Department of Education, Patna University
Course No-C.C8
Unit-2, Learner Centred Instructional Techniques/Methods :
E content by :   Swarnika Pallavi
                  Research Scholar
                  P.G. Department of Education
                  P.U.

Computer Assisted Instruction

➢ Objective : After going through this topic, students will be able to :
- Understand the concept of CAI
- Analyse the uses of CAI

➢ Content
- Introduction
- Meaning
- Aims
- Characteristics
- Types
- Advantage
- Limitation

Introduction

The age of computer is dawning in schools. It is taking over the world swiftly and surely. It is quite a jump-from traditional teaching-reliance on textbooks-to the computer use. The computers serve a dual purpose. They expose students to modern technology while inculcating in them a new and scientific approach to learning.

The most striking innovation in the field of educational technology is the use of computers. The main objective of computer assisted instruction is to provide the needed flexibility for individualising the educational process. It meets the specific needs of the student in a way in which it is almost impossible to do so in a face-to-face student-teacher relationship.

Commonly used terms for the use of computers in education are :

- CAI Computer Assisted Instruction.
- CAL Computer Assisted Learning.
- CAT Computer Assisted Training.
- CBT Computer Based Training.
- CMI Computer Managed Instruction.
- CML Computer Managed Learning.

Meaning

A computer has the facilities to store information as well as retrieve it. The stored information is in a particular computer language so that the computer understands and reacts. When the necessary commands to process the information are given it interacts and manipulates the information and the answer is typed on a teletypewriter. The different parts of the computer that are involved in this process are input equipment, memory store, processing unit, control unit and output equipment. The input equipment translates the information given to the computer. The input equipment translates the information, in terms of several operations such as adding, subtracting, multiplying, etc., and also selects particular information that is needed, which in turn is translated back to an understandable form by the learner. This is the working of a computer in its most simple form.

Aims

- Computers motivate students to achieve aims in optimal manner.
- Computers provide meaningful experiences to students to achieve aims.
- Computers assist goal attainment by stressing sequential learnings.
- Computers assist in the formation of realistic goals.
- Computers assist in the realization of goals by stimulating feeling of success.

Characteristics of Computer Assisted Instruction (CAI)

There are two basic characteristics of computer assisted instruction (CAI). The **first** is that the computer can evaluate a student's (Learner's) responses instantly and indicates whether the response is correct or incorrect on the basis of predetermined Key words identified within it. **Secondly**, the computer can individualise instruction in a number of specified ways. Instruction can be individualised according to differential aptitude, achievement and interest. The computer makes note of the learner's performance and progress in learner about a unit, and on the basis of the evaluation of his ongoing achievement and as per his needs, it can modify his programme for further learning.

CAI and Programmed Learning (PL)

Computer assisted instruction is one example where programme learning have been combined with powerful media and technology to produce expensive and impressive learning systems. In this case, the monitoring and feedback functions of a teacher are handled by the computer. Computer assisted instruction is based on the same principles as the ordinary programmed instruction but students work from computer terminals. They observe displays shown on monitors or typed on a computer output, instead of programmed text-books or workbooks. Students type information into the computer or respond to it by pressing the related (buttons) keys. In addition to manipulating an interesting, sophisticated and responding equipment, the students find that they cannot cheat, as answers are given (or appear on the screen) only to the student's response. It also permits the students to proceed according to their abilities and pace of learning.

Types of Computer Assisted Instruction (CAI)

There are a number of ways by which computers can be used for instruction. Computer assisted instruction (CAI) or Computer aided learning (CAL) refers to situations in which a computer system is utilised in the learning process.

The first application involves utilisation of the computer as a record keeper and retriever. For the purpose of guidance and counselling, cumulative records, counsellor's records, files and details about vocational interest, aptitude, and information and psychological test results can be stored in the computer and retrieved as and when needed.

The second is to use the computer as a laboratory computing device, which is one of the most frequently used educational application. Students are encouraged to develop their own computer programmes relating to their regular classroom assignments.

The third form of CAI uses the computer as a tutor. In this form, a complete lesson/course is also presented in the computer to the student and the computer keeps track of his performance and can give a summary of his performance to the teacher whenever asked for. In drill and practice, branching type of remedial programme is also provided for those learners who are in need of such remedial teaching.

The fourth application is simulation which is effective when presented in CAI. Through specific input, computers develop models of processes or structure. Simulated conditions are shown on the computer screen such as working of the circulatory system of the human body or the effect of interactions on the operation of a system or other models from company management, biology, mathematics or ecosystem.

Use of CAI in New Learning

In emphasizing **CAI** might well be new learning to be acquired by students. Each student using a computer terminal may experience programmed instruction. With programmed learning, a learner may read a few statements or see a demonstration on the screen of the computer. A student in return responds to a multiple-choice or completion item based on what was comprehended from the sentences read or demonstration experienced. After responding, the computer screen may show a smiling face if the response given was correct. If incorrect, the involved student may try again to respond correctly. If a second wrong response was given, the correct answer is provided on the screen. The successful learner in each response given is ready to progress to the next linear item. The student responding incorrectly also is ready for the next sequential item, after seeing the correct response on the screen. Read, respond and check are concepts emphasized again and again in sequential programmed items. New learning, not drill and practice, are being emphasized.

Functions of the School Administration and the Teacher in the Use of Computer in Education

- New functions of the teacher will depend upon the specific purpose for which the computer is used.
- A technical expert should be consulted in the selection and purchase of hardware.

- An agreement should be made with the suppliers for supply and installation of the computer.
- One or two persons of the school should be trained in operation and servicing of the computer.
- A small centrally located room should be selected for the installation of the computer.
- Storage space should be provided for software programmes.
- A teacher called 'computer manager' or 'computer resources person' shall be the overall incharge of the computer. He will coordinate the entire work in this regard.
- In CAI the teacher has the chance to use new tools which will enhance his individual satisfaction and increase his efficiency.
- The teacher will be liberated from his routine duty.
- The teacher will be in a position to produce elaborate graphs and tables.

Developing Competence of Teachers and Administrators in Using Microcomputers

For achieving proficiency in computer usage, the following means may be utilized :

- Organising workshops stressing relevant objectives.
- Conducting faculty meetings containing vital agenda items.
- Arranging video tape presentations on model procedures in computer usage.
- Showing slides, filmstrips, and films presenting sequential significant content.
- Planning talks by qualified resource personnel to participants on curriculum and uses of the computer.
- Visiting classrooms in which effective computer usage is being stressed.

Advantage

- The immediate feedback provided by interactive terminals keeps students interacting and eager to keep trying.
- The weaker students are obliged to participate actively. They often remain passive in lectures.
- The computer will wait patiently for an answer and will not express annoyance with wrong response.
- The graphics facility is a powerful aid in enhancing intuition, especially in giving insight, in to mathematical formulae.
- Interactive graphics make it possible to sample many more illustrations those could easily be shown in a textbook.

Limitations

- A programmer cannot cater for every possible response and may give unexpected and unhelpful responses to unusual input.
- A few students are intimidated by the strangeness of a computer terminal (less likely for physics and chemistry students).
- Packages can become boring if a student is alone at a terminal for too long. Most packages should run for an hour or so.

- A package will not be appreciated unless it has a perceived goal and will not be considered important unless it is integrated in to a course to the extent of being assessed by a teacher.

A computer assisted instruction provides for individualised instruction, motivates students to go through a unit or course through its varied presentation modes and by instant feedback, encourages learners to proceed with the lesson. There is a tremendous saving of students' and teachers' time. Computers are adaptive to students changing performances and relate the learning to suit their cognitive potentials. However, computers can never replace teacher as the 'human aspect' is vital for learning and behaviours of the effective domain can only be developed by a teacher.

Self evaluation questions:

- What is Computer-Assisted Instruction? Describe its implications in aims, curriculum and administration. What are its limitations?
- Topic for next class :
  - Project Method

Contact :

Email id – swarnika.pallavi8@gmail.com

Mobile - 9798139665