TEACHING MACHINES

INTRODUCTION

With the increasing of population, the needs for education also increases. The demand cannot be met simply by building more schools and training more teachers. Education must become more efficient. In any other field a demand for increased production would have led at once to the invention of labour saving capital equipments. Thus, the introduction of teaching machine is another kind of capital equipment which will encourage the student to take an active role in the instructional process.

TEACHING MACHINE

In a conventional learning process both teacher and student are actively involved but in the recent innovation of the educational system, the teacher need not be physically present to teach. Teaching machines and programmed instruction represent this new development in education. The pioneering work in the field of teaching machines was done by Sydney L. Pressey of the Ohio State University. The writing and research of B.F Skinner was chiefly responsible for this remarkable development. A teaching machine is a piece of device designed to be operated by an individual student. It presents series of problems and provides immediate 'reward' or reinforcement to students when they give the correct answers to the posed questions. It can interact with the student to a remarkable degree. The essential characteristics of the various teaching machines are as follows:

1. The student is presented with a question or problem by some form of display on the machine.

2. The student is required to respond overtly. The student must do something about the problem, either to write an answer or to push a button to indicate the correct answer.

3. The student is informed as to whether his answer is right or wrong. This is being done either by showing the correct answer or by moving forward to the next frame when a question has been answered correctly.

4. An account is kept of the responses made by the student not for the purpose of testing the acquisition of knowledge but for teaching purpose.

In a Teaching machine programming is done by presenting the subject-matter in small discrete interlocking steps, each depending upon the preceding steps. Only after the student has committed himself by writing out the response to the problem, he operates a lever or button which exposes the correct answer. At the same time, his answer moves under a piece of glass. The student can only check up whether his response is right or wrong but there is no scope for making correction. Most teaching machines present linear programmes through a few functions as branching type. In some of the complex electronic machines, branching of a complex sort is possible. Teaching machines allows each student to proceed at his own pace and continually interact with the students. There are machines which allow the student to question, to ask for further information, to demand review and to demand explanation. They are completely individualised in every respect. Teaching machine can be broadly classified under two categories i.e. 1) Constructed Response Devices. Under this we have a) The Slider Machine   b) The Disc-Type Machine   c) The Typewriter–input Computing Machine d) Audio-Visual Combination.   2)Multiple - Choice Machines a) Pressey`s Machines b). Electronic Computers and Multiple - Choice Programmes. c) Audio - Visual Machines. d). Non-mechanical Multiple-choice Programmes.

VALUES OF TEACHING MACHINE

1. Programmed instruction and teaching machines provide a technological solution to the problem of individual differences.

2. Teaching machines, if programmed and wisely used, can provide individual experience for students. In the present set-up, no teacher can be a tutor to each individual. But auto - instruction can be tutorial instruction.

3.Teaching machines are helpful from the student's point of view also. Every student can proceed at his own rate of learning. If he is fast, he goes ahead; if slow, the programme is not tired of teaching him as long as he requires it.

4.With the teaching machine programmes either remediation or enrichment is automatically built depending upon the philosophy and intention of the programmer.

5. Large number of students can be taught with the machines.

6. Students were active while using teaching machines during their learning process. It is such kind of private tutor which alert students and kept them busy during learning process.

7. Teaching machines provides opportunities for teachers to analyze the responses of the students. By this, they see what students understand item by item.

8. A programme is not a human being and hence can be used at any time of the day. Programmed materials or teaching machines are never tried and never lose their temper or patience. Hence programmed materials are very useful in the field of non formal education.

MACHINE VERSUS TEACHER

As a result of the advancement in the field educational technology teaching machines were introduce to make teaching learning more effective. Teaching machines are primarily due to the work of educational and research psychologists. The machines may appear crude as they are today. But painstaking research is still going on, and it will definitely improve the technique so that teaching will become the most humane of all professions.

The greatest value of such mechanical devices and the programmed material used in these is that they make individualisation of instruction possible. Programmes catering to individual differences among pupils should take into account not only speed of learning but also other physical and psychological variables found in classes. Individualising instruction is not just paying personal attention to each pupil. It consists of designing specifically tailored learning experiences for each pupil on the basis of his or her needs and interests as well as strength and weaknesses. In such a task the planned use of tools and techniques of Educational Technology is indispensible. But one question which came out is whether machine will replace human teacher in near future?

Education is a complex process. It is about the trust and bond between a teacher and young person (and parents) that creates the environment where learning can occur and grow. Virtual learning simply cannot do that, a world now where young people are retreating more and more into virtual unreality, the teaching profession is more important than it ever was. It is teaching that keeps it real – teaching that keeps young people alive. In short, teachers and the profession will never die.

Teachers do not simply teach concepts and skills. Any new technology can do that. Good teachers inspire our young people to be lifelong learners, creating a culture of independent enquiry with their enthusiasm and passion. Good teachers have the skills to know exactly how to get the best out of each and every young person in their care: The life of student

without a teacher is just the like a piece of unshaped diamond stone. Teachers guide students through each and every pivotal stage of their development.

No 'new models of learning' can ever compromise or threaten the essence of what a teacher is, always has been and always will be. Owing to the advent of teaching machines, teacher`s role in a classroom will be changed. Under no circumstances can the teaching machine replace the teacher. The need for the teacher to inspire and motivate, to guide and correct is in no way diminished by the development of the machines. The teacher is the one who inspires and encourages the student to strive for greatness, and the one gives shape to their potential. Teachers guide students through each and every pivotal stage of their development. Technology gives data to teach the student about the interaction. But, human teachers teach us how to be social and teach us the sense of interaction.

Today, in the world of technology, e-learning is in vogue. E-learning module was introduced to save time and give liberty to the student to learn anytime from anywhere. E- Learning process helps the student to learn things in a fun and easy way. We would agree that there's a lot of potential of the technological supplementation of the education process. But, still, it cannot replace the position and necessity of human teachers. For example, there are a number of e-learning platforms that provide free CBSE study material for various subjects but the machine does not explain each and every fact that a human teacher would explain to students.

COMPUTER ASSISTED INSTRUCTION (CAI)

Today computer is widely used in business and research. Its application is enormous. It helps guide astronauts and space shuttle. It counsels students, controls betting at race tracks, grades the university students, diagnoses football strategy, plays chess and war games. The efficiency of human beings as data-processing organisms is also being challenged by the computer. The computer can do million calculations within a second. Almost in every field of human activity the computer can stretch its arms and make it perfect. A computer is the most important invention which man found out since the invention of printing machine. While printing has amplified the process of information transmission, the computer has amplified the possibility of information processing.

 Computer Assisted Instruction is the most exciting innovation in the field of education. A computer is programmed with linear or branching programmes and act like a super teaching machine catering to the needs of a number of students at the same time. The characteristic aspect of the CAI is its capacity to initiate flexible interactions with the student which is not possible in the teaching machine. The computer is able to record and store all the responses

of all the students. It can use the information in deciding what information to give the student next. It can branch not just in terms of one answer but also in term of a whole series of previous answer. It can also record the time taken to answer a question and the degree of correctness of the student`s response. A typical CAI installation consists of individual learning booths, each with a console. The student is seated. Facing him on the console is a television screen for displaying information. Before he starts a programme, the student checks in with the computer by displaying his identity number. This connects him with his part of learning programme. A complete package of information stored in the system is presented sequentially. This information could take the form of video- tape recordings, slides, motion picture films; filmstrips etc .The student may question the computer and feed answers into it by means of a typewriter keyboard. The computer responds by printing out comments, answer and question. Sometimes, the student may write directly on the cathode ray tube display screen with a light pen. His answer will be picked up by the computer and evaluated. When he has finished, the computer assigns him the next programme, records his progress and prints out a report for his teacher. Computer Assisted Instruction is therefore not merely a sophisticated type of programmed instruction but a different kind of instruction altogether. No doubt, it uses programmed instruction but it also uses electronic media theory, concepts of audio visual and media theory, communication theory, system theory and learning theory.

CONCLUSION

Teaching machines and Computer Assisted Instructions (CAI) is not to exclude the teacher from the classroom but to effectively supplement in the teaching-learning process. They are the results of innovation in the field of educational technology. Machines mean relief from the more mechanical aspects of the teacher's work. Teachers need no longer be 'talking books' or 'paper correcting automations'. They can hereafter work in areas like evaluation, planning, curriculum revision, guidance and human relations. For the overworked teacher burdened with large classes, these machines are really helpful.

In spite of certain difficulties and imitation, it provides opportunities to modify and improve the education system as best as possible. Thus, educational technology has full potentiality to provide effective control to the process and product of education by solving the various problems.