
ROLE OF COMPUTER ASSISTED INSTRUCTIONS IN TEACHING AND EDUCATION**DR. PAWAN KUMAR***ASSOCIATE PROFESSOR IN EDUCATION, GURU NANAK College of Education,
DALEWAL, HOSHIARPUR*

Abstract

Education and teaching is an abstract subject and symbol occupies an important position. Computer technology holds promise for improving student achievement and teacher quality in educational programmes at all levels. Computer assisted instruction is an effective method for teaching visually oriented subjects such as ultrasonography. Teaching objectives should be carefully defined and resources for development identified. Education has always been important but perhaps never more so in man's history than today. It also reviews general learning issues such as learning styles and strategies, learner autonomy and the factors that affect the efficiency of the learning process. CAI is a supplementary instructional strategy in effective teaching. In this research paper mainly focused on uses of computers in education system and importance of computers in teaching and education life. CAI is that in which teacher use computers at different times and spaces according to the characteristics of the subject matter, the students and the available software and hardware.

Keywords: *Education, computer assisted instructions, teacher and efficiency.*

Introduction: "Computer-assisted instruction" (CAI) refers to instruction or remediation presented on a computer. Many educational computer programs are available online and from computer stores and textbook companies. They enhance teacher instruction in several ways.

In education, we use the computer for teaching/learning and the management of education. The use of the computer for teaching/learning is referred to as Computer Assisted Instruction (CAI). Its use in the management of education is called Computer-Managed Instruction (CMI). CAI is an automated instructional technique in which a computer is used to present an instructional programme to the learner through an interactive process on computer. It is an instructional technique in which the computer instructs the students and the computer contains a stored instructional programme designed to inform, guide, control and test the students until a prescribed level of proficiency is reached. Computer-assisted instruction improves instruction for students with disabilities because students receive immediate feedback and do not continue to practice the wrong skills. Computer-assisted instruction (CAI) is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place. Computer-assisted instruction typically involves various subjects and the ways in which computers can be used to best assist in learning those subjects. This includes English, mathematics, science, and history that can all be enhanced beyond traditional classroom lessons by learning through the use of computer systems. Computer-assisted instruction can also be used to assist students who may have special needs for learning

Objectives:

The following are the objectives of this study:

1. The main objective is study of computer uses in education and teaching.
2. The second main objective is study of effect of CAI on education and teaching.
3. The study of various functional aspects of CAI.

METHODOLOGY:

The present paper is based on the Computer Assisted Instructions in teaching and education .The paper is

theoretical in nature. For the purpose of the study, some literature relating to Computer assisted instructions in teaching and education has been studied. Various research papers, newspaper articles, books, journals and websites have been consulted.

Role of CAI in Education: A great deal of research has been conducted during the 1970s, 1980s, and early 1990s on the effects of computer use on student achievement, attitudes, and other variables such as learning rate. The use of computers in education started in the 1960s. With the advent of convenient microcomputers in the 1970s, computer use in schools has become widespread from primary education through the university level and even in some preschool programs. Instructional computers are basically used in one of two ways: either they provide a straightforward presentation of data or they fill a tutorial role in which the student is tested on comprehension. This research covers a wide range of topics, from computerized learning activities which supplement conventional instruction, to computer programming, to computerized record keeping, to the development of databases, to writing using word processors, and other applications. The research on the effects of computer usage on a large number of outcome areas were conducted, including, mathematics, language, arts, reading, science, problem-solving skills, and health and social studies. Well-designed and implemented tutorial CAI, used as a supplement to traditional instruction, produces an educationally significant improvement in students' final examination achievement. Similarly, instruction proceeds on the basis of:

1. Each learner's achievement at every stage;
2. Available instructional alternatives and
3. Set criteria of competence.

How is CAI implemented?

Teachers should review the computer program or the online activity or game to understand the context of the lessons and determine which ones fit the needs of their students and how they may enhance instruction.

- Can this program supplement the lesson, give basic skills practice, or be used as an educational reward for students?
- Is the material presented so that students will remain interested yet not lose valuable instruction time trying to figure out how to operate the program? Does the program waste time with too much animation?
- Is the program at the correct level for the class or the individual student?
- Does this program do what the teacher wants it to do (help students organize the writing, speed up the writing process, or allow students to hear what they wrote for editing purposes)?

Teachers should also review all Web sites and links immediately before directing students to them. Web addresses and links frequently change and become inactive. Students might become frustrated when links are no longer available.

Writing programs are beneficial to writing instruction because they allow students to learn in a variety of ways and can speed up the writing process. With proper training, students can learn to focus on the message instead of the mechanics.

Effect of CAI on teaching and education:

1. Using computer applications increases the student's motivation for learning Management. This method for teaching and learning Management catch the attention of the students and increase their interest for learning Management.
2. Using computer applications develops the student's process of thinking critically; using computer applications creates the opportunity for students to be active in class, and not passive.

3. Using computer applications creates the opportunity for students to solve different case studies, to change the variables in these case studies and to see the results of these changes. Using computer applications prepares the students for the knowledge-based society and economy which cannot be understood nowadays without computers in our day-to-day life; using computer applications contributes to the student's engagement in the process of learning Management.
4. The use of computer applications in the process of teaching and learning Management is showing to the students some experiences where they acquire not only technological proficiency but also balance between their designs and depth of knowledge.
5. Teachers should focus their efforts to ensure that students are given opportunities to work collaboratively with electronic knowledge-creations tools in their learning process to enhance their learning.
6. The use of computer applications in teaching and learning Management could have also negative effects. The computer applications used might not work properly, or they might not work at all in some cases, or they might conduct to the wrong results in terms of logical thinking if they are in their first stages of development.

Functional aspects of CAI:

CAI according to Kelly, 1987; Locked, Abrams & Many 1997; Petrakis, 2000; Volker, 1987 can be classified into five categories in terms of functional aspects: they are;

有 Drill and Practice

有 Tutorials

有 Simulations

有 Instructional games

有 Problem Solving Programs.

Drill and Practice

Drill and practice is one of the better-known types of instructional models used in education. This type of program helps learners to remember previously taught subject matter and the computer program provides information on a specific topic by asking a series of questions. Drill and practice program emphasizes content that has already been covered rather than new material. In this process, mastery of learning is an important key element and the learner must reach a level of proficiency to progress to the next problem or level. Math Blaster, Mental Math Games, Math Wizard, Scholastic Math Shop Series, and Punctuation are good examples of drill and practice programs in CAI. Drill and Practice can be used to solve problems such as reading, writing and spelling, library and research skill. In the case of Drill and Practice, the computer provides the students with exercises that reinforce the learning of specific skills taught in the classroom or by that same program and supply immediate feedback on the correctness of the response. Drill and Practice may also be used to motivate students more than the traditional workbook exercises.

Tutorial Programs

The main purpose of tutorial programs is to tutor or instruct. Although this type of program is similar to drill and practice programs in many ways, tutorial programs provide new material to the learner, by presenting information, asking questions and giving feedback. In this process, the learner has a more active role via question and answer. The learner has more opportunity in this system than just entering the answer. After each answer, the computer reviews the question or questions asked in different way. In addition to this, the program may track the progress of learner and change the difficulty of questions based upon the learner's previous performance. In addition to providing students with practice exercise, tutorial in CAI provides

some information and clarify certain concepts. In this sense, the computer takes over actual instructional functions that are tailored to the students' level of achievement.

Tutorials also can be further classified into linear and branching types. In linear tutorials, all students follow a single pathway. Every student must answer the same questions in their own pace regardless of performance outcome.

Simulation Programs

Simulation programs are interactive models about a phenomenon or an event that provide an opportunity to manipulate variables. Thus, a student reads or learns a new scenario and implements his/her decision based on the information given. Then, the simulated environment changes based on these decisions

Simulations can be defined as the most sophisticated CAI programs because the computer provides a wide variety of pathways and the learner takes an interactive role throughout the simulations. Simulation programs are very helpful in situations where the real event or learning environment is dangerous to manipulate in a classroom environment. Thus, students are confronted with real-life situations in a safe interactive learning environment. One of the basic ideas of simulation in education is to provide a discovery-learning environment. There are a wide variety of simulation programs available.

Instructional Games

Instructional games provide content in a game environment. Sandino et al. (2005) defines game as —...an activity in which participants follow prescribed rules that differ from those of real life as they strive to attain a challenging goal. The main purpose of the game is to teach and reinforce the content. This process is determined by a set of rules and the learner must be very competitive to reach target outcomes. Hensch, Molenda, and Russell (1982) describe a game as an activity in which players strive towards the attainment of a goal within prescribed rules. An instructional game is directed towards achieving a specific instructional objective (Onasanya and Adegbija 2007). One of the main advantages of games is their use of sounds and graphics to provide a fun learning environment. Thus, games may serve as motivation device if they are selected carefully for instructional objectives. Moreover, educational game software offers a wide range of learning outcomes and it involves the learner in active mental preparation. Tennis and Golf games are good examples of instructional games.

Problem Solving Programs

Problem solving programs emphasize the development of critical thinking skills. This program provides information and data that can be used by the learner to determine the answers to problems. The main idea of the first problem solving programs was to create an environment in generic problem solving skills and then transfer this ability to other problems. Trial and error, elimination, and pattern searching are some examples of the first problem solving programs. Recent programs place much more emphasis on attention, concepts, and procedures to solve specific problems.

Advantages of Computer Assisted Instructions in education and teaching:

- (1) **Immediate feedback:** The immediate feedback provided by interactive terminals keeps students interacting and eager to keep trying.
- (2) **Active participation:** Even weaker students are obliged to participate actively. They often remain passive in lectures.
- (3) **No annoyance:** The computer will wait patiently for an answer and does not express annoyance with wrong response.
- (4) **Graphics facility:** Interactive graphics make it possible to sample many more illustrations that could easily be shown in a textbook.

- (5) **Mathematical calculations:** Mathematical calculations can be done as readily for realistic examples as for artificially simple class that can be solved analytically.
- (6) **Accurate data:** Large volumes of data can be handled with accuracy and without drudgery.
- (7) **Enrichment of course:** The novel technique provides enrichment of course through added variety.

Conclusion:

CAI is an automated instructional technique in which a computer is used to present an instructional programme to the learner through an interactive process on computer. This research covers a wide range of topics, from computerized learning activities which supplement conventional instruction, to computer programming, to computerized record keeping, to the development of databases, to writing using word processors, and other applications. The mainly involved functional aspects of CAI like tutorial, simulation and instructional programmes etc. Computer-assisted instruction refers to a form of learning that utilizes computers, and is typically intended as a way to supplement traditional teacher-based learning. Today the CAI is very important aspect in education and teaching because the teaching process is also online available and specially developed the concept of E-Commerce.

Reference:

1. <http://www.wisegeekedu.com/what-are-the-different-types-of-computer-assisted-instruction.htm>
2. <http://edutech202.blogspot.in/2012/12/computer-in-education-computer-assisted.html>
3. <http://edutech202.blogspot.in/2012/12/computer-in-education-computer-assisted.html>
4. <http://www.ima.umn.edu/~arnold//papers/cai.pdf>
5. http://wikieducator.org/Computer_Assisted_Instruction_%28CAI%29
6. <http://www.colorincolorado.org/article/22028/>