

SYSTEM APPROACH

Introduction

The imperative character of education for the overall growth and development of an individual is now accepted by everyone. Curing illiteracy is the immediate problem in developing countries nowadays. Technology of education is being developed with the aim of not only for making education more widely available but also of improving the quality of education which is already available. Educational technology refers to a systematic ways of designing, implementing and evaluating the total system of learning and teaching in term of specific objectives based on research in human learning and communication and employing a combination of human and non-human media to make the instructional system optimally effective with the help of system approach.

System approach has been introduced in the field of education to manage, control and improve the process and products of education. It acts as a link between hardware and software approach. Before going in detail to system approach, firstly let us try to know what system means. Webster's dictionary defines a system as "a regularly interacting or interdependent group of items forming a unified whole". In simple term we can say that system comprises several interrelated components and change in one component in its structure or function affects the functioning of all other components directly or indirectly and of the system as a whole. As for example, the human body has a digestive system for digesting the food and converting it into nutrients. Various parts of the digestive system put separately do not constitute the digestive system. Education is regarded as a system comprising of various components; each of these components contributes to and supports the functioning the system and system approach is a systematic way of designing an effective and economical education system. The concept of educational technology is based on system concept and its application could be made optimally effective with the help of system approach – the methodology emerged out of the concept of wholeness. The system approach to design and analysis of teaching/learning situation is the basis of great majority of modern educational technology related development. Instead of attacking the problem in an arbitrary manner, the system approach helps solve the problem systematically. It can be looked upon as a mode of thinking that emphasises problem identification and problem resolution. System approach can be applied to many areas in the field of education, such an instruction, curriculum development and so on.

SYSTEM APPROACH

Deardeb (1972) says that "the system approach is nothing more or less than what a competent, smart, adequate business executive adopts in the ordinary conduct of his business".

Makridas (1971) says that "the system approach to management is basically a way of thinking. The organization is viewed as an integrated complex of independent parts which are capable of sensitive and accurate interaction among themselves and with their environment".

Educationists define the system approach as an approach which aims at finding the most efficient and economically cost effective methods for solving educational problems scientifically. The system approach provides a framework for all the factors that influence the solution of educational problems or the achievement of objective. System approach is a rational problem solving method of analysing the educational process and making it more effective. The system approach in instruction is an integrated, programmed complex of instructional media, hardware and personal whose components are structured as a single unit with a schedule of time and sequential phasing. Thus, system approach is a systematic attempt to coordinate all aspects of a problem towards specific objectives. In education, this means planned and organised use of all available learning resources to achieve the desirable learning objectives. The approach in general includes the following steps:

- 1. An analysis of existing situation.
- 2. Setting up of goals for the desired situation.
- 3. Defining mechanisms to evaluate the achievements of goals.
- 4. Generating alternative solutions.
- 5. Choosing the best possible solution through cost-benefit analysis.
- 6. Detailing the design of the system.
- 7. Outlining the monitoring mechanisms for the system.
- 8. Working out the solution.

COMPONENTS OF INSTRUCTIONAL SYSTEM

In the context of education, system is a unit as a whole incorporating all its aspects and parts namely, pupils, teachers, curriculum, content, audio visual media and evaluation of instructional objectives. The teaching -learning process is viewed as communication and control taking place between the components of a system. The system approach focuses first upon the learner and then course content, learning experiences and the most effective media and instructional strategies. Such a system incorporates within itself the capability of providing continuous self correction and improvement. It is concerned with all elements of instruction including media. Its purpose is to ensure that the components of the organic whole will be available with the proper characteristics at the proper time to contribute to the total system fulfilling the objective.

In an instructional system, the teacher or instructor and the resources made use of by him are included as components of a system. There is a provision for continuous evaluation and self-correction for realising the stated objectives. The system approach involves continuous evaluation of learning outcomes and utilisation of knowledge gained by analysis of result of evaluation to suitably modify the plan of approach to achieve the stated objectives. Instructional System involves the following interlinked and independent stages.

- 1. Explicitly stated standards of output performances, including sequenced behavioural objectives and post test;
- 2. Planned input and processes involving structural learning material and methods suitably geared to the needs of a particular group of learners;
- 3. Monitored output which is used to revise, improve and evaluate the instructional system, providing feedback to the learner and teacher and
- 4. A degree of inbuilt flexibility to adjust to individual situations.

FLOW DIAGRAM

Flow Diagram is a collective term for a diagram representing a flow or set of dynamic relationships in a system. It is used to structure and order a complex system, or to reveal the underlying structure of the elements and their interaction. Harris define, "flow diagram is a diagram that visually display interrelated information such as events, steps in a process, functions etc in an organised fashion, such as sequentially or chronologically. Planning is fundamental for systemisation. System can be represented by drawing a map called a flow diagram. The relationship between the input (pupils), instructional strategy (process) and the output are shown by means of the simple flow diagram below.



A more extended example showing in detail the path followed in general at the macro institutional level can also be illustrated in the form of a flow diagram as shown below here. Suppose we wish to develop a new course or instructional unit according to the system concept. We should begin with a survey and analysis of subject - matter identifying the skills to be learnt and the characteristics of the learners. The specific objectives, learning outcomes and performance criteria should than be formulated. An inventory of human, technological and financial resources must be made besides considering the limitations or constraints like, time, money, facilities etc. This is the stage at which we are concerned with media along with other materials. No doubt, course construction and software production can begin only after completion of content, method and media strategies. Available materials must be reviewed and examined. When no suitable materials are available, we must prepare a 'package' in the form of good kits. Field testing and validation provide opportunities to try out newly developed instructional package with a representative sample of students. While full scale try out is underway, we must observe closely all aspects and note further adjustment that may be needed. Implementation is the final step of putting the validated materials into full scale operation. Continuous feedback should be obtained from the learners at every stage which should lead to a further cycle of updating and modification. The least effective methods are recycled out and better materials are incorporated.



Thus the flow chart is an abstract graphical model of the process which helps to visualise the system at the planning or design stage.

ADVANTAGES OF SYSTEM APPROACH

- 1. It provides a conceptual framework on which to build plans for implementing change for education.
- 2. It help to identify the suitability or otherwise of the resource material to achieve the specific goals.

- 3. It helps to assess the resources needs, their sources and facilities in relation to quantities, time and other factors
- 4. Technology advance could be used to provide integration of machines, media and people for attaining the definite goal.
- 5. It permits an orderly introduction of components demonstrated to be required for systems success in terms of student learning.
- 6. Rigidity in plan of action is avoided as continuous evaluation affords desired beneficial changes to be made.

CONCLUSION

The development and use of a technology in the field of education is viewed in different ways by different people. Some claim it as the basis of a revolution in the educational system aimed at improving the effectiveness and efficiency of education at different levels. On the other hands, some castigate it as a movement aimed at replacing the traditional teacher from the educational scene by sophisticated machines and gadgets But in realities the function of an educational technology lies in structuring the environment for learning, by the use of modern method, techniques, approaches, media etc. In simple words, educational technology is concerned with the development, application and evaluation of systems, techniques and aids to improve the process of human learning. Thus, we can conclude that system approach helps in optimising effectiveness of use of educational technology. It helps in all the three phases, i.e. designing, implementing and evaluating phases of educational technology.