

# System Approach in Education

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Education is a life long process. Every process changes from time to time, so has education changed in various ways. The revolution in science and technology has influenced the entire education system. We apply innovations of science and technology in the field of education in achieving the desired goals and objectives. Thus a new field of education called educational technology has emerged. Educational technology is an effective means of communication which uses a wide range of instructional media like Radio, TV, Closed Circuit TV, Films, Computer etc. Educational technology is not only an audio-visual aid but is also a systematic way of teaching and learning in terms of specific objectives. In educational technology every work is executed in a systematic manner similar to science. So we can also call educational technology a science where we achieve the desired objectives of education in a scientific manner.

With the increase in population, the instructional process have become a complex activity. Teacher-pupil ratio and the amount of educational material viz. curriculum has increased and so has also increased the instructional media. This increment in every phenomena creates problems for teachers and pupils in achieving respective goals and objectives. We know that curriculum should not only specify students' behavioural objectives but should also suggest methods, techniques and strategies for helping students in achieving those objectives. It should also suggest the evaluation instruments to measure their performance through self

regulation and self control system like in engineering science, cybernetics, and computer science disciplines.

A classroom exists as a subsystem of whole system like school, society etc and every subsystem interacts with each other. In the system approach, this interrelated systematic planning of instruction affecting a learner to achieve his goals and objectives in studied.

A system can be defined as "a regularly interacting or interdependent group of items forming a unified whole." This may also be defined as "organised or established procedure." An educational system is a group of components working together in an organised fashion. In educational system there may be many combinations of components viz students, teachers, curricula, media, materials, educational objectives etc.

The system approach in instruction is an integrated complex programme of instructional media, hardware and personnel whose components are structured as a single unit with a schedule of time and sequential phasing. Keshaw and Michean (1959) have defined system approach as "one of the techniques which aim at finding the most efficient and economically intelligent method for solving the problems of education scientifically."

## Systematic Planning for Instruction

A model for systematic planning of instruction is a simplified display of the steps in a systematic manner.

### (A) GOALS

What goals are to be achieved ?

#### Objectives

Knowledge

Attitudes

Skills

Content

Evaluation and Improvement

### (D) OUTCOMES

How well were objectives achieved ? What needs to be changed ?

### (B) CONDITIONS

How and under what conditions, will students achieve objectives ?

#### Learning experiences

(With special attention to individualization)

Teaching - Learning Modes

Personnel Materials and Equipments

Physical Facilities

### (C) RESOURCES

What resources are required for necessary learning experiences ?

STUDENTS

In this model all planning is centred on students, their needs, capabilities and achievement of carefully specified objectives. The four quadrants of the model contain a few specific planning steps and each step is necessary and important. Planning for teaching is, in principle, the role of any person who teaches.

### Steps of Instructional System

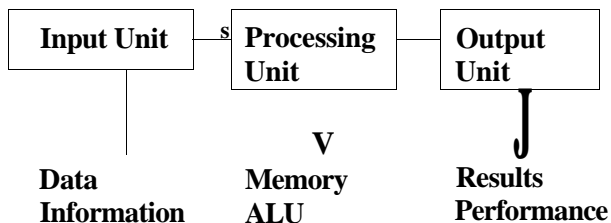
It is a systematic attempt to coordinate all aspects of a problem towards specific objectives. The instructional system involves the following steps :

- (1) Defining instructional goals and objectives in behavioural terms or measurable terms.
- (2) Selecting the content and doing the content analysis.
- (3) Determining the functions related to the achievement of the goals or objectives by appropriate multimedia system i.e. CCTV, films, recordings, video, computer etc.
- (4) Defining learner characteristics and requirements or entering behaviour of the learner.
- (5) Selecting appropriate methods, techniques and strategies etc for effective learning.
- (6) Selecting appropriate learning experiences from many alternatives available with special attention to individualization.
- (7) Defining the teaching-learning modes.
- (8) Choosing appropriate materials, equipments, resources, environment and physical facilities to facilitate student learning for achieving the instructional goals.
- (9) Defining and assigning appropriate personnel roles — teacher, resource person, team teaching member, computer instructor, and students.
- (10) Implementing the programme that undertakes pupils in specified and appropriate condition.
- (11) Evaluating the students' learning outcome in terms of the original learning objectives.
- (12) Refining and revising the programme (system), if necessary, to enhance production and efficiency of the system to improve student learning.

In an instructional system, the teacher, resource person and resources made use of by him are included

as components of the system. The system approach is based on the computer system.

### Simple Model of Computer



The computer hardware consists of its physical component. Mainly a computer is made up of three parts: (a) Input Device; (b) Central Processing Unit (CPU); and (c) Output Device. These are explained below:

*Input Device* : In input device data or information are entered into computer through keyboard or floppy disk.

*Central Processing Unit (CPU)* : The central processing unit is the main component of the computer, which contains arithmetic logic unit (ALU) for arithmetic operations such as addition, subtraction, multiplication, division, comparing two or more numbers, data manipulation and storage of the information and results.

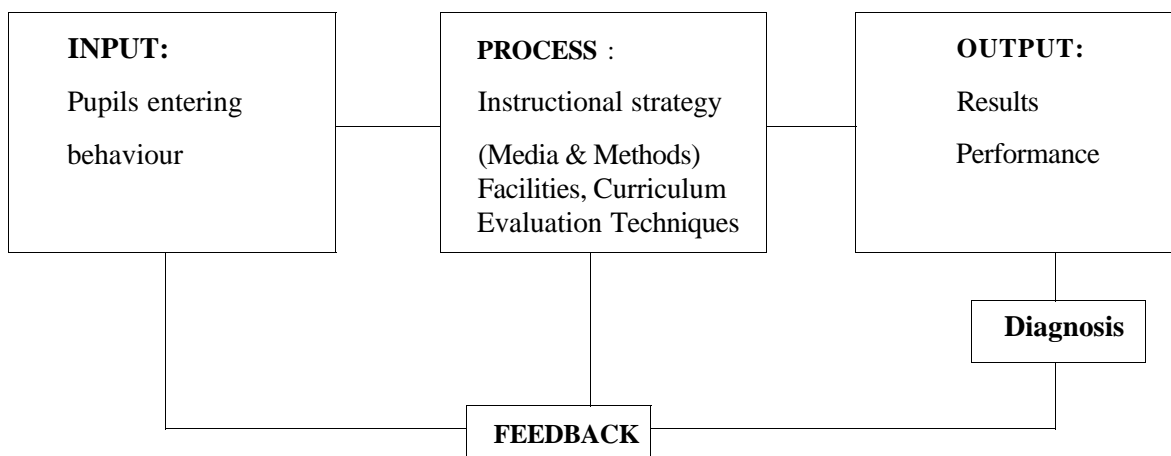
*Output Device* : Output means to pass on the desired results to the outside environment after processing the data in central processing unit (CPU).

### Steps of System Approach

The system approach as applied to educational situations involves the interlinked and interdependent stages like computer. Steps involved in the system approach are given below:

- (a) Explicitly stated standards of output performances, including sequenced behavioural objectives and post test.
- (b) Planned input and processes involving structural learning materials and methods suitably geared to the need of a particular group of learners.
- (c) Monitored output which is used to revise, improve and evaluate the instructional system, providing feedback to the teacher and learner.
- (d) A degree of in-built flexibility to adjust to individual situations.

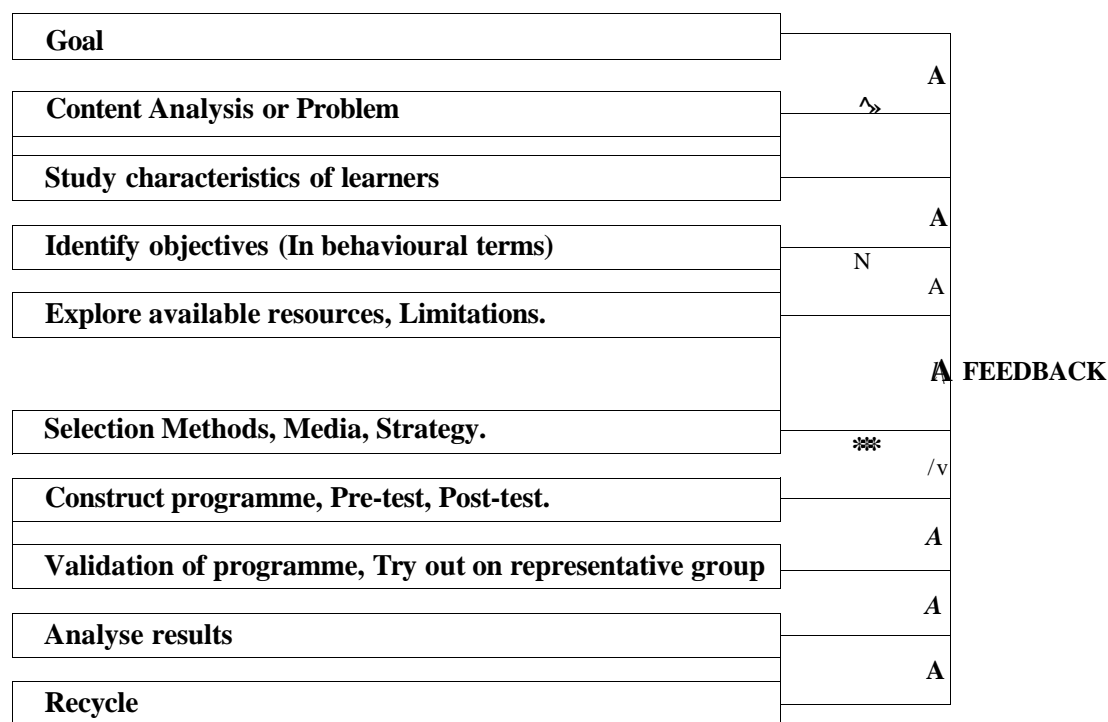
## Model of System Approach



The above diagram shows the relationship between Input (pupils), Process (instructional methods, strategy & facilities etc) and Output (performance) and indicates analysed results which give remedy (feedback) to the students and processing unit for achieving

the objectives effectively. All the activities are based on the students only.

A simple flowchart (pictorial representation) for designing a system showing the relationship within the activities can be drawn as under:



In microteaching too a similar endeavour is gone through.

### References

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