

# Application of artificial intelligence in educational scenario: computer assisted instructions (CAI) - a tool for improving teaching learning process

<sup>1</sup>Ambily Merlin Kuruvilla, <sup>2</sup>Dr. John T Abraham

<sup>1</sup>Assistant Professor, <sup>2</sup>Professor

<sup>1</sup>Department of Computer Applications, <sup>2</sup>Department of Computer Science

<sup>1</sup>Saintgits College of Applied Sciences

<sup>2</sup>Bharata Matha college

**Abstract:** The growth in information technology rapidly changed the world. The growth of e-Learning technologies implies the fact that the future education system will largely depend upon the electronic devices and computer aided technologies. Normally Computer aided teaching techniques are much more effective for the children than the traditional teaching systems. The purpose of this study is to enhance teaching quality by using computer-assisted instruction (CAI). All educational program including syllabus, methods of teaching, evaluation etc... are meant for satisfying the needs and requirements of average students, the major population of the society. Under such conditions, the categories of students namely gifted students, slow learners and educationally backward students etc...would not get suitable facilities for satisfying their needs and requirements. Indirectly they are wasting their time and effort by attending the formal class. The growth of e-Learning technologies implies the fact that the future education system will largely depend upon the electronic devices and computer aided technologies.

## Introduction

Computer programs are interactive and can illustrate a concept through animation, sound, and demonstration. E-learning is a term generally used to refer to computer-enhanced learning, although it is often extended to include the use of mobile technologies such as PDAs (personal data assistant) and MP3 (digital audio) players. It may include the use of web-based teaching materials and hypermedia in general, multimedia CD-ROMs or web sites, discussion boards, collaborative software, e-mail, blogs, computer aided assessments, educational animation, simulations, games, learning management software, etc.. With possibly a combination of different methods being used.

Different types of computer assisted instructions.

1. Drill-and-practice: This method provides opportunities for students to repeatedly practice the skills that have previously been presented and that further practice is necessary for mastering the tools.
2. Tutorial: This method includes both the presentation of information and its extension into different forms of work, including drill and practice, games and simulation.
3. Games: Game software always creates a contest to achieve the highest score and either beat others or beat the computer.
4. Simulation: This software can provide an approximation of reality that does not require the expense of real life or its risks.
5. Discovery: This approach provides a large database of information specific to a course or content area and challenges the learner to analyze, compare, infer and evaluate based on their explorations of the data.
6. Problem Solving: Problem Solving helps children develop specific problem solving skills and strategies.

These types of instructional packages can be effectively used for various classifications of learners to suit their requirements. Computer programs are interactive and can illustrate the concept through animation, sound, and demonstration. By integrating artificial intelligence tools we can allow students to progress at their own pace and work individually or problem solve in a group and the system provide immediate feedback, so that the students can understand whether their answer is correct. If the answer is not correct then the program shows students how to correctly answer the question. Computers offer always offer a different type of activity and this will change of pace from teacher-led or group instruction.

If the computer has a tutorial program, then the system can ask a question to the student; the student types in an answer and then gets an immediate response to the answer. If the answer is correct, then the student is routed to more and strong challenging problems; if the answer is incorrect, various computer messages will indicate the flaw in procedure, and the program will bypass more complicated questions until the student shows strong knowledge in that area. This method is very effective for learners because according to their learning ability they can move to harder areas. CAI usually Provides the following pattern of study materials.

1. Text or multimedia content
2. Multiple-choice questions
3. Problems
4. Immediate feedback
5. Notes on incorrect responses
6. Summarizes students' performance
7. Exercises for practice
8. Worksheets and tests.

### **Instructional Methodologies**

Computer plays a major role in the field of instructions. Computer assisted instructions, interact directly with the learners while presenting lessons.

- 1) Tutorial Mode - In tutorial information, is presented in small units followed by questions. The response is analyzed by the computer and always give appropriate feedback to the students. A network of branches or pathways can be programmed to each. The students are allowed to work on their own pace.
- 2) Gaming Mode – This mode may or may not be instructional but it is recreational. Sometimes learning takes place through games. This mode is especially meant for young children.
- 3) Simulation Mode – Here the pupil faces scaled down approximation of a real life situations.
- 4) Problem Solving Mode - problem solving can be readily achieved provided the typical computational capability of the computer is available and there is a typewriter and display response device with remote control of two-way communication. The students should study how to communicate with computer and how to solve his problem. Hence, the computer assisted instruction may be defined as the use of a computer as an integral part of an instructional system, the learner generally engaging in two-way interaction with the computer via programming.

### **Benefits of CAI.**

- (1) Feedback: The immediate feedback provided by interactive terminals keeps students interacting and eager to keep trying.
- (2) Participation: Even weaker students are obliged to participate actively. They often remain passive in lectures.
- (3) Annoyance: The computer will wait patiently for an answer and does not express annoyance with wrong response.
- (4) Graphics: Interactive graphics make it possible to sample many more illustrations that could easily be shown in a textbook.
- (5) Mathematical computations: Mathematical calculations can be done as readily for realistic examples as for artificially simple class that can be solved analytically.
- (6) Accurate data: Very large volumes of data can be handled with accuracy and without drudgery.
- (7) Enrichment of course: This technique provides enrichment of course through added variety.

CAI brings several potential benefits as a teaching/learning medium. These include self-paced learning, self-directed learning, also the exercising of various senses and the ability to represent content in a variety of media.

In the case of a self-paced learning, learners can move as slowly or as quickly as they like through a program. If they want to repeat some task or review some material again, they can practice it as many times as they choose. The program will not complain about repetitions. Learners can skip over a topic if information is already known, to make the learning process more efficient.

With self-directed learning, learners can decide what they want to learn and in what order they want to learn. Learners have different learning styles and strategies. Various studies have shown that when learners can learn in a way that suits them, which help them to improve in the effectiveness of the learning process.

Human beings are similar to multi-sensory animals. The more senses through which we receive information, the easier it is to remember. According to Fletcher (1990), people remember 20% of what they hear, 40% of what they see and hear and 75% of what they see, hear and do. The fact that the computer can exercise various senses and present information in a variety of media will enhance the learning process.

If the computer has a tutorial program, the student is asked a question by the computer; the student types in an answer and then gets an immediate response to the answer. If the answer is correct, the student is routed to more difficult and challenging problems; if the answer is incorrect, various computer messages will indicate the flaw in procedure, and the program will bypass more complicated questions until the student shows a through knowledge in that area. This method is very effective for learners because according to their learning ability they can move to more harder areas.

### Recommendations

CAI tools, such as word processors, spreadsheets, and databases helps to collect, organize, analyze, and transmit information. These tools facilitate communication among students, between students and instructors, and beyond the classroom to distant students, instructors, and experts. The presence of computers only does not improve student learning. Computers have the potential to use the tools to improve learning; however, it is the responsibility of the teachers to choose software that meets the needs of the students.

Educators can tap into this interest by using technology to deliver instructions. Computer learning systems always provide educators the opportunity to create lessons in a variety of alternative formats. This supplement is useful to the students, especially to the slow learners and those who are absent in the class, during the content is taught. They can refer repeatedly until they understand thoroughly this facility, which is absent in the traditional method. Ultimately quality of teaching is essential in any mode of instruction.

### Conclusion.

Compensatory teaching is an instructional approach that alters the presentation of content to improve a student's fundamental weakness or deficiency.

This may involve modifying an instructional technique by including a visual representation of content, by using more flexible instructional patterns like films, picture and illustrations, or by shifting to alternative instructional format (self-spaced texts, simulations, experience-oriented workbooks etc...)

CAI tools, such as word processors, spreadsheets, and databases helps to collect, organize, analyze, and transmit information. They facilitate communication among students, between students and instructors, and beyond the classroom to distant students, instructors, and experts. These patterns will help the student especially for the slow learners to improve the capacity of learning.

So computer assisted instruction is a very effective tool for teaching and learning process. It can be used as a remedial measure for slow learners. CAI involve in modifying an instructional Technique by including a visual representation of content, by using more flexible in technique by including a visual representation of content, by using more flexible instructional presentation.

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