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COMPUTER ASSISTED INSTRUCTION AND IS APPLICATION MODES

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Abstract

Computer assisted is an aspect of hardware approach or educational technology first. It is used for presenting instructional material automatically according to the entering behavior of the learner. Both the linear and branching type instructional material can be displayed by computer assisted instruction. It is used for cognitive as well as psychological objectives. It is used for teaching and instruction, providing guidance and counseling tutorial instruction, preparing examination results and processing the research data. It covers the wider range of individual differences. Thirty types of individual various are facilitated through computer assisted instruction. The most excited innovation in the educational technology is the computer assisted instruction which ids in infancy stage at the movement but the day is not far off when it will revolutionize the whole process of instruction. There are three levels of application of CAI such as drill and practice, tutorial and dialogue. But these easily software package of CAI for education were mainly text based and used for simple graphic. Hence computer assisted instruction is the use of computer to interact directly with the students for learning and testing student`s achievement

Key Words: *Education, Computer Assisted Instruction, Drill and Practice, Tutorial, Simulation and Modelling*

Introduction

Education is the only vehicle through which a society adjusts with its needs. Therefore society cannot be enriched without imparting education. So education plays an important role for human being becoming good citizen. We know, teaching learning process has been inseparable to human being since the dawn of civilization. The leaders of present scenario thought have endorsed memorable words about education, knowledge and learning. The educational system explicitly based on the quest, **"What to teach"** and **"How to Teach"** What to teach means the learning materials and on the hand How to Teach means the mode of transaction of the teaching – learning experiences, i.e the methods and the moderns approach of teaching. The continuum of learning materials, methods and approaches of teaching is a paradigm shift which swings from linguistic to scientific knowledge. Although various innovative techniques, modern sophisticated technologies are used in the areas of methodology of teaching like, Personalized System of Instruction, Programme Instruction (PI), Computer Assisted Instruction (CAI) as individualized system of instruction, but at present among all those CAI has got immense position in the field of education.

Computer assisted instruction (CAI) is a concept of almost unparelled importance for education today. It is also a concept like a new born baby that is still developing and that is therefore difficult to bring into focus, the terminology of computer assisted instruction is in a constant state of flux. Terms frequently used to describe this area are parts of a computer assisted leaning (CAL), Computer Based Education, Computer based instruction (CBI), e-learning Technology (e-LT) and many others.

Computer Assisted Instruction is also known as electronic brain because it takes decision about the instructional material according to the needs of the learner. It is an aspect of hardware approach or educational technology first. It is used for cognitive as well as psychological objectives.

The computer assisted instruction is used here as a generic term encompassing the full spectrum of computer application in teaching. Hence computer assisted instruction is the use of computer to interact directly with the students for learning and testing students' achievement.

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The most excited innovation in the educational technology is the computer assisted instruction which is in infancy stage at the movement but the day is not far off when it will revolutionize the whole process of instruction.

A computer is a super teaching machine catering to the needs of a large number of students at the same time. The CAI has the capacity to initiate flexible interactions with the students in a number of ways. The computer records & stresses all the responses of all the students and on the basis of the recorded information decide what information is given to their students next. It can help students and on the basis of the recorded information decides what information is given to their students next. It can branch not just in terms of one answer but also in terms of whole series of previous answers. It can record the time taken by a student to answer a question and the degree of correctness of his response.

A computer is a programmed with linear or branching programmes. Computer Assisted Instruction is not merely a sophisticated type of programmed instruction as well as electronic data processing, data communication, concepts of audio-visual and media theory, communication theory, system theory and learning theory.

In the CAI, the student is seated in the learning booth which is fitted with a console. The television screen faces the student on which information is displayed. Before the students start a programme, he displays his identity number and in this way is connected with his part of the learning programme. The information stored in the system is presented sequentially. This information could take the form of video- tape recording, slides. Motion picture, films, film strips etc. The student may ask questions to the computer and feed his answers into by means of

typewriter key board. The computer responds by printing out comments, answer and question. When the student has finished, the computer assigns him the next programme, records his progress and prints out a report for his computer. The CAI starts by identifying the way a student seems to learn best. It reviews his past history of learning and then presents a programme built on his strength. The computer stores all information gained from the earlier students using it and re-analyses the teaching strategies. The effective strategies are continued and ineffective are rejective.

The computer can prove an effective device in the instructional process in Drill and Practice where the computer puts the questions & the student responses by talking to him. A form of dialogue takes place between students and machines. Simulation and games are also the instructional areas where computer is helpful. Guidance and counseling is perhaps only second to learning where computer is very helpful to the students.

It may however be noted that CAI the teacher is not to be excluded from the class. It will give him relief from some of his routine work so that he may devote to areas like evaluation, planning curriculum revision, guidance and human relation.

Learning from computer encompasses approaches to computer assisted instruction in which the computer is used as a means for transmitting specific subject matter such as reading, the flow of information is basically from the computer to the student with the computer presenting learning material or activities for student responses. The computer retains records of the students' progress through the course of study. Based on the degree of interaction between student and computer, there are three levels of application of CAI such as drill and practice, tutorial and dialogue. But these easily software package of CAI for education were mainly text based and used for simple graphic. In the 21st century, the CAI software is much more sophisticated. Different combination of modalities, pictures, moving images, sound and text are integrated into electronic environments. An important development is the increasing possibility to distribute the CAI or computer applications not only via stand – alone computers but also in networked environment or via the World Wide Web www. The teacher involved is able to guide their students from remote location, creating new possibilities for distance education. As a whole, it can be said that there are several types of application modes of computer assisted instruction CAI designed for education.

Drill and practice

The computer provides the students with exercises that enforce the learning of specific skills taught in the class room and supplies immediate feedback on the class room instruction, and be especially useful when a teacher does not have time to meet individually with each student. Drill and practice on the computer may also motivate students more than traditional workbook exercise.

In drill and practice mode, the CAI uses the computer to present the learner with a series of exercises which he / she must complete by giving some response-answer. The computer processes that response (according to the rules embodied in its programme) to determine whether or not it is correct. It may then provide the learner with some feedback about the answer in the form of congratulations message if it was right or corrective comment if it was wrong with perhaps a non-committal message of the computer was unable to recognize the response. The exercises are specified in advance in their complete form or as templates which can be filled out according to a set of rules. Computer assisted instruction offer a means of providing endless drill and practice without repetition at a pace that can be controlled by the learner. It is possible to arrange that the nature of the exercises depends on the learners' progress and pointing out the mistakes at the time of drill and practice. This ability to tailor a drill and practice seem to the progress of each learner combined with helpful feedback can lead to more effective learning. The CAI on drill and practice mode is more effective on repeating instructional objectives on biology teaching (Meera and Balsubramanion, 2002).

Tutorial

On the third level of instruction, the computer is said to function like a tutor because it takes into account each student's difficulty and provides explanation and questions appropriate to his / her particular responses. A student might undertake a self imposed exercise. Just as human tutor correct assignments in a tutorial class, the computer can also correct the assignment. In this sense, the computer begins to take over actual instructional functions, tailored to the students' individual level of achievement. The recent taxonomies on the application modes of computer assisted instruction show that educators have a broad conception of computer's role in teaching. In such perspective, Taylor, for example described three major uses of computer as tutor, tools and tutee. Computer tutors are characterized by the structure. They impose on instruction. CAI

tutoring features- the nine instruction events as defined by Gagne. Like through human tutor the computer tutor (i) gain the learner 's attention (ii) stimulate the recall of perquisite information (iii) state the objectives of instruction (iv) present relevant stimuli (v) provide guidance (vi) elicit students performance (vii) provide feedback (viii) ensure the retentions and transfer of newly learned information. Computer tutor are most often used to teach specific facts, but some programmes teach cognitive skills by modelling the processes that the students are expected to learn however, drill and practice programmes are usually quite simple, while tutorials can be very complex (Watson).

Simulation

Both the tutorial and drill and practice modes of computer assisted instruction operate by providing information in a structured way according to rules specified by the tutor / author. Another facet of learning involves the student studying real life system or phenomena. These simulations are the representations of a part of reality. By manipulating variables in these representations and studying the effects, students can gain an understanding of reality. Through simulation, it may be possible to study parts of reality which cannot be studied for reason of safety, cost required apparatus or scale. Simulation can be an aid in visualizing abstract concepts. They serve as a bridge between reality and students mental model of reality. Simulations in the 21st century are not developed for education only, but also many have been made for entertainment purpose used at homes and outside the school content.

The CAI simulation sometimes is quite feasible, but there are some learning experiences which are not two too time consuming, too expenses, too difficult or too dangerous. Many simulations are already used in education and training to surrogate experiences when an investigation of real life situation is impractical. The CAI can be used to emulate a real life system by following a set of rules (a programme) which approximate the behaviour of real system.

Modelling

This mode of computer assisted instruction (CAI) is similar to the simulation mode in which both help the student to learn by working with an analogue of a real life system or phenomena expressed as a set of rules within the computer. However, where as in simulation the analogue is specified by the tutor, but in modelling it is the student who must construct the analogue. In effect, the student must "teach" the computer about the rule, so that it can emulate the real life

system in given circumstances and correctly predict the behavior of the real life system in new circumstances. The student learners through this process and demonstrate his or her mastery of the learning through the final by modelling. As with simulations, the technique. Of learning by modelling is not unique to CAI it is possible to devise system s of rules or equations which describes the behavior of the system to be studied and to test these model in new circumstances without using a computer. So with the modelling systems, student they may is can build their own (mathematical) model of a part of reality. In doing they may gain understanding of complcertain kind of teacher ex relations. Modelling systems generally do not have built in teacher – control while simulation offers a certain kind of teacher – control through the model, the display and the frame work of interaction. (Cox, 1994, Husan, et al – 1985, P-930.

Discussion / Dialogue: at the highest level of instruction the computer function like discussion of the subject matter of the programme between the student and the computer. With this type of CAI the student takes an active role in interacting with the computer, giving instruction in the form of computer language. The computer provides information so as to structure the student‘s own curriculum. The computer provides information exercise and feedback. First however computer must be built not only recognize the words student is speaking but also understand the meaning of the question, he / she is asking then the programme is written on the terminal of the computer closest to actually substantially for regular instruction (gourgey, Azumi, Madhere and Walker, 1984, Soe, et. Al – 2010, P-2).

Calculation

In early days of computers before their full potential for general information processing was realized, they were regarded principally as calculating engines. It was thereof national to use them a sophisticated calculators to relieve some of the numerical labor involved in learning in the numerical sciences and in statistics like the use of statistical package on social sciences (SPSS) software for research analysis. In practice, most CAI package use components of several modes and calculations facilities are often to be found in packages which are predominantly drill and practice, tutorial or simulations. A number of the larger general purpose of CAI systems provides student with a “ calculation Mode “ which he/she can select in the middle of the tutorial sequence to help work out some numerical results.

Locus of control

The various CAI modes are arranged along the dimension of a locus of control. Thus, although the tutorial and drill and practice mode have certain similarities of style, they may be distinguished by the measure of control that the student must fellow preset routes through the exercises devised by the tutor. In the tutorial mode, he / she rather more and tutor has rather less control. A similar distention can be drawn between simulations and modeling when the locus of control is strongly external to the student but the tutor is in control. When the locus of control is strongly internal to the student, ie. He / she is control and the tutor takes on a facilitating rather than in prescribing.

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