching strategies, methodologies, activities and experiences as well as evaluation of not only the success of the learning outcomes but also the effectiveness of the strategies employed.

That is to say that educational technology embraces the whole curriculum process (Ezekwe, 2010). Educational technology is also a combination of the hardware and the software approaches of the other two technologies. It focuses deeply on the process as well as the products of teaching and learning. It is the application of systems analysis concept to teaching and learning but the major concerns are the quality of instruction and relevance of the overall learning and teaching experiences

### Still Projection for Quality Instruction

The main aim of quality instruction is directed toward achieving effective teaching and learning. Nowadays, teaching is learner-centered, and the emphasis is on educational technologies as against teaching -aids or apparatus which is an obsolete term (Philipe, 2010).

Some people refer to educational technology instructions as audio-visual aids or equipment while others referred to it as hardware and software. Hardware is the classification of all machines or equipment for extracting information or instruction from the softwares. The values of still-projection instruction aid are an effective means of communicating factual information and certain skills. A still projection instructional aid in a variety of subjects and grade levels has been effective in teaching and learning process. The effectiveness of still projection in teaching and learning has been demonstrated to be more dependent on the nature "and quality of the message presented than on the type of medium employed (Mavin 2011). According to victor (2011), effective instructional materials are carefully designed or selected to achieve clearly identified and specific objectives, although all still-projection devices permit detailed

analysis of each image by holding it on the viewing for as long as necessary, it may occasionally be desirable to show several images in rapid succession to provide overview or review. Furthermore, such subjects as remedial reaching and arithmetic can employ flash view of single images to advantage. If the speed of presentation is desirable for the instructor's purpose, a filmstrip may be the wisest choice, provided that it fulfills the criteria demanded by the learning situation.

According to Becky (2012), once the instructor has decided which projection and other materials he will use with his class, he must know how to present them in such a way as to impart their content effectively to the learner. He maintained that, in using still-projection for quality instruction, planning and execution teaching situation should be effective. Instructor should bear in mind that the learner should not only learn the information and concepts involved, but should also be able to apply them accurately and creatively as a result of the experience. If the use of the still-projection materials is to achieve these goals, the instructor must actually consider not only the presentation but also preparation for the experience and effective teaching and learning as well as follow-up activities.

#### **Animation for Quality Instruction**

In solving the problem of how to show visually how mountains, valleys, and seas have been formed, the film instructor may rely on a series of carefully drawn visualizations made to move progressively and thus reveal their meaning. In some cases, the visualizations consist of photographs of a model, the parts of the model are moved a tiny amount between photographs, and when the pictures are rapidly projected, the model moves (Houser 2011). Animation is a process used to visualize what is inaccessible, hypothetical, or theoretical. Ordinarily the instructor selects such animated film learning experiences when learners encounter learning problems or concepts which require explanations which are beyond their ability to observe directly. Animated visualization can be employed with great effectiveness in explaining theories, future hypothetical possibilities. It is extremely useful in demonstrating, with motion, molecular structures, chemical reactions and the complicated processes involved in photosynthesis in plant or the change of plant life to coal and fossil structures.

In teaching and learning space travel and communication, animation can effectively be used in visualizing such complex problems in space. In most schools today, animations are increasingly used as effective educational technology device that can be used by the teacher in explaining difficult science concepts. When the teacher wishes to clarify the nature of the molecular structure and action or the logistics of space probes

and lunar landings' or human reproduction, animated films are available which present information in forthright, simplified, and under-standable manner (Smith 2010).

According Jack (2010), using animated film, it virtually explain anything that exists in man's mind though, there are many animation techniques available that cannot be well and efficiently taught by an instructor.

#### **Computer for Quality Instruction**

Computer as a subject of quality instruction in our society today has been phenomenal. The expansion of the computer into the Nigerian schools has influence on virtually all walks of life and clearly will increase even more and more as time goes on. Therefore it is not surprising that computer have become an important part of the curriculum, not only in higher education but also in secondary and primary schools. Departments of computer or information communication technology have developed rapidly in our universities during the past decade. Students can specialize in the field and many do, but large numbers from other departments study computer languages and applications so that they can make use of them in their own field of work.

A fourth general type of computer use in instruction is the handling and processing of information so that it can be called upon by the learner, teacher, instructor, counselor or researchers as needed (Coushe, 2011). Although computer have the capacity of storing and retrieving larger masses of information on any subject desired. One of the areas in which the information handling capacity of computers is being used to advantage is counseling and guidance. Whether a machine can in fact be programmed to counsel is still an answered question, but there is no question that the data storage and processing capacity of computers cannot be a tremendous aid to both learners and instructor.

According to Patrick (2010), there are varieties of legitimate instructional uses for computer in teaching and learning and learning process. These can be conveniently classified into four groups: drill and practice teaching and learning method, tutorial and dialogue teaching and learning method, simulation and gaining teaching learning method and also aids for information dissemination. He maintained that typically, the student sits at a specially designed electric typewriter which is connected to a computer by telephone lines, he identifies himself by a code number and his name, the machine type out the First question, he types the answer and the lesson is under way. In drill and practice teaching and learning method, the computer after printing out each problem, positions the typewriter to accept the response in a blank. The fact that the computer goes on to a new problem tells the learner he has

answered correctly. In this drill and practice method, the students' responses are underlined drill and practice teaching and learning method is one of the simpler forms of computer uses in instruction, but you can readily see, the availability of such drill and practice exercises on a computer terminal could materially relieve the teacher of having to administer such work himself. More important, it would make unnecessary much routine paper marking and record keeping since the computer keeps track of each student's performance and can read back to teacher a summation of each students work whenever he wants it. Whenever the students' work makes an error, the computer immediately calls it to his attention, the student then knows that he should try again, depending on the programme in the computer after predetermined number of wrongs the student might be referred or branched to a remedial exercise if necessary. Another legitimate instructional uses for computer in teaching and learning process is tutorial and dialogue. Tutorials program is different from drill and practice method in that the subject content is literally taught by the computer program. In fact, in designing computer programs of instruction, learning task and specification of objectives must be used. In well-designed tutorial lessons, there exist effective interaction between the learner, the lesson and teacher. In this case the student respond to computer presented questions or directions can be drawn or written with a light pen in some cases and when the remedial assistance is needed in a computerized learning situation, the computer call the teacher.

#### **Simulation and Gaining, A Teaching and Learning Method**

Computers are also useful in simulation and gaining exercises. Simulation and gaining exercise constitute broad area of instructional method. Eldson (2010) reported that simulations with some of the real elements removed for such reasons as safety driver or pilot training. Games are employed in many simulated exercises in order to introduce an element of competition for teams' individuals. Simulation and gaining a teaching and learning method is an effective quality of instruction. He went further to say that computer simulation and gaining method of instruction is effective in biology, chemistry, earth science, physics and social studies, because they are used to enrich existing experiments and other classroom activities. They are also used to provide experiences which would otherwise be impossible to achieve within the high school classroom. In addition, simulation and gaining method of instruction provide cognitive learning and practice in decision making skills as well as theoretical test of hypotheses in quite abstract situations.

#### **Television for Quality Instruction**

For years, teachers have known much more about what audio-visual tools they should have to provide needed classroom teaching learning experiences than they have known tools. Films, models, slides, projectors, charts, demonstration equipment, all these abound, yet ironically, they are often very hard to acquire for classroom use (Bower, 2011). According to Thomas (2011), educational television at its best, has overcome much of this inaccessibility problem by serving as a tremendously effective carrier of needed learning experiences that have long been associated with the audio-visual field. He went further to say that, during any one well-planned and well-presented series of school television programs, lessons may be communicated through the' interrelated use of film clips-selected short but useful segment of 16mm films-chalkboard illustrations, slides, models, specimens, experiments or demonstrations and short segment of tape recordings. Any or all of these may be referred to or explained by expert quests or by outstanding teachers who guide the course of television lesson. Thus educational television can make available learning experiences that most teachers quickly realized odd efficiency to classroom instruction.

Instructional television production crates many opportunities for cooperative planning by teachers, supervisors, learning materials experts and skillful TV production teams (Frank 2012). Frank went further to say that instructional television at its best results from the combination of careful curriculum planning, subject content analysis, and the selection and interrelated use of the most appropriate instructional technology. The evaluation is invariable engage in as teachers integrated the television programs into the stream of classroom instruction. As the teachers and students discuss and use television, they quite naturally evaluate the quality of the content, it's appropriative to the age of the learners, and the clarity 'with which understandable and useful' information and skill understandings are communicated. On the basis of such evaluations, teachers, subject experts, and ITV producers continue their recycling or revisions aimed at further improving television lessons, as well as plans for their use (Robert, 2012). Throughout this cycle production, classroom utilization, and evaluation, the weaker links in any television series are gradually replaced by more effective teaching demonstrations until finally the best instruction through television is realized.

#### **Conclusion**

Educational Technology for quality instruction should be effectively managed and thought of as multimedia learning technologies that serve as a carrier vehicle for needed and useful sub-channel. In view of this, it is very essential that teachers should

improve upon the educational technology instructional materials especially instructional aids relevant to the content of instruction to promote effective teaching and learning process in our educational system

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