



**M.A.(EDUCATION) PART-II
(SEMESTER-III)**

**PAPER- I
EDUCATIONAL TECHNOLOGY**

UNIT NO. 2

**Department of Distance Education
Punjabi University, Patiala**

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Lesson No.

UNIT NO. 2

- 2.1 : Task Analysis - designing of instructional strategies- Dialogue, Brain Storming and Conference
- 2.2 : Task Analysis - Designing of Instructional Strategies- Panel Discussion, Seminar Technique, Team-Teaching and Tutorials
- 2.3 : Models of Teaching : Assumptions and Fundamental Elements of Teaching Models, Types of Teaching Models, Suchman's Inquiry Training Model and Bruner's Concept Attainment Model
- 2.4 : Taba's Inductive Thinking Model
- 2.5 : Modification of Teacher Behaviour : Interaction Analysis and Simulated Teaching
- 2.6 : Modification of Teacher Behaviour - Reciprocal Category System

Note : Students can download the syllabus from department's website www.dccpbi.com

**Task analysis - designing of instructional strategies -
Dialogue, Brain storming and Conference**

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2.1.1 OBJECTIVES

After reading this lesson, the students will be able to:

1. Understand the concept of task analysis.
2. Describe and differentiate between different instructional strategies such as dialogue, brainstorming and conference.
3. Differentiate between autocratic teaching strategies and democratic teaching strategies.

2.1.2 TASK ANALYSIS

Aim of teaching is to bring about a desirable change in the behaviour of the learner. It is brought about by the teacher using various effective teaching strategies and teaching tactics. The focus of training psychology is to analyze the task to be performed. This concept is very useful for developing the understanding and skills for teaching and training. The teacher can make his teaching more effective and organized by analyzing the content. The task analysis provides the basis for selecting appropriate teaching tactics and strategies and formulating the objectives of teaching.

2.1.2.1 TYPES OF TASK ANALYSIS

There are three categories of task analysis: (i) Content analysis (ii) Job analysis (iii) Skill analysis.

- 1. Content Analysis:** In content analysis, the content or subject matter is analysed and sub-topics into elements are arranged into logical sequence, this type of analysis is used in intellectual as well as in educational activities. For example, activities related to subjects like science and geography etc.
- 2. Job analysis:** The analysis of task related to some professional and social activity comes under this category, e.g. tasks of doctors, engineers and teachers.
- 3. Skill analysis:** The skill analysis is a part of job analysis but is concerned with the most specific skill as in teaching the skills of motivation, questioning etc. are used.

2.1.3 MEANING AND DEFINITION OF TEACHING STRATEGY

‘Teaching strategy is the means to achieve learning objectives’. E. Stones and S. Morris have defined the term ‘Teaching Strategy’ comprehensively in the following manner:

“Teaching strategy is a generalized plan for a lesson which includes structure, desired learner behaviour in terms of goals of instruction and an outline of planned tactics necessary to implement the strategy. The lesson strategy is apart of a larger development scheme.

This definition of teaching strategy involves two aspects: (i) a generalized plan for the presentation of lesson and (ii) it includes desired learner behaviour in terms of goals of instruction. He has further explained the meaning of a lesson. It is a part of a development scheme of the curriculum and plan includes an outline of tactics of teaching which help in implementing the strategy. Teaching strategy seeks to establish the relationship between teaching and learning in view of achieving the objectives. Teaching strategies include broad method instruction, e.g., lecture-strategy, a case-study strategy programmed instruction strategy. They can be regarded as a broad and away of operation.

2.1.3.1 Types of Teaching Strategies

A teacher organizes his activities of teaching to bring about the desirable change in the behaviour of the learner. Thus the students are forced to achieve learning objectives. Most of the teaching strategies in terms of their effectiveness in achieving different kinds of learning objectives. These are the means for realizing the learning objectives. Teaching strategies can be classified under the following two heads:

(A) Autocratic Style – It includes the following strategies:

(1) Lecture, (2) Lesson demonstration, (3) Tutorials, and (4) Programmed Instruction.

(B) Permissive Style – It includes the following strategies:

(5) Question-answer, (6) Heuristics, (7) Project-strategy, (8) Review, (9) Group discussion, (10) Role playing, (11) Assignment, (12) Discovery, (13) Computer Assisted Instruction, (14) Brain storming, (15) Independent study, (16) Leaders less group or T-Group and (17) Sensitivity Training.

2.1.4 DIALOGUE STRATEGY

2.1.4.1 Meaning and Definition of Dialogue

Teaching through dialogues or dialogic teaching is a popular education approach to adult education, first described by educator Jane Vella in the 1980s. The term dialogue is intended to imply a deeper level of analysis or explanation than that which concerns itself only with the surface meaning of talk as isolated expressions made by individuals. When we talk about dialogue, we are talking about the joint enterprise of talk, as a **cumulative activity** (building up over time) which is aimed at some purpose or other. In education, the purpose we are most often interested in is learning, in a rather broad sense. In classrooms such dialogue occurs in a variety of settings, including whole class work, group talking and group work contexts. Dialogic teaching is characterised by comparatively lengthy interactions between a teacher and a student or group of students in a context of collaboration and mutual support.

This approach has been defined as classroom teaching where teachers and children both make substantial and significant contributions through which

children's thinking on particular ideas and or themes is moved forward (Mercer & Littleton, 2007).

Another description of dialogic teaching identifies a number of aspects: "... collective, supportive and genuinely reciprocal; it uses carefully-structured extended exchanges to build understanding through cumulation; and throughout, children's own words, ideas, speculations and arguments feature much more prominently" (Alexander, 2005).

Research indicates that the most effective sorts of dialogue

1. Are often not reflected in classroom talk.
2. Are not simply question and response (IRF) exchanges, but are dialogic in nature.
3. Are mutually respectful, and involve exploratory talk which seeks to build a shared understanding between talk partners (what Edwards and Mercer (1987) termed 'Common Knowledge').

2.1.4.2 Methods of teaching with Dialogue

- 1. Modeling** - Modeling is an excellent way to introduce a dialogue. Usually it involves students simply listening to the dialogue on tape or CD. Sometimes the dialogue can be performed by two native speakers. The purpose of the modeling is to develop students' listening skills and prepare them for the new phrases and vocabulary they might encounter.
- 2. Practice for Pronunciation** - This requires that students repeat the dialogue (in phrases) after the teacher/tape/CD. The teacher can listen and ask students individually or as a group to focus on particular sounds they need extra work on. It is important that pronunciation does not become monotonous and boring. If students are having problems with a particular sound, suggest that they work on it outside of class. For variety, try to focus periodically on other aspects of pronunciation such as stress, intonation, and reduction.
- 3. Paired Practice** - Allowing students to practice the dialogue in pairs enables them to incorporate new words and phrases with the give and take of conversation.
- 4. Read, Look up and Say**- This involves three parts:
 - a) Have students simply read the dialogue aloud with a partner.
 - b) Have students read the dialogue silently, pausing to look up and say each line in turn without referring to the written text.
 - c) Have students turn papers over and repeat the dialogue as best they can from memory. Encourage the remembering of concepts rather than memorization of lines.

2.1.4.3 Principles of Dialogic Teaching

Whatever kinds of teaching and learning talk are on offer, and however the interaction is organised, teaching is more likely to be dialogic if it is:

1. **Collective** - Participants address learning tasks together.
2. **Reciprocal** - Participants listen to each other, share ideas and consider alternative viewpoints.
3. **Supportive** - Pupils express their ideas freely, without fear of embarrassment over 'wrong' answers, and they help each other to reach common understandings.
4. **Cumulative** - Participants build on answers and other oral contributions and chain them into coherent lines of thinking and understanding.
5. **Purposeful** - Classroom talk, though open and dialogic, is also planned and structured with specific learning goals in view.

2.1.4.4 Advantages of Dialogue

Following are the advantages of effective dialogic teaching:

1. It harnesses the power of talk to stimulate and extend pupils' thinking and advance their learning and understanding. It helps the teacher more precisely to diagnose pupils' needs, frame their learning tasks and assess their progress. It empowers the student for lifelong learning and active citizenship.
2. Everyone is engaged with the dialogue.
3. Teacher talk does not over-dominate the dialogue.
4. Dialogue is reciprocal, that is, children respond to and build on what others have said.
5. Students' contributions are well-developed sentences or phrases.
6. Students are willing to take risks by sharing partial understanding.
7. Students are willing to challenge each other's ideas in a constructive way.
8. Learners demonstrate higher levels of thinking.
9. Learners reprocess their thinking as a result of dialogue.

2.1.5 BRAINSTORMING STRATEGY

2.1.5.1 Meaning and Definition of Brainstorming

Brainstorming is a process for developing creative solutions to problems. Alex Faickney Osborn, an advertising manager, popularized the method in 1953 in his book, *Applied Imagination*. Ten years later, he proposed that teams could double their creative output with brainstorming (Osborn, 1963).

Brainstorming is a large or small group activity that encourages students to focus on a topic and contribute to the free flow of ideas. The teacher may begin a brainstorming session by posing a question or a problem, or by introducing a topic. Students then express possible answers, relevant words and ideas. Contributions are accepted without criticism or judgement and usually summarised on a whiteboard by the teacher or a scribe as the ideas are called out. These ideas are then examined, usually in an open class Discussion format. Thus, brainstorming works by focusing on a problem, and then deliberately

coming up with as many solutions as possible and by pushing the ideas as far as possible. One of the reasons it is so effective is that the brainstormers not only come up with new ideas in a session, but also spark off from associations with other people's ideas by developing and refining them.

2.1.5.2 Rules of Brainstorming

While some research has found brainstorming to be ineffective, this seems more of a problem with the research itself than with the brainstorming tool (Isaksen, 1998). There are four basic rules in brainstorming (Osborn, 1963) intended to reduce social inhibitions among team members, stimulate idea generation, and increase overall creativity:

- 1. No criticism:** Criticism of ideas are withheld during the brainstorming session as the purpose is on generating varied and unusual ideals and extending or adding to these ideas. Criticism is reserved for the evaluation stage of the the process. This allows the members to feel comfortable with the idea of generating unusual ideas.
- 2. Welcome unusual ideas:** Unusual ideas are welcomed as it is normally easier to "tame down" than to "tame up" as new ways of thinking and looking at the world may provide better solutions.
- 3. Quantity Wanted:** The greater the number of ideas generated, the greater the chance of producing a radical and effective solution.
- 4. Combine and improve ideas:** Not only are a variety of ideals wanted, but also ways to combine ideas in order to make them better.

2.1.5.3 Procedure of Brainstorming

Following steps must be taken care of while conducting a brainstorming session

1. Gather the participants from as wide a range of disciplines with as broad a range of experience as possible. This brings many more creative ideas to the session.
2. Write down a brief description of the problem - the leader should take control of the session, initially defining the problem to be solved with any criteria that must be met, and then keeping the session on course.
3. Use the description to get everyone's mind clear of what the problem is and post it where it can be seen. This helps in keeping the group focused.
4. Write down all the solutions that come to mind (even ribald ones). Do NOT interpret the idea, however you may rework the wording for clarity's sake.
5. Do NOT evaluate ideas until the session moves to the evaluation phase. Once the brainstorming session has been completed, the results of the session can be analyzed and the best solutions can be explored either using further brainstorming or more conventional solutions.

6. Do NOT censor any solution, no matter how silly it sounds. The silly ones will often lead to creative ones - the idea is to open up as many possibilities as possible, and break down preconceptions about the limits of the problem.
7. The leader should keep the brainstorming on subject, and should try to steer it towards the development of some practical solutions.
8. Once all the solutions have been written down, evaluate the list to determine the best action to correct the problem.

2.1.5.4 Advantages of Brainstorming

The advantages of brainstorming are many - as cited by teachers and students who have used the technique.

1. It is stimulating and provides a varied instructional approach. It generates enthusiasm and eagerness to join in by its open invitation to participate and its rapid, free-wheeling approach.
2. Brainstorming is highly motivating.
3. Students who usually allow their verbal, articulate classmates to dominate question-and-answer periods get the urge to participate. They are not "put down" or degraded for "wrong answers" and feel a real sense of contribution as their suggestions are noted on the project sheets. On the other hand, those who dominate traditional classroom situations are also stimulated to get their ideas out and on the record.
4. It increases "task focus."
5. The brainstorming group is kept on target with very little pressure from the group leader because of the structure and ground rules. Editorializing, personal commentary, rejoinders, eloquent speeches, and the other destructive activities of committees are eliminated in this process.
6. It promotes spontaneity and creativity.
7. The members of the group begin to link ideas and "bounce suggestions off the group" in a sounding-board procedure that gathers momentum as the session continues. Mental power is fully unleashed in this positive atmosphere.
8. It is an efficient and productive technique. Scores of ideas and suggestions or problems and obstacles can be listed in a few minutes. It generates a quantity of ideas. Parallel suggestions and obstacles lead the group toward sound "next steps."
9. It involves participants in the ownership of ideas. The participants feel greater kinship for their product as they assume group ownership of their ideas and suggestions. Problem solving is made much easier when communal commitment is guaranteed. It teaches acceptance and respect for individual differences.

10. It provides a permanent record and aids in developing solutions to problems. The results of the sessions can easily be reproduced or reused to design alternate procedures and programs for solving problems or meeting objectives. The production of the group takes on value as a permanent evaluation record and as testimony to individual and group effort.
11. By expressing ideas and listening to what others say, students adjust their previous knowledge or understanding, accommodate new information and increase their levels of awareness.
12. It helps focus students' attention on a particular topic.
13. Brainstorming encourages learners to take risks in sharing their ideas and opinions. It provides an opportunity for students to share ideas and expand their existing knowledge by building on each other's contributions.
14. It demonstrates to students that their knowledge and their language abilities are valued and accepted.
15. It introduces the practice of idea collection prior to beginning tasks such as writing or solving problems.

2.1.5.5 Limitations of Brainstorming

Initially, some students may be reluctant to speak out in a group setting, but brainstorming is an open sharing activity which encourages all students to participate. Teachers should emphasise active listening during these sessions. Students should be encouraged to: listen carefully and politely to what their classmates contribute, tell the speakers or the teacher when they cannot hear others clearly and think of different suggestions or responses to share.

2.1.6 CONFERENCE STRATEGY

2.1.6.1 Meaning and Definition of Conference

It is a meeting of large group, organized to discuss current problems and its specifics to provide a workable solution.

“A conference is a meeting of individuals called together to engage in discussion with the aim of accomplishing a limited task with restricted time”.

2.1.6.2 Objectives of Conference

The conferences are organized to study the specific problems of nations, society, religion, science and education. The objectives of conference are usually broad to develop cognitive and affective aspects. The objectives are determined by the organization. For examples: Teacher Education Association and All India Educational Technology Association. The purposes of these organizations are different. The objectives of a conference are formulated by the organization relating to current problems of the field, but the following are the general objectives of the conferences:

1. **Cognitive Objective:** the conference technique has the focus to achieve the following cognitive objectives:
 - To develop analysis synthesis and evaluation or creative abilities of the participants.
 - To develop reasoning and critical abilities.
 - To develop the abilities of expressing his how feelings and observations.
 - To make sensitive towards the problems of the area.
 - To develop the abilities to study in depth of facts, concepts and problems.
2. **Affective Objective:** By using the conference technique, the affective objectives are to be achieved:
 - To develop the tendency to study a fact or concept in broader perspective.
 - To develop the tendency of emotional balance.
 - To respect and tolerate anti-ideas and criticism by others.
 - To develop the feelings of cooperation and freedom of thoughts.

By participating the conference, behavioural skills and good cultural manners are developed among the participants. They are trained to present and defend ideas. They learn, how to put questions and how to answer the questions and how the clarification is sought.

2.1.6.3 Procedure of Conference

A conference consists of twenty or thirty participants to thousands participant in one meeting. The conferences are organized periodically or annually. In the conference of the meeting members of the organization and experts of related fields are invited. A meeting is organized by the president and secretary or local organizing secretary. The topic of the conference is broad in nature and related to current problems of the area. The papers are invited on different aspects of the topic from the participants. The cyclostyled copies are prepared for each paper. The programme of the conference dates, days, time and place is finalized before hand and communicated to the participants accordingly. Generally programme is sent along the native organizing the conference. A conference is organized in three stages:

First Stage: At the first stage the beginning of the meeting of a conference the participants are registered according to the schedule. The inauguration is done by chief guest and key note of the conference is given by the president.

Second Stage: At the second stage group activities are organized. The convener of the group organized. The convener of the group organizes and conducts the group discussion. The schedule of the group is designed by the convener. The papers are presented on theme of work assigned to the group.

Third Stage: At the third stage all the groups assemble in conference hall where it is inaugurated. It is known as valedictory function of the conference, it

is presided by president of the organization. A chief guest is also invited at this stage.

2.1.6.4 Advantages of Conference

It is technique of higher learning to achieve the highest objectives of cognitive and affective domains. This technique is used to generate learning situations to develop the abilities to problem solving, analysis, synthesis, criticizing and evaluating.

Some specific characteristics are enumerated as follows:

1. Democratic values are developed amongst the participants.
2. A topic of common interest is discussed in the meeting of the conference.
3. It increases the interest and faith in the meeting of the conference.
4. It develops the habit of independent study and to think independently on a theme.
5. Ability of problem-solving is developed among the participants.
6. Capacity of tolerance of anti-ideas of others is also developed.
7. Ability of expressing ideas and feelings is developed by attending a conference.
8. Good manners for asking questions, seeking clarification, presenting own point of view and defending others ideas are developed.

2.1.6.5 Limitations of Conference

A conference technique suffers from the following limitations:

1. It is hard to predict attendance. Advance arrangements must be made for conference facilities and housing accommodation.
2. An evaluation of the conference outcome is often difficult to determine unless participants observers or recorders are asked to continue the session.
3. Generally the nature of topic is broad, hence discussion is confined to specific issues.

2.1.7 SHORT IN TEXT QUESTIONS

- 1) What do you mean by autocratic style and permissive style of instructional strategies?

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2) What is the difference between dialogue and brainstorming?

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3) What is task analysis?

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4) What are the advantages of conference strategy?

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2.1.8 SUMMARY

To develop the understanding and skill for managing teaching-learning process effectively is the main focus of teacher education. In teaching-learning process planning is the most important task of a teacher. The focus of training is to analyse the task to be performed. This is known as task analysis. There are three categories of task analysis: (i) Content analysis (ii) Job analysis (iii) Skill analysis. There are two categories of instructional strategies: (a) Autocratic style (b) Permissive style.

In this chapter, we have discussed three strategies (1) Dialogue – is a traditional method and considered as strategy for communication. (2) Brainstorming – is a problem and creativity-oriented strategy. (3) Conference – is a strategy of higher learning to achieve the highest objectives of cognitive and affective domains. These are the strategies which help the teacher to impart the subject matter to the students effectively and efficiently.

2.1.9 SUGGESTED READINGS

1. A First Course in Instructional Technology – Pandey, K. P. (1980).
2. Psychology of Learning and Techniques of Teaching–Thyne, James M. (1963).
3. Technology of Teaching – Sharma, R.A. (2006).
4. Essentials of Educational Technology - Aggarwal, J. C. (2008).

Lesson No. 2.2

Task Analysis : Designing of Instructional Strategies -Panel Discussion, Seminar Technique, Team-Teaching and Tutorials

Structures

2.2.1 Introduction

2.2.2 Objectives

2.2.3 Panel Discussion

2.2.3.1 Objectives of Panel Discussion

2.2.3.2 Types of Panel Discussion

2.2.3.3 Characteristics of Panel Discussion

2.2.3.4 Procedure of Panel Discussion

2.2.3.5 Advantages of Panel Discussion

2.2.3.6 Limitations of Panel Discussion

2.2.3.7 Suggestions for effective Panel Discussion

2.2.4 Seminar Technique

2.2.4.1 Roles of Seminar Technique

2.2.4.2 Types of Seminar

2.2.4.3 Procedure of Seminar

2.2.4.4 Advantages of Seminar Technique

2.2.4.5 Limitations of Seminar Technique

2.2.5 Team-Teaching

2.2.5.1 Types of Team-Teaching

2.2.5.2 Principles of Team-Teaching

2.2.5.3 Procedure of Organizing Team-Teaching

2.2.5.4 Advantages of Team-Teaching

2.2.5.5 Limitations of Team-Teaching

2.2.5.6 Suggestions to use Team-Teaching

2.2.6 Tutorials

2.2.7 Short in Text Questions

2.2.8 Summary

2.2.9 Key Concepts

2.2.10 Suggested Readings

2.2.1 INTRODUCTION

With the advancement of educational technology in the discipline of education, great changes have taken place in the teaching-learning process. The emphasis is being given to evolve new practices in teaching in order to raise the academic performance and individual differences of the students. As a result, various innovative practices have been developed in this area. In the previous chapter we have already discussed various instructional strategies as Lecture, Tutorials and Discussion. In this chapter we will discuss the techniques which are very useful in higher classes.

2.2.2 OBJECTIVES

After going through this lesson student will be able to-

1. Understand the concept of panel discussion.
2. Explain various instructional techniques as panel discussion, seminar and team-teaching.
3. Differentiate between panel discussion and team-teaching.
4. Critically analyse the objectives of these instructional techniques.

2.2.3 PANEL DISCUSSION

All techniques of higher learning require the discussion among the participants. The discussion provides the equal opportunities in the instructional situation to every participant.

The discussion technique of learning is based on the modern theory of organization. The assumption of this theory is that every member of the organization has the capacity to initiate and solve the problem and brings certain attitude and values to the organization. Thus, interactional technique is the most appropriate in democratic way of life.

2.2.3.1 Objective of Panel Discussion

The main objectives of this technique are:

1. To provide information and new facts.
2. To analyse the current problem from different angle.
3. To identify the values.
4. To organize for mental recreation.

It is used to find out the solution of current problem of important nature and provide the full understanding of significant topic. It is an effective instructional technique, which creates situation to facilitate higher cognitive learning.

2.2.3.2 Types of Panel Discussion

The group discussion is organized in different forms, for different levels, for different purpose and on different themes. It may be of two types:

- (1) Public Panel Discussion, and
- (2) Educational Panel Discussion.

(1) Public Panel Discussion: These types of panel discussions are organized for the common men problems. This type of discussion achieves three types of objectives.

- (a) To provide factual information regarding current problems.
- (b) To determine the social values.
- (c) To recreate the common men.

The public panel discussion are organized in Television programme. The current problems: educated unemployment, Annual budget, Increase in prices of things, jobs delinking with degrees.

(2) Educational Panel Discussion: It is used in educational institutions to provide factual and conceptual knowledge and clarification of certain theories and principles. Sometimes these are organized to find out the solution of certain problems.

The following three objectives are achieved by the educational technique:

- (a) To provide factual information and conceptual knowledge.
- (b) To give awareness of theories and principles.
- (c) To provide solution of certain problems.

These types of panel discussions are very useful but they are not used in any institution even at higher level. The conferences, seminars, symposiums and workshops are commonly organized. The situation of panel discussion is usually of autocratic style.

2.2.3.3 Characteristics of Panel Discussion

The main characteristics of panel discussion technique are:

1. It is used at college and university level to organize teaching at reflective level.
2. It develops the ability of problem solving.
3. It provides the opportunity to understand nature of the problem of the discussion.
4. It develops ability of presentation of theme and giving their point of view logically.
5. It develops the ability to tolerate criticism by others.

6. It develops creative thinking.
7. It develops the manner of putting questions and answering questions.

2.2.3.4 Procedure of Panel Discussion

A panel discussion consists of four types of persons.

1. Instructor: In the panel discussion most important role is of instructor. It is the responsibility of instructor to see how, where and when panel discussion will be organized. He prepares the schedule of panel discussion. Sometimes he has to plan rehearsal of discussion.

2. Moderator: In the discussion moderator has to do significant job. He has to keep the discussion on theme and encourages the interaction among the members. He has to summarize and highlight the discussion more often.

3. Panelist: There are four to ten panelists in the discussion who usually sit in semicircle before the audience with a moderator who sits in middle of them. They must have the mastery on the theme of the discussion.

4. Audience: After the panel discussion, audience is allowed to put questions and seek clarification. They can present their point of views and their experiences regarding the theme or problem. The panelists attempt to answer the questions of the audience.

At the end of discussion, moderator summarizes the discussion and presents his point of view. He expresses thanks to panelists and audience.

2.2.3.5 Advantages of Panel Discussion

1. This strategy encourages **social learning**.
2. The higher cognitive and affective objectives are achieved.
3. It is useful in developing the ability of problem solving and logical thinking.
4. It develops the **capacity to respect others point of view** and ability to accept the criticism by others.
5. It provides opportunities of **assimilation of theme and content**.

2.2.3.6 Limitations of Panel Discussion

1. At the time of discussion there are chances of deviation from the theme.
2. Sometimes **some members dominate the discussion** in that condition other members do not get the opportunity to participate in the discussion.
3. There is every **possibility of splitting the group into two sub-groups**, i.e. for and against the theme, which is not favourable for learning.
4. If the panelists get divided in sub-groups it may create inappropriate situation for learning.

2.2.3.7 Suggestions for Effective Panel Discussion:

1. There should be rehearsal before the actual panel discussion.
2. Moderator should be a matured person having full knowledge of theme.
3. The seating arrangement for panelists and audience should be such that every one should at equal distance so that they could observe each other properly.
4. The moderator should encourage the discussion on the points, which may lead to constructive aspect of the problem.

2.2.4 SEMINAR TECHNIQUE

A seminar as an instructional technique involves generating a situation of a group to have guided interaction among themselves on a theme, which is generally presented to the group by one or more members. The person who presents the theme should have studied theme thoroughly before hand. This would mean selection of relevant material at its organization. The collected material is put in the form of paper, which is circulated among the participants in advance or before the paper reading. It provides the structure of the theme, to facilitate its communication. Thus, seminar is an instructional technique of higher learning which involves paper reading on a theme and followed by the group discussion to clarify the complex aspects of the theme.

2.2.4.1 Roles of Seminar Technique

In organizing seminar the following roles are performed:

- (1) Organizer (2) President or Chairman or Convener of the Seminar (3) Speakers of the day (4) Participants and (5) Observers.

(1) Role of Organizer: He is responsible to plan and prepare the whole programme of the seminar. He is to decide the topic or theme of the seminar. He assigns the different aspects of theme to different persons who are to play the role of speakers and also to fix the date, time and venue for the seminar. He prepares the schedule of the seminar and also suggests the name of the convener for the seminar.

(2) Role of President: The participants of the seminar elect the president. The president must have the thorough knowledge about the theme of the seminar. He must be aware of his rights and duties. He directs the whole programme and encourages the participants to take active part in the discussion. Some times he also participates in the discussion. In the end while thanking the speakers, participants and observers he summarizes the discussion and presents his own point of view on the theme.

(3) Role of Speakers: The organizer assigns the topics to the speakers. They prepare the topic thoroughly, and distribute the copies of their presentation to the participants so that the participants should also prepare themselves on the theme.

It encourages the discussion. The speakers are supposed to be prepared to answer the questions and should have enough tolerance to face criticism from others.

(4) Role of Participants: Generally there are 25 to 40 participants in a seminar. Participants must be well aware of the theme of the seminar. They should be so prepared to seek clarification and put questions from speakers. They should be experienced so that they could put forward their own views regarding the theme. They cannot put questions directly to the speakers and instead they should address the president to seek clarification.

(5) Role of Observers: Generally guest and observers are also invited to the seminar, however, they are not permitted to participate in the discussion. With the permission of the President, at the end of the seminar, they can participate in the discussion and present their observations on the seminar.

2.2.4.2 Types of Seminar

On the basis of levels of organization seminars can be categorized into four types, namely (1) Mini seminar (2) Main seminar (3) National seminar and (4) International seminar.

- (1) Mini Seminar:** This seminar is organized to discuss a topic in classroom so as to prepare the students for organizing the seminar and play different roles.
- (2) Main Seminar:** Such seminars are organized at departmental level or institutional level on a major theme
- (3) National Seminar:** An Organization or an Association at national level organizes national seminars. The experts are invited on the theme of the seminar.
- (4) International Seminar:** Generally UNESCO and other international organizations organize such seminars. The topic or theme of seminar is very broad, for example, student unrest or activisms, Innovations in teacher-education and Examination reform. A nation can also organize such seminars on international theme.

2.2.4.3 Procedure of Seminar

Seminar is an instructional technique involving creation of a situation for a group to have guided interaction among themselves on a theme, which is generally presented to the group by one or more members. The person who presents the theme should have the knowledge of the theme before hand. After the presentation of the theme the group discusses it. During the discussion participants may (1) seek clarification of the presented theme (2) make observations in the light of their knowledge and experience regarding the theme (3) raise issues related to the theme for further analysis and evaluation.

Chairman will guide the proceedings of the seminar, keep the discussion on track, stimulate maximum participation and at appropriate stages to consolidate the expressed viewpoints. Sufficient time should be allowed for the discussion session; if this necessitates cutting down the time for presentation, it could be done since the main purpose of the presentation is to initiate the discussion.

Different viewpoints induce further thinking among participants. It is this stimulation for further thinking that should be reckoned with significance as the net instructional value of the seminar. When there is an agreement of ideas among individual members this has a reinforcing affect on the individual's view on the theme. In either cases the individual is benefited as he either led to further analysis and evaluation of his viewpoints, or helped in validating and thus strengthening them.

2.2.4.4 Advantages of a Seminar

Following are the advantages of a seminar:

- 1 As the interaction process stimulates the thinking, the different higher cognitive abilities like analytical and critical thinking, synthesizing and evaluating the ideas can be developed.
- 2 It also develops certain attributes like tolerance for other's views. Openness to ideas, cooperation, emotional stability and respect for others' feelings.
- 3 These attributes represent the norms of behaviour for the group in the seminar.
- 4 With the help of this instructional technique better learning habits can be developed among the participants. While preparing for presentation and participating in the discussion learner will get induced to peruse independent study, engage in post seminar discussions and develops a critical outlook to any idea thereby leading the learner to self initiated learning.
- 5 It is a learner-centered technique, which is based on a natural characteristic of inquisitiveness in human beings.
- 6 This technique is mainly confined to higher education.

2.2.4.5 Limitations of Seminar

A seminar technique has the following limitations:

1. A seminar cannot be organized on all the contents of the subject matter as some topics are highly structured.
2. This technique cannot be used at all levels of education. The members of seminars should have social and emotional maturity. Thus it cannot be used at lower level of education.
3. There are the chances that a person who speaks too much will dominate the discussion and do not provide opportunity to others to take part in the discussion.

4. There is the possibility to split the group into two sub-groups: anti ideas and favourable ideas on the theme. As a result they try to win over the others. That is why the purpose of the seminar is not served.
5. If the two groups already exist among the participants they generally try to oppose even for the constructive ideas. This instructional situation is not conducive for learning.

2.2.5 TEAM TEACHING

Several persons have defined the term team teaching because they have designed and conducted experiments to understand the nature of team teaching. **Warwick** has tried to define the term more comprehensively. His education is both descriptive and promotive in nature. It also evolves the theoretical basis.

"Team-teaching is a form of organization in which individual teacher decides to pool resources, interests and expertises in order to devise and implement a scheme of work suitable for the needs of their pupils and the facilities of their schools."

Team teaching has been defined as:

"A type of instructional organization, involving teaching personnel and the students assigned to them, in which two or more teachers are given responsibility of working together, for all or significant part of the instruction of the same group of students."

2.2.5.1 Types of team-teaching

There are various ways to classify the team-teaching but a better way is to classify it on the basis of its organization. Team-teaching may be organized mainly in three types:

- (a) A team of teachers from the same department.
- (b) A team of teachers from inter-departments but from the same institution.
- (c) A team of teachers from inters institutions.

First type of team-teaching is organized in secondary schools and higher secondary where there are more than two teachers in the same department. This type of team teaching can be organized at each level of education if there are more than two teachers of the same subject:

Usually team-teaching has two phases:

- (1) Lead lecture
- (2) Follow up group work

A lead lecture is one given at the beginning of the lesson. The team of teachers tries to present all information, which they want to communicate in their lead lecture. The lead lecture is followed by group work, which is immensely valuable for the students. The group work is helpful for the comprehension of the information, which has been presented, in the lead lecture.

2.2.5.2 Principles of team-teaching

The team-teaching is based upon certain general principles, which are helpful in organizing team-teaching.

- (a) **Principle of size and composition:** The concept of fixed size class is becoming obsolete. The size of the group or class should vary according to the objective or purpose of the team-teaching. For example, if the purpose of team teaching is to remove the difficulties of the students in certain topic of a subject. Therefore, the size of the group should be small involving the students having similar type of level of problems.
- (b) **Principle Instructions:** According to the entering behaviour and level of the group team teaching should be organized.
- (c) **Principle of Duties Assigned to teachers of the Team:** There are two types of tasks in team teaching lead lecture and group work. Group work is also known as follow up work. Therefore, according to the competency of the teacher, duties should be assigned.
- (d) **Principle of Learning Environment:** According to the subject, employing appropriate teaching aids and equipment must generate learning environment.
- (e) **Principle of Time Factor:** Time schedule should be prepared before hand by allotting sub topic, lead lecture task and group work or follow up task as team teaching is an organized teaching task.
- (f) **Principle of Supervision:** To develop the mastery over subject-matter is the focus of team teaching. For assimilation of knowledge of concept the supervised study is essential. The nature and duration of the supervision of the student's activities depend upon the purpose of team-teaching.

2.2.5.3 Procedure of Organizing Team-Teaching

Following are the steps of general procedure for organizing team-teaching:

1. **Planning of team-teaching:** This step involves following activities:
 - (i) Formulation of objectives of team-teaching.
 - (ii) Writing these objectives in behavioural terms.
 - (iii) Identify the entering behaviour of the learners of the group.
 - (iv) Deciding the topic to be taught.
 - (v) Preparing a tentative schedule of teaching.
 - (vi) Assigning duties to teachers, considering their interest and competencies:
 - (a) Lead lecture (b) Follow up work and (c) supervision
 - (vii) Fixing up the level of instruction.
 - (viii) Selecting appropriate teaching aids and teaching equipments for generating learning environment.

- (ix) Deciding ways and means for evaluating the students performance: oral or written question for practical work, etc.

The team of teachers who are participating in the team teaching finalizes these activities. The expertise of every teacher should be fully utilized. They should not be compelled to do any activity.

2. Organizing team-teaching: Keeping into consideration the needs of the learners the team teaching is organized. The following are the general activities usually performed by team of teachers:

- (i) Determining the level of instruction: To explore the entering behaviour of the learner some questions are asked.
- (ii) Selection of appropriate communication strategy by considering the level of language comprehension.
- (iii) Presentation of lead lecture by competent teacher of the team; other teachers listen to the lecture and note down the elements of topic, which are not easily understandable to the learners or not appropriately presented.
- (iv) Follow up work : The other teachers have to supplement the lead lecture by explaining the elements of the topic in more clear and understandable way.
- (v) Teachers provide motivation to the learners in follow up work also.
- (vi) Then there is supervision of students activities which are assigned to them in lead lecture or group work. This stage is considered to be important for assimilation.

Every member of the team should be aware of time schedule and work assigned to him.

3. Evaluation of team-teaching: Evaluation is an inevitable part of any type of instruction. It helps the teacher as well as the students to assess his performance. It is also useful in determining weather the objectives achieved or not. It provides reinforcement to teachers as well as the learners. It involves following activities:

- (i) Writing questions, asking oral questions and practical work can be used by the teacher to evaluate the performance of students. Each question should measure a particular objective of team-teaching.
- (ii) Taking decision about the level of performance and realization of the objectives.
- (iii) Diagnosing the difficulties of learners and providing them remediation.
- (iv) Revising the planning and organizing phases of team-teaching on the basis of evaluation of the students.

2.2.5.4 Advantages of team-teaching

Following are the advantages of team- teaching:

1. It is highly flexible and economical technique of teaching.
2. It utilizes the competencies of the teachers.
3. It has been devised to make best use of the mastery of the subject-matter.
4. It creates learning environment for the learner to have mastery over the subject.
5. It provides opportunities to all the students for free expression and discussion in the classroom.
6. It helps to develop the social relation between learners and teachers in the school environment.
7. It provides an opportunity to the teachers to develop the professional status and competency in teaching by observing teaching of content expert.
8. It helps the learner to get benefited by the special knowledge of various teachers.
9. The subject specialist are involved in team spirit to work jointly in solving the learning difficulties of students.
10. Teaching aids and equipments are used by the teachers to make the subject-matter more clear to the students. The team of teachers makes the best use of multi-media devices. These are also helpful to motivate the learners.
11. It maintains the discipline in the class and creates a favourable environment for learning.
12. It is more flexible method than the conventional teaching methods. It develops creativity in the learner.
13. It fosters mutual trust and cooperation among teachers and students.
14. It enables the students to become more aware of their own approach, knowledge of content and simultaneously to the; other experts of the same area and brings excellence of teaching in them.
15. Quality of instructions is definitely improved in organization of team teaching.

2.2.5.5 Limitations of team-teaching

It has the following limitations:

1. It is very difficult to seek cooperation among teachers and enable them to work jointly in teaching-learning situation. They hesitate to work together because no body wants to expose oneself.
2. It is not practicable to assign powers and responsibilities to group of teachers, as responsibility of a group is no body's responsibility.
3. There is no regard and respect among the teachers, as everyone considers himself superior to others.

4. The teachers do not want to deviate from the conventional method of teaching and they do not prefer any change in the system of education as they think that this method is not suitable for Indian schools. This type of attitude of teachers hampers the progress and improvement of educational system.

2.2.5.6 Suggestions to use team-teaching

The team-teaching can be used effectively by considering the following suggestions:

1. To make team-teaching workable and effective the meaning and understanding of team-teaching should be given to the schoolteachers and favourable attitude should be developed among them towards team-teaching.
2. The success of team-teaching depends upon the cooperation and devotion of teachers. Only those teachers should be invited who are willing to participate.
3. The teachers should be given full freedom to work at various stages to team-teaching In spite of being assigned duties.
4. In teacher education departments and institutions, pupil-teachers should be trained for this type of teaching.

The success of team-teaching plan largely depends upon a balanced team in which all the teachers feel their responsibility and will cooperate willingly in organizing teaching.

2.2.6 TUTORIALS

Tutorial strategy is considered both autocratic and permissive type of strategy. It is generally considered to be one of the most valuable educational experiences. Lecture strategy is followed by tutorials because individual difficulties cannot be solved in lecture. Tutorials are highly individualized type of teaching strategy.

Focus: Aim of tutorials is to provide remedial help to the learner or to help individual difficulties of the learner. The cognitive and affective objectives may be achieved by the tutorials.

Structure: Tutorials classes are formed by considering the homogeneous type of difficulties of the learner. To one teacher a small homogeneous group is assigned. He has to give remedial help to the learners. Tutorial is a follow up programme.

Principles: It is based upon the following teaching principles.

- (1) It considers the individual differences.
- (2) It establishes the **rapport** with learners.
- (3) It provides educational guidance.
- (4) It organises remedial help to the learner.

2.2.6.1 Types of Tutorials

Tutorials covers a wide range of teaching activities. These may be classified under three heads: -

(a) Supervision Tutorials: In this type of tutorial a student reads an essay and defends it with arguments. This strategy can provide an opportunity to the student to deepen his understanding of subject. It stresses on the mastery over the basic skills of scholarship. In this case there is regular arrangement of student-teacher meetings.

(b) Group Tutorials: These tutorials are useful for an average student. These can satisfy the needs of less exceptional students. The teacher should have the background of social psychology and group dynamics so that he can deal with group tutorials effectively in solving their problems.

(c) Practical Tutorials: These tutorials are commonly used for both group and individual basis to achieve psychomotor skills in laboratory, workshop and rehearsal. These tutorials are basically employed to achieve the psychomotor objectives.

Group tutorials are more useful in adult teaching. A tutorial strategy is more useful for achieving higher-order cognitive, affective and psychomotor objectives.

2.2.6.2 Advantages of Tutorials

The following are major advantages of the tutorials:

1. It is a valuable teaching strategy from individual differences point of view.
2. It provides an opportunity to organize remedial teaching.
3. It can fulfill the need of entering behaviour of the learner.
4. It provides full freedom to the learner to seek the clarification of their problems and can raise their level of performances.

2.2.6.3 Limitations of Tutorials

It has the following disadvantages: -

1. One teacher cannot solve the difficulties related to different subjects and different students.
2. Sometimes the teacher becomes bias and does not take interest in problem of each student.
3. Usually some students dominate the tutorials group and all students cannot get equal opportunity to participate in the tutorials.
4. Tutorial-group develops the feeling of jealousy.

2.2.6.4 Suggestions for the Effective Use of Tutorials

By following given suggestions tutorials can be improved:

- (1) Entering behaviours, abilities and some background should be kept in mind while forming tutorial groups.
- (2) Teacher student relationship should be objective.
- (3) Teacher should encourage every student to express his difficulty.
- (4) Tutorial groups should be formed on the basis of students difficulties in different subjects.

(5) Teacher should provide remedial help to the students.

2.2.6 SHORT IN TEXT QUESTIONS

1. What do you mean by Panel Discussion? Discuss its limitations.
2. Describe different types of seminar.
3. Discuss the procedure of Organizing Team-Teaching.

2.2.7 SUMMARY

Advancement of Educational Technology helps to evolve new practices in teaching-learning process. In this chapter we have discussed various teaching strategies as (1) Panel Discussion (2) Seminar Technique and (3) Team-Teaching. (1) Panel Discussion - In panel discussion every member of the organization has the capacity to initiate and solve the problem and bring certain attitude and values to the organization. (2) Seminar Technique - A seminar is an instructional technique involves generating a situation for a group to have guided interaction among themselves on a theme which is generally presented to the group by one or more members. (3) Team-Teaching - An arrangement where by two or more teachers, with or without teaching aids cooperatively plan, instruct and evaluate one or more class groups in an appropriate instructional space and given length of time so as to take advantage of the special competencies of the members.

All these techniques are applicable for higher classes and are used to obtain higher order cognitive, affective and psychomotor objectives.

2.2.8 KEY CONCEPTS

1. **Teaching Strategy** - It is a generalized plan for a lesson which includes structure, desired learner behaviour and an outline of planned tactics necessary to implement the strategy.
2. **Teaching Methods** - It refers to the formal structure of the sequence of acts commonly denoted by instructions. The term method covers both strategies and tactics of teaching and involves the choice of what is to be taught, and in which order it is to be presented.
3. **Teaching Tactics** - It is good linked influencing behaviour of the teacher the way he behaves in instructional situations in working toward the development of the strategy.

2.2.9 SUGGESTED READINGS

1. A First Course in Instructional Technology - K.P., Pandey
2. Psychology of Learning and Techniques of Teaching - James. M., Thyne
3. The Psychology of Learning and Instructional Technology - John P., DeCecco and William R., Crawford
4. Technology of Teaching - R.A., Sharma

NOTE - Lesson written under the financial assistance of D.E.C.

Models of Teaching : Assumptions and Fundamental Elements of Teaching Models, Types of Teaching Models, Suchman's Inquiry Training Model and Bruner's Concept Attainment Model.

Structure of the Lesson

- 2.3.1 Objectives
- 2.3.2 Introduction
- 2.3.3 Assumptions of Teaching Models
- 2.3.4 Fundamental elements of Teaching Models
- 2.3.5 Types of Models of Teaching
- 2.3.6 Inquiry Training Model
- 2.3.7 Glaser's Basic Teaching Model
- 2.3.8 Concept Attainment Model
- 2.3.9 Utility of Teaching Models
- 2.3.10 Summary
- 2.3.11 Suggested Questions
- 2.3.12 Suggested Readings

2.3.1 Objectives :

After reading this chapter, the students will be able to -

- (i) understand the concept of models of teaching
- (ii) understand fundamentals elements of teaching models
- (iii) describe and differentiate between different types of teaching models
- (iv) discuss the utility of teaching models.

2.3.2 Introduction :

The educationists and psychologists are making efforts to evolve theories of teaching as a result some teaching models have been developed. Teaching and learning relationship may be established empirically by the use of these models. Teaching models are prescriptive teaching strategies designed to accomplish particular teaching goals (Eggen & Others, 1979). They are prescriptive in the sense that the teacher's responsibilities during the planning, implementing and evaluating stages are clearly defined. A model

for teaching, as we use the term, **is a pattern or plan which can be taken up to shape a curriculum or course, to select instructional materials and to guide the teacher's actions.** Teaching model is a **tentative treasury** of teaching. **Joyce and Weil** have tried to define the term teaching model in their-book '**Models of Teaching**'. Teaching models are just instructional designs. They describe the process of specifying and producing environmental situations which cause the student to interact in such a way that the specific change occurs in his behaviour.

According to **Hyman**, model is a way to talk and think about instruction in which certain facts may be organized, classified and interpreted. Models of Teaching suggest the relationship between various teaching and learning conditions. According to **Joyce and weil** (information Processing Models of teaching, 1980) "A model of teaching consists of guidelines for designing educational activities and environment. It specifies ways to teaching and learning that are intended to achieve certain kinds of goals. A model includes rationale, theory that justifies it and describes why it is good for and why one rationale may be accompanied by empirical evidence, that it works. The main postulate of "Teaching Model" is that the learning outcomes can be classified into distinctive categories and each objective can be achieved by generating, specific situations. A teaching model provides a specific outline of teaching activities. These can be broadly classified under six categories:

1. Learning outcomes are written in behavioural terms.
2. The appropriate stimulus situations are selected for emitting desired responses of the learner.
3. The learning situations are specified for observing the students responses.
4. The criterion behaviours are defined for students performances.
5. The teaching tactics are specified for creating the interaction between students and environment.
6. The learning situations and teaching tactics can be improved and modified for bringing the desirable changes in student's behaviour.

2.3.3 Assumptions of Teaching Models:

Teaching models are based on the following assumptions :

1. Teaching is a means for generating an environment of learning. It involves independent variables.
2. Objectives of teaching are achieved by organizing teaching elements in different ways.

3. The content, skill, instructional roles, social relationships, type of activities, physical facilities and their use, all form an environmental system whose parts interact with each other to constrain the behaviour of all participants, teachers as well as students.
4. The models of teaching create environment. They provide rough specification for environment in the classroom teaching-learning process. Teaching models provide the learning experiences by creating appropriate environment for real behavioural outcomes.

2.3.4 Fundamental Elements of Teaching Models :

Generally a model of teaching consists of six elements termed as 'fundamental elements'. With the help of these elements, an outline of a model can be explained. These elements are :

- (i) Focus ;
- (ii) Syntax ;
- (iii) Principles of reaction ;
- (iv) Social system ;
- (v) Support system and
- (vi) Evaluation System.

1. Focus:

The term 'focus' refer to the goals or objectives of teaching. Every teaching activity is undertaken to achieve some defined objectives. It refers to the frame of reference around which the model is developed. It is the main thesis which determine combinations and relationship of various processes, conditions and factors built into the model. Focus is the central aspect of a teaching model.

2. Syntax

It describes the structure of **activities** or **flow or sequence of activities**. It specifies the educational environment related with the model. Syntax or phasing of the model, refers the description of the model in action, i.e. the kind of activities which are organised at well-defined stages of the whole programme **typify** the educational environment belonging to each model. It is the sequence of steps involved in the organisation of the complete programme of teaching.

3. Principles of Reaction

It tells about the **nature of interaction between the teacher and the learners**. The principles are the guidelines for the teacher's response to the learner. Principles of reaction (Joyce and Weil, 1972) provide the teacher with rules of thumb by which to 'tune-into' the student and select appropriate responses to what the students does.

4. Social System

The social system of a teaching model includes three things: (a) a description of the kinds of student-teacher role, (b) a description of hierarchical relationships and (c) a Description of the kinds of norms encouraged and a student behaviour which is rewarded. In some of the models the teacher gets the prominent place where in others student behaviour is rewarded. In some of the models the teacher gets the prominent place where in others student acts as the central figure. While some others provide equal relationship between teacher and student.

5. The Support System

The support system is structured on the **basis of the sources**, namely the role specification for the teacher and the substantive demand of the experience. This system includes requirements in addition to human skills capacities and technical facilities necessary to employ a model, e.g. books, cassettes, films, self-instructional systems, expert etc. It means to provide facilities to teacher and the students results in successful implementation of the strategy of teaching.

6. Evaluation System

Teaching is incomplete without evaluation because without it the attainment of goals cannot be assessed. Various steps and rating scales are administered to evaluate the achievement of students.

Check your progress

- (1) Definer term 'Model of Teaching'.What are the fundamental elements of Teaching Models?

2.3.5 Types of Models of Teaching

Scholars in various fields like education, psychology, sociology, psychiatry and system analysis have developed theories of learning and teaching. Broudy (1995), J. Dewey (1916) and James (1996), Philosophers; Hunt (1971), Kohlberg (1966), Ausubel (1963), Bruner (1966), and Skinner (1957), learning theorists Erickson (1950), and Rogers (1951) have developed enormous

approaches to learning and teaching. Review of literature of 'Teaching Models' suggests a variety of sources. J.P. Decceco has discussed the four Basic Psychological models of teaching. He considers that Glaser's teaching model is the Basic Model of Teaching. Joyce and Weil have classified teaching models under four families and these can be entitled 'Modern Teaching Models'. All the Teaching Models may be classified and written as follow :

A. Historical Teaching Models :

1. The Socratic Teaching Models-**Socrates**.
2. The Classical Humanistic Model-**Broudy**.
3. The Personal development Model.

B. Philosophical Models of Teaching :

1. The impression Model-**John Locke**
2. The Insight Model-**Plato**.
3. The Rule Model-**Kant**.

C. Psychological Models of Teaching :

1. A Basic Teaching Models-**Robert Glaser**.
2. A Computer Based Teaching Learning-**John Carroll**.
3. An Interaction Model of Teaching **N.A. Flanders**.

D. Teaching Models for Teacher Education:

1. Taba's Models of Teaching
2. A models of Variation in Teacher-orientation.
3. The Fox-Lippitt's Teaching Model.

E. Modern Teaching Models :

The modern Teaching Models have been classified under the following four families.

1. Social Interaction Sources :

- a. Group Investigation Model-**John Dewey**.
- b. Juris prudential Inquiry model-**Donald Oliver**.
- c. Social Inquiry Model-**Massilan & Cox**.
- d. Laboratory Training Model-**Bethol & Maine**.

2. Information Process Source:

- a. Concept Attainment Model-**J. Bruner**.
- b. Inductive Model-**Hilda Taba**

- c. Inquiry Training Model-**J.R. Suchman.**
- d. Advance Organiser Model-**D.P. Ausubel.**

3. Personal Source:

- a. Non Directive Teaching Model-**C.R. Rogers**
- b. Classroom Meeting Teaching model-**William Glaser.**
- c. Awareness Training Model- **William Schutz.**

4. Behaviour Modification Source:

- a. Operant Conditioning Model of Teaching-B.F. Skinner.

2.3.6 Inquiry Training Model :

J. Richard has designed 'Inquiry Training Model', Which is both inductive and deductive as it employs both types of reasoning. The students are active participants in the procedure of finding a solution.

Assumptions :

The inquiry training model has the following assumptions'

- (i) Children are basically curious and eager to learn things.
- (ii) Children learn better when they actively participate the independent inquiry.
- (iii) Self learning can be systematised and expedited if the students helped and trained into a scientific process of inquiry.
- (iv) Cooperative inquiry enriches thinking and helps students to learn about the tentative and emergent nature of knowledge and to appreciate alternative explanations.

The students, have a natural motivation to inquiry. The students are gradually taught to verify model and help the students in developing intellectual discipline and skills necessary to raise questions and search out answers stemming from their curiosity.

Focus: The main goal of this model is to develop the cognitive skill for searching and data processing.

Syntax :

This model has five phases :

- 1. Encounter with the problem:** Explaining inquiry procedures, presenting discrepant event.
- 2. Data gathering Varification :** Verifying the nature of objects and conditions, verifying the occurrence of the problem situation.

3. **Experimentation:** Isolating relevant variables, hypothesizing and testing casual relationships.
4. **Formulating an explanation or rules :** Formulate rules and explanations.
5. **Analysing the Inquiry Process :** Determining and development of strategy.

Principles of Reaction :

The teacher helps the students to inquire and can keep the inquiry moving by making new information available to the group. The teacher's task is to keep the inquiry directed and to facilitate discussion of the problem situation among students in the last phase.

Social System :

The teachers should encourage interaction among students. The teacher's and student's participation should be as equal as assuring of ideas is concerned. It is a moderately support to the structured system, yet more social resources may be used for the inquiry.

Support system:

The confronting material and the resource material related with the problem may be developed by the teachers from the library. The teacher has to provide maximum support to the students in the form of required material.

Application :

It has been developed specifically to reach young children to improve their scientific strategies of inquiry for creative thinking. It is the bridge between the demand of the curriculum and problem that catches out minds of the students and is possible for such an investigation.

2.3.7 Glaser's Basic Teaching Model:

Robert Glaser (1962) has developed a stripped-down teaching model which, with modification, is the basic teaching model. The basic teaching model divides the teaching process into four parts or components. It provides fairly adequate conceptualization of the teaching process.

Following figure 1 shows sequence of events in the instructional process.

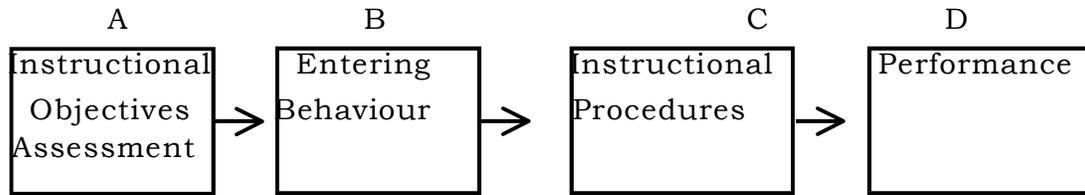
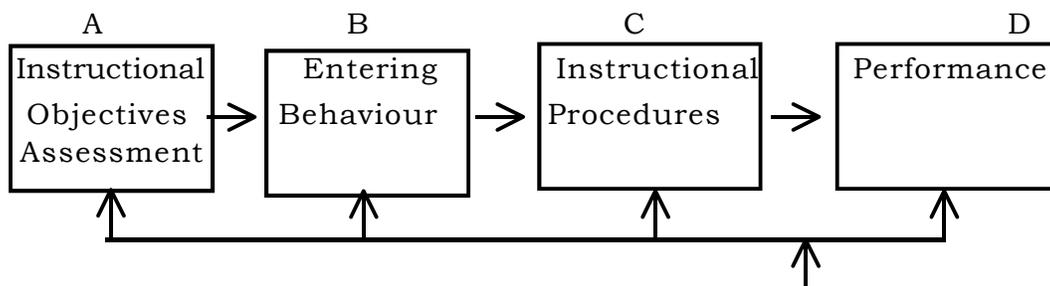


Fig.1

Lines which connect components later in the sequence with earlier ones are called feedback loops.



(Fig. 2)

Feedback loop

The three feedback loops in figure 2 connect performance assessment with each of the earlier component of the model.

2.2.7.1 Components of Basic teaching Model :

Four components of this model are.

1. Instructional Objectives :

The objectives which describe a proposed change in the behaviour of a learner as a result of some learning experiences are termed as instructional objectives. The four major factors involved in preparing objectives selection, classification, analysis and specification.

- (i) **Selection:** The selection of objectives is usually based on : the available instructional resources, capabilities of the students with his subject matter - what students are able to do before starting the unit and what the students should be able to do in instructional units.
- (ii) **Classification :** The taxonomies are useful in making sure that the objectives selected are of the level actually desired.
- (iii) **Analysis :** After the selection and classification of objectives a behavioural analysis is done. Such an analysis can be performed

by observing students who have already achieved the objectives.

(iv) Specification : Behavioural objectives will be most valuable if they contain following three elements :

- (a) We decide what the child was going at the time of instruction. Here the performance objective should not be about the lesson but it is about the statement what the learner will do at the end of the learning activity.
- (b) First of all we decide about, under what conditions their behaviours will be developed. Secondly we consider that under what conditions their behaviour should be observed.
- (c) Here we decide what will be the level of performance of the child and how the child is expected to perform.

2. Entering Behaviour:

It is the component from where the instructions begins. It describes about the behaviour of the student acquired before he can acquire new terminal behaviour. It describes about the present knowledge of the student and also about the future attainments of the student. The student's behaviour may be analysed as his achievement, intelligence, aptitude, interests, motivation levels, and personality. In other words, the entering behaviour is the basis for selecting instructional objectives. The teacher determines whether the student has acquired a particular instructional objective or not. To determine this the Teacher constructs a test which evaluates previous learning rather than the present learning.

3. Instructional Procedures:

After entering behaviour the student teacher will select appropriate instructional procedures for instructions for various learnings. The instructional procedures include :

- (i) About the selection and development of software and hardware devices.
- (ii) About the preparation of instructional material.
- (iii) About a sequential plan to achieve the stated objectives.

4. Performance Assessment:

Finally, We evaluate how well the students have achieved the instructional objectives. The performance assessment provides feedback to each component if students have not achieved the required standard of achievement. The feedback from this component will show how well the

students have achieved the instructional objectives. The model indicates that teaching includes a broad range of decision and practice. Lastly, it is clear from the above mentioned points that the personality of the teacher is not the central element in the present concept of teaching process.

2.2.8 Concept Attainment Model :

Bruner (1956) has developed this teaching model. It enables the students to describe similarities and relationship among things of the environment. The model emerged out of the study of thinking process in human beings.

Assumptions :

It is based on the assertion that environment is full of diverse things and it would have been impossible to adjust in it if human beings had not the capacity to discriminate and to categorise things in groups. This classification helps the mankind in three ways. First of all it reduces the capacity of the environment, secondly it gives the means by which we identify the objects in the world and thirdly it reduces the necessity of constant learning.

Bruner and his associates (1979) consider categorising as the 'Principle' means through which a growing member of a society is socialised and they assume that all sets of concepts are the product of some kind of thought processes and the means of acquiring any concept is essentially the same (Joyce and Weil, 1985). The categorising activity has two components, the act of concept formation and the act of concept attainment. In an instructional process, the concept formation proceeds the concept attainment. According to Bruner a concept has the following five elements:

- (i) Name is the term given to a category.
- (ii) Examples (Positive and negative) : refers to the instances of the concept.
- (iii) Attributes (essential and non-essential) are the common characteristics that cause us to place examples in the same category.
- (iv) Attribute values.
- (v) Rule: Refers to final statement specifying the essential attributes of a concept.

Focus: The main goal of this model is the description of a process by which learners discriminate the attributes of things, persons, events and place them into categories. Thus main goal is to develop inductive reasoning.

Syntax :

The concept attainment is processed through four phases written as below:

1. The data is presented to the learner. The data may be of events or people. The learner is encouraged to drive out the concept or principle which is being used on the basis of selection of units.
2. Some students start with board constructs and gradually narrow down the field or become more specific in their statements of the concept.
3. The students analyse the kinds of concepts and their attributes in a variety of materials appropriate to their age and experience. The main purpose of this phase is to increase the knowledge of the nature of concepts and how they are used.
4. This phase is designed to help the students to become aware of the concept formation techniques and to sharpen the precision with which he develops and uses concept.

Social System :

The teaching situation is moderately structured. The Teacher has to control all action, but freedom is given in discussion within different phases of teaching. The teacher has to motivate the students to participate in the tasks of different phases.

Principles of Reaction :

During the first phase, students formulate the hypothesis, which is tested in the second phase of the model. In the third phase, the teacher prompts learners to analyse the thinking strategies of the concept.

Support System :

The material can be so arranged that positive and negative examples are presented to student, so that he may find out the concept relevant material him-self and form some hypothesis in his mind.

Application :

- (i) The concept attainment model of teaching is widely used in language teaching.
- (ii) The syntactic structure of every language is done through teaching the concept of that language.
- (iii) It can be the basis of extensive man-machine system in modern teaching learning process.

- (iv) It works as an evaluation tool to assess the mastery of the previously attained ideas. It also provides training in inductive reasoning and sensitivity and awareness of alternative perspectives.

2.3.9 Utility of Teaching Model

Utility of teaching models is clear from the following :

- (i) A teaching model helps in achieving some specific objectives.
- (ii) The nature of a teaching model is practical.
- (iii) A teaching model can bring changes and restifications in teaching.
- (iv) Under a teaching model, such teaching strategies are used which keep in fringing change in the behaviour of the pupils.

2.3.10 Summary :

To make the teaching-learning process interesting and worthwhile for students, a teacher needs to follow some strategy or plan. Models provides the basic structure to the teacher to plan his teaching. Teaching models are briefly classified into five categories - Historical teaching models, philosophical models of teaching, psychological models of teaching, teacher education teaching models and modern teaching models.

In this chapter, we have discussed three teaching models (1) Inquiry training model (2) Glaser's basic teaching model and (3) Concept attainment model. These are the models which will help the teacher to understand the teaching methodology beter.

2.3.11 SUGGESTED QUESTIONS

- (i) Describe in detail 'Basic Teaching Model' and its application in schools.
- (ii) Describe the Major assumptions of teaching models. Write in brief about the inquiry Training Teaching Model.

2.3.12 SUGGESTED READINGS

1. Pandey, K. P. : A First Course in Instructional Technology.
2. Sharma, R.A. : Essentials of Educational Technology.
3. Sodhi G.S. & Dutt Sunil : Essentials of Educational Technology.

LESSON NO. 2.4

TABA'S INDUCTIVE THINKING MODEL

Structure :

- 2.4.1 Introduction
- 2.4.2 Meaning of Inductive thinking Model
- 2.4.3 Steps or Stages of Inductive thinking Model
- 2.4.4 Fundamental elements of Inductive thinking Model
- 2.4.5 Summary
- 2.4.6 Suggested Questions
- 2.4.7 Suggested Books and Web Sources

2.4.1 Introduction :

Information processing models provide knowledge and understanding to the students about new information and new facts. They create appropriate environment and stimuli for the students to solve problems. They are more concerned with the development of creativity and general intellectual development rather than the emotional or social development of the learner.

Taba's Inductive thinking Teaching Model :

Inductive thinking Model was developed by Hilda Taba, a curriculum theorist. She developed this model in her experimental studies conducted in the central casta school. She popularised the term 'Teaching Strategy'.

Taba's Inductive processing model is called information processing model because it helps the learner to develop the methods of processing information from the environment.

2.4.2 Meaning of Inductive Thinking Model :

Inductive means to proceed from particular to general, from example to principles, from empirical data to generalisation.

It is a teaching model for collection and manipulation of data. It is based on thinking skill should be taught using specific teaching strategies designed for those teaching skills. Inductive thinking model of teaching uses three teaching strategies namely concept formation, interpretation of data and application of principles to induce inductive thinking.

Objectives of Inductive Thinking Model :

1. To collect, organise and manipulate data.
2. To develop a series of teaching strategies designed to develop mental processes.
3. To develop ability to categorise.
4. To develop abilities to use categories.
5. To improve students' ability to handle information.
6. To induce student to expand the conceptual system with which they process information.

Basic Assumptions of the Model :

Taba (1967) believes :

1. Thinking can be taught.
2. Thinking is an active transaction between individual and data. When student organise facts, relate facts to each other, infer hypothesize, predict and explain phenomena that is not known or taught already.

3. Thinking process evolves a lawful sequence. Each skill is built on the previous one. To master certain skills certain earlier ones must be mastered first. The sequence cannot be reversed.

2.4.3 Steps or Stages of Inductive Thinking Model :

Taba developed three stages or strategies to induce the three tasks of teaching skills.

1. Concept formation
2. Interpretation of data
3. Application of principles

1. Concept formation : This stage involves three mental processes :

- (i) Identification :** The teacher should ask the students to identify and enumerate the items that are relevant to a problem.
- (ii) Grouping :** The teacher should the student to group these items according to some basis of similarity.
- (iii) Developing :** After identifying and grouping, the teacher should ask students for developing suitable categories and labelling the groups.

2. Interpretation of Data : It also consist of three mental operation :

- (i) Identifying relationship :** The teacher's questions or differentiate certain aspect enable the students to identify. Therefore these questions enable the students to identify or differentiate among the categories.
- (ii) Explaining the relationship :** Student are to explain items of identified information relating the points to each other. Here the teacher asks questions concerning cause and effects.
- (iii) Generalizing :** It means the teacher should let the students go beyond the given data, generalize and to arrive at some conclusions based on inferences about them.

3. Application of Principles : This stage includes :

- (i) Analysing the nature of problems.
- (ii) Using the relevant knowledge and determining casual links leading to prediction or hypothesis and explaining the hypothesis.
- (iii) Using logical principles to determine necessary and sufficient conditions and verifying the hypothesis.
- (iv) **Identfying dimensions and relations :** The activity this stage will have coverage around a question, "What do you notice, see and find?"
- (v) **Explaining dimensions and their relationship :** The central question at this stage is, why did so and so happen?"
- (vi) **Making inferences :** It refers to the concluding statement about the relationship of the item.
- (vii) **Predicting consequences and forming hypothesis :** Here question is asked to the student, "What would happen it?"
- (viii) **Explaining and Supporting predictions and hypothesis :** The discussion at this stage would be initiated by question's like, "Why do you think this would happen it?"
- (ix) **Verifying the Prediction :** The last step is concerned with the verification of the prediction and justification of explanation at the previous step.

2.4.4 Inductive Thinking Model in terms of Fundamental Elements :

1. **Focus :** The main focus of the model is to develop the mental abilities with special emphasis on concept formation.
2. **Syntax :** Teaching is organized in nine phase.

These are :-

- (i) **Identification and enumeration of item of data :** Which are relevant to the problem : for examples : teaching a group of students about animal kingdom starts with exposing them to a zoo. The teacher takes them around and asks them to take note of what they see. Returning back to the classroom, the teacher, writes the name of animals on black board with the help of students.
- (ii) **Grouping these items :** At this step, teacher puts a direct question, "What belong together?" The animals are grouped into classes on any criteria of classification.
- (iii) **Developing category labels for the group :** The teacher ask what would these group be called. Different groups are ascribed different labels.

3. Social System :

- (i) **Conducive Environment :** In all the nine stages, the classroom environment is conducive to learning and co-operative.
- (ii) **Teacher as an initiator :** The teacher is usually the initiator of the information.
- (iii) **Teacher as Controller :** Teacher decides the sequence of activities in advance. The teaching activities are arranged in a logical sequence.
- (iv) **Pupil's activities :** A good deal of freedom should be given for activities of the students. There is progress of activities under the democratic set up of control.

4. Principles of Reaction :

Taba provides in her teaching model clear and definite guidelines for teaching and responding to different situations within each phase.

- (i) **Optimum Order** : The teacher match his moves to a specific cognitive task within each category.
 - (ii) **Right Time** : The teacher should not ask a question to the student who has not enumerated or listed the task.
 - (iii) **Cognitive Function** : Through the process of questioning, the teacher should establish cognitive functions.
 - (iv) **Comprehended by all** : The teacher must ensure that each operation is completed and understood by all before proceeding to grouping questions.
 - (v) **Sense Reading** : The teacher should sense the student's readiness for new experience. He has to see carefully that how far the students are ready to learn new things.
 - (vi) **Main Mental Task** : The main task of the teacher is to see how students are processing information and then to use eliciting questions.
5. **Support System** : Taba developed this model to build teaching strategies in social studies, but strategies can also used in Botany, Zoology, Geography and Sociology. For such subjects outside nature, animal kingdom, social institution and economics establishments provide support for studies in the relevant system.
6. **Application** : This model has been successfully used for a wide range of subjects like Social Studies, Bio, Geography, Language specially English. This model is also applicable for young children for teaching concepts and for teaching inductive thinking processes.
7. **Instructional and nurturant effects** : The main purpose of the model is to teach for concept formation. It is very nurtures logical reasoning, comprehension, awareness to the environment and classification of concepts.

Merits of Inductive Thinking Model :

- 1. Development of Thinking :** This model develops both convergent and divergent thinking creative processing of information in this model develops divergent thinking while model also develops convergent thinking when different information is used to solve problems.
- 2. Wide range of Subjects :** The model has been successfully used for a wide range of subjects like social studies, bio-sciences, geography, sociology and language especially English.
- 3. Useful for Young Children :** The model is especially applicable for young children for teaching concepts and for teaching inductive thinking process.
- 4. Elementary and high school :** The learning experience are the basis of information to arrange the content in an effective sequence. The first three phase are useful in dealing with elementary classes and last three phases are useful for higher especially for science and language curriculum.
- 5. Logical :** Both the teacher and the student proceed logically. It develops logical reasoning, Comprehension and classification of concepts.
- 6. Linguistic Value :** Inductive thinking model develops in teachers and students attention to language. Teacher uses the language clearly and students have to listen to language and meaning of words carefully.
- 7. Co-operative System :** It is based on the co-operation of teachers and students.
- 8. Psychological :** This model helps in the development of innate power of the students. Student remain active when they are taught by this model.

Demerits of Inductive Thinking Model :

1. **Teacher Centered :** Though the model involves activities of the students yet it is teacher centered because teacher plans, ask questions and determine the sequence of questions. He is initiator and controller of activities.
2. **Not for all problems :** It cannot solve all the problems.
3. **Not for all topics :** Inductive thinking model cannot be used for all topics.

2.4.5 Summary : Thus Inductive Thinking Model helps the learner to develop the method of processing information from the environment. It is the teaching model for collection and manipulation of data. This is the model of teaching strategies to induce thinking.

2.4.6 Suggested Question :

- Q.1 What is Inductive Thinking Model of Teaching. Discuss the steps of Inductive Thinking Model in detail.
- Q.2 What are the objective and fundamental elements of Inductive Thinking Model.

2.4.7 Suggested Books :

1. Educational Technology : R.P. Pathak
2. Educational Technology : Bhushan Anand
: Theory and Practice in Teaching

Web Sources : www.googl.com.wikipedia

Modification of Teacher Behaviour: Interaction Analysis and Simulated Teaching

Structure of the Lesson

2.5.1 Objectives

2.5.2 Introduction

2.5.3 Meaning of Teaching

2.5.3.1 Teaching as interaction - its meaning

2.5.3.2 Flander's Technique of Interaction Analysis

2.5.3.3 Description of Analysis Procedure

2.5.3.4 The procedure of observation

2.5.3.5 Rules and guidelines to Analyse the interaction

2.5.3.6 Recording of a data in matrix

2.5.3.7 Application of Interaction Analysis to Teacher Education

2.5.4 Meaning of Simulation

2.5.4.1 Principles of Simulation

2.5.4.2 Steps in Simulated Teaching

2.5.4.3 Teacher Training and Simulation

2.5.4.4 Merits of Simulation

2.5.4.5 Demerits of Simulation

2.5.5 Conclusion

2.5.6 Suggested Questions

2.5.7 Suggested Readings

2.5.1 Objectives :

After reading this chapter, you will be able to -

- (1) understand the concept of teaching
- (2) application of Flander's interaction analysis to teacher
- (3) describe the concept of simulated teaching
- (4) apply the simulated teaching in classroom.

2.5.2 Introduction :

The word 'Teaching' is used in three different contexts. **First**, it is used to refer to that which is taught, as a body of knowledge or as a system of beliefs. **Second**, 'teaching' is used to refer to a profession, the profession of one who is engaged in a process of education. **Third**, "teaching is used to refer to the process of teaching or the ways of making something to other, usually in a school or college setting. In the following pages the main stress will be on the third use of the word teaching."

2.5.3 Meaning of Teaching

There is no systematic conception of teaching. Every teacher has at least a pre-determined notion 'teaching' which may not stand to the list of research and time. Some of the conception of the word 'teaching' are as follows :

- **Teaching** an intimate contact between a more mature experienced personality and a less mature one which is designed to further the education of the later (Morrison).
- Teaching is a **system of actions** involving an agent, an end in view, and a situation including two sets of factors (controllable and non-controllable) (Smith).
- Teaching may be described as a **two-fold activity** of communicating information and communicating judgement. (Oakeshott).
- Teaching is imparting of knowledge and skill to an individual or group of individuals in classroom setting, common usage.
- Teaching may be defined as a **set of teaching activities** or strategies planned to achieve certain predetermined goals or objectives. These activities occur in an interactional and social setting.
- Teaching is basically a **network of activities** engaged in by a teacher with specific learning goals in view. Teaching is a goal-directed activity.

2.5.3.1 Teaching as Interaction-Its Meaning

In order to attain objectives of teaching, a teacher interacts with his students. This interaction is of two types: (i) Verbal interaction (ii) Non verbal interaction. Interactive process is mainly influence-directed. In the classroom, a teacher tries to influence the students. This influence is not one way. Both teacher and students influence each other.

In most of the cases teacher's influence is more predominant than student's influence. This influence is of two types; (i) direct influence and indirect influence. Direct influence consists of stating the teacher's own opinion or ideas, directing the pupil's actions, criticizing his behaviour or justifying the teacher's authority or use of that authority.

Indirect influence consists of soliciting the opinions or ideas of pupils, applying or enlarging of those opinions or ideas, praising or encouraging the participation of pupils or classifying and accepting their feelings.

Teacher's direct or indirect influence can be reliably assessed by observations in spontaneous classroom situations or by video taping classroom observations. There are many techniques used for interaction analysis; but the most suitable and economical one is Flander's system of interaction analysis.

2.5.3.2 Flander's Technique of Interaction Analysis

Interaction' analysis is an observation technique which can be used to obtain a fairly reliable record of spontaneous verbal statements. The observation of the teacher behaviour is not an easy job. Teacher's behaviour is not complex; it is variable as well. The observer's perception may be subjected at moments due to his preconceptions. Interaction analysis is an observation procedure designed to minimize these difficulties, to permit a systematic record of spontaneous acts structure the process of instructions by taking into account each small bit of interaction.

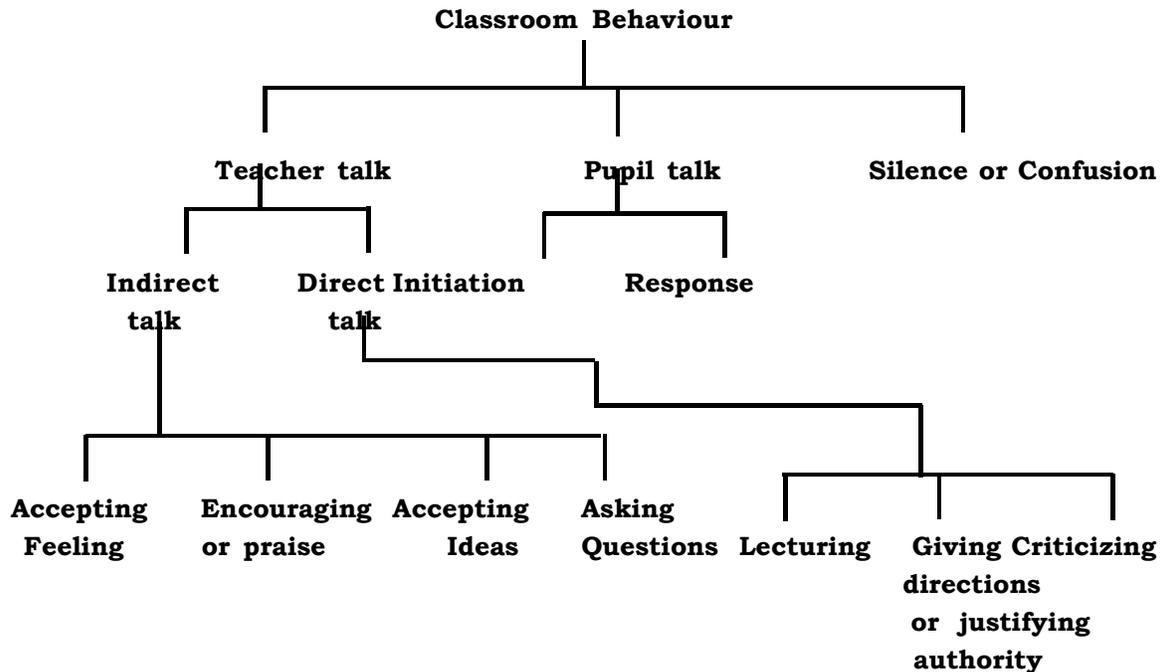
The Flander's system is concerned with verbal behaviour only, primarily because verbal behaviour can be observed with greater reliability than non-verbal behaviour. The assumption is that the verbal behaviour of an individual is an adequate sample of his total behaviour.

2.5.3.3 Description of Analysis Procedure

In the Flander's system of analysis, teacher's statements are classified, first as either direct or indirect. This classification gives central attention to the amount of freedom the teacher grants to the students in a given situation therefore, a teacher has a choice. He can be direct, that means minimizing the freedom of the students to respond. His choice, conscious or unconscious depends upon many factors among which are his perceptions of the situations and the goals of the particular learning situation.

In order to make total interaction in the classroom meaningful, the Flander's system included student talk as second category of behaviour. A third category, that of silence or confusion in the class, is included in order to account for the time spent in the behaviour other than that which can be

classified as either teacher talk or student talk. All statements that occur in the class, are categorized in three categories, namely-teacher talk, pupil (student) talk and silence or confusion.



Below we discuss each category in detail :

I. Indirect teacher behaviour or Indirect talk

1. **Acceptance of feelings of pupils:** The teacher accepts feelings when he says that he comprehends how the children feel. As individuals, they have the right to have their own feelings, and he will not punish or penalise the children for their feelings. These kinds of statements often communicate to children both acceptance and clarification of the feelings. This category also includes those statements that recall past feelings, refer to enjoyable or painful feelings that are present, or predict happy or sad events.
2. **Praise or encouragement :** This category includes jokes that release tension. Jokes that threaten students or are made at the expense of individual student do not fall under this category. The words like, 'good', 'right', 'continue', 'go ahead', 'carry on', 'you are doing very well' etc., represent praise or encouragement. Such words or phrases used by the teacher should be categorized as falling under *Category No.2*.

3. **Accepting ideas:** This category is quite similar to category No. 1. The difference is that it includes only acceptance of student's ideas, no acceptance of their expressed emotion. When a student makes a suggestion initiates in idea, elaborates ideas of teacher or of other students, such behaviour of the student is accepted by teacher and explained or summarized to the class. When a student makes a suggestion, the teacher may paraphrase the student's statement, restate the idea more simple, or summarize what the student has said. Teacher such statement like, "well that is an interesting point of view; I see what you mean. There is a lot of truth in what you say. Your idea seems practicable. The above statement made by the teacher in the class fall under this category. Statements belonging to category 3 are difficult to recognize; often the teacher will shift from using the student's idea to stating his own idea. If the idea of the student, and the teacher is only commenting or elaborating it then this category, is used.
4. **Asking questions:** This category includes only those questions to which teacher expects an answer from students. If a teacher asks a question and he makes a statement of opinion, or if he starts lecturing without waiting for an answer, obviously the question was not meant to be answered. Questions that are meant for answering are of many kinds i.e, open questions, closed questions, board or narrow questions. All questions of above categories, which require answer and not commands or criticism, fall under this category.

II. **Direct teacher behaviour (Direct Talk)**

5. **Lecturing :** It is a form of verbal interactions that is used to give information, facts, opinions or ideas. The presentation of material may be used to introduce, review, or focus the attention of the class on a particular topic or point of view. Most of the observed behaviour in India classroom consists to this category. Whenever the teacher is explaining, discussing, giving opinion or giving facts or information, *category five* is used. This is the most frequently used category in classroom observations.
6. **Giving directions:** This decision about where or not to classify the statement as a direction or command must be based upon the degree of freedom that the student has in response to teacher's direction. When the teacher says, "Will all of you go

and work in the field"? He obviously is giving a direction. If he says, "Mohan, come here and pick up any one care out of the heap" he is giving a Command. Such statements of teacher are included in *category 6*.

7. **Criticizing or justifying authority:** A statement of criticism is one that is designed to change student's behaviour from non-acceptable to acceptable one. The teacher says, "Really, I do not like what are you doing" Another type of statements included in this category are those that might be called statements of defence or self justification. These statements are quite difficult to detect. If the teacher is explaining himself for this authority, defending himself against the student or justifying himself, the statement falls in this category. Other kind of statements fall under this category are those of extreme self-reference or those in which teacher is constantly asking the children to do something as a special favour to him.

The above category from Nos. 1 to 7 are category of the teacher talk. Whenever the teacher is talking his behaviour must be categorized in one of the first seven categories.

8. **Student talk : Response:** This category is used when the student answers a question asked by the teacher, or when he responds verbally to a direction or command given by the teacher. Anything that the student says in reply to a question or query, i.e. in response to initiation by the teacher is placed in *category 8*.
9. **Student talk: Initiation:** The student talk which is not in response to initiation by the teacher is put in his category. In general, if the student raises his hand to make a statement or to ask a question when he was not been permitted to do so by the teacher, his behaviour falls in this category. The talk initiated by the student is categorized as *category 9*.
10. **Silence or Confusion:** This category includes the remaining classroom interaction that has not been included in the other categories period of confusion, as well as, short period of silence in communication, when it is difficult to determine who is talking, classified in this category.

2.5.3.4 The Procedure of Observation

The observer sits in the classroom in the best position at a place from where he can see and hear the participation. For the first few minutes he sits and he observes the classroom behaviour, but he may not to translate interaction analysis into categories. When he thinks that there is no disturbance and interaction he starts writing category number or tallies in observation performance. Within every three seconds the observer writes down category number of the interaction he had just observed. He records these numbers in sequence in a column. He will write 8 to 20 numbers per minute, thus, at the end a period of time, he will have several long columns to be numbers. The observer should be quick in recording these number, but it is more crucial to be accurate, he may also wish to write down marginal notes from time to time. The observer stops classifying whenever the classroom activity is changed so that the observation is not inappropriate; for instance, when the class is engaged in solving some exercises the work books or doing silent reading. The observer starts classification again when the class returns to observer activities. At all times observer notes the kinds of class activity he is observing. A shift to the new activity should also, be noted.

2.5.3.5 Rules and Guidelines to Analyse the Interaction

1. When the observer is not certain in which two or more categories a statement belongs, choose the category that is numerically farthest from category 5. This is true except when one of the categories in doubt is category 10, which is never chosen if there is any other category under consideration. For example, if the observer is not sure whether it is 8 or 9 he choose 9. If in doubt between 2 or 3, he chooses 2.
2. If the primary tone of the teacher's behaviour has been consistently direct or indirect, do not shift into the opposite classification until a clear indication of shift is given by the' teacher. The trained observer is the judge. If he feels that the teacher's pattern of behaviour is generally one of expanding the freedom of students to act, a slightly more direct statements in a very indirect pattern may tend to look, in contrast, like more direct statement than it actually is. The teacher should not shift to opposing category merely because a statement tends to look changed from the general pattern of the teacher. On the other hand he must remain alter to the shift as the teacher shifts momentarily from one category to the other. In observing

this rule, the observer is reaching to the general tone of the teacher's influence, and does not use the opposite categories unless it is clear that the teacher has shifted from the more general pattern.

3. The observer must not be overly concerned with his own balances or with the teacher's intent. He should judge directness or indirectness from the student's point to view. Suppose a statement intended as a question had the effect of restricting student's freedom so that it becomes direction then it must be classified as direction. The effect of a statement on the students, then not the teacher's intent, is the crucial criterion for categorizing a statement.
4. If more than one category occurs during the three second interval, then all the categories used in the interval are recorded, therefore record each change in category. If no change occurs within three seconds, repeat that category number.
5. If a silence is longer than three seconds, it is recorded as a category 10. If silence lasts for less than three seconds, it is to be ignored. Same rule is applicable if there is confusion in the class for more than three seconds.

2.5.3.6 Recording of a data in matrix

Sequence of events can also be recorded in a matrix, recording of data in matrix renders certain facts more readily apparent. This method consists of entering the sequence of numbers into a 10×10 matrix (refer Table 2). The following example shows how the observer will classify and enter category number for sequence of events of the classroom interaction. Here is given a small extract of a classroom interaction observed by an observer:

Teacher : Boys "May I have your attention please" (observer classified this as category no 6 followed by silence and confusion category no 10) as the children try to finish their mutual talk.

Teacher : "Surinder, we are waiting for you" (7), pause.

Teacher : "Well, performed an experiment and I think you experienced some difficulties; you will not experience these difficulties (observer record two 1's reading to feeling). No, as had anyone had a chance to think about the cause of difficulties experienced? (observer records a 4).

A student : I thought about it and it seems to me that difficulties were due

to faulty equipments (observer recorded a 8).

Teacher: "Good, I am glad what you suggested that, Raminder. You have suggested that, by changing the faulty apparatus, experiment can be performed smoothly (Observer classified as a 2, followed by 3).

To number recorded in sequential order are: 6, 10, 7, 1, 1, 4, 8, 2, 3.

To these numbers add a category 10 in the beginning and 10 at the end. Now the number will be 10, 6, 10, 7, 1, 1, 4, 8, 2, 3, 10.

Tabulation is now made in the matrix to represent pairs of numbers. The first pair is 10-6, the second is 6-10. The particular cell in which tabulation of the pair number is made is determined by using the first number in the pair to indicate the row and the second number of the column. That 10-6, will be shown by a tally in the cell formed by row 10 and column 6. The second 6-10 would be shown in the cell formed by row 6 and column 10. Thus all pairs have been entered in the matrix of table 2. Ordinarily a separate matrix is made for each lesson or activity.

Table 2

	1	2	3	4	5	6	7	8	9	10	Total
1	1	...	...	1	...	...	...	...	...	...	2
2	...	...	1	...	...	...	...	...	...	...	...1
3	...	...	...	...	...	...	...	...	...	1	...1
4	...	...	...	...	...	...	...	1	...	...	...1
5	...	...	...	...	...	...	...	...	...	...	...0
6	...	...	...	...	...	...	...	...	...	1	...
7	1	...	...	...	...	...	...	...	...	...	...1
8	...	1	...	...	...	...	...	...	...	...	...1
9	...	...	...	...	...	...	...	...	...	...	...0
10	...	...	...	...	...	1	1	...	...	...	...2
Total	2	1	1	1	0	1	1	1	0	2	
Category	20		10	10	10	0	10	10	10	0	20

Interpreting the matrix to determine general aspects of classroom interaction

After entering number in matrix cell, the observer computes the percentage of the tallies in each of the columns. This is done by dividing each of the

column total by the total numbers in the matrix. The proportion is multiplied by 100 to convert in percentages. In order to find out the percentages of teacher talks, student talks, and silence, you can add up percentages of all teacher talks categories to find teacher talk percentage, similarly add all the percentages of category nos. 8 to 9 to find student talk percent. In the above example teacher talk and student talk percentages have been computed below.

Teacher talk

Column 1-7 = 7

Column percentage $7 \div 10\% = 70\%$

Indirect (1-4)% Direct (5-7)=ID ratio

$$5 \div 2 = 2.5$$

Indirect (1-3)% Direct (6-7)=Revised ID ratio

$$4 \div 2 = 2.0$$

Student talk

Column 8-9 = 1

Column percentage $1 \div 10 = 10\%$

In the above classroom interaction, teacher talked 70% of the total time the students talked 10% of the total time and the remaining 20% the time was spent in silence or confusion.

Next the observer focuses on the relative number of indirect and direct statements. The total number of tallies in column 1, 2, 3, 4 is divided by the total number of tallies in column 5, 6 and 7 to find the ID ratio. In the above example ID ratio is 2.5 which means for every 2.5 indirect statements. There was one direct statement. A revised ID ratio is employed in order to find out the kind of emphasis given to motivation and control. In this, tallies in column 4 of indirect talk and category 5 of direct talk are not included in the totals. Thus the ratio eliminates the effect of categories 4 and 5 asking questions and lecturing, and gives evidence about whether the teacher is direct or in his approach to motivation and control.

The matrix can be used to determine specific aspects of classroom interaction. We can construct more tables just like Table 2 to identify those cells in which the reader has heavy build ups of tallies as well as the cells in which there are no tallies. We can mark areas of heavy concentration of various aspects such acceptance of feelings ideas, lecturing, student participation etc. These matrices also help teachers to analyse their own video lessons. These can serve as self-feedback.

2.5.3.7 Application of Interaction Analysis to Teacher Education

Those, who have worked in a supervisory capacity with either student teacher or with in service teachers, are aware of the difficulties involved in helping

teacher become aware of and improve their teaching. For a teacher to improve his teaching, three factors, are important : (a) the teacher should be willing to improve (b) the teacher should have a model of the kind of behaviour that he wants to develop and (c) the teacher should get feedback-regarding his progress towards the development of those teaching behaviours which he has conceptualized as his goal.

1. One of the main applications of interaction analysis is to improve teaching behaviour of student teacher and in-service teacher. Research on the training of teachers that has involved the use of interaction analysis has indicated that the behaviour (b) and (c) stated above are necessary for the change mentioned and are produced by interaction analysis. Not only do the category system and the matrix help teachers to conceptualize the often abstract nebulous phenomenon of patterns of verbal interaction but in addition. When used as an observational system interaction analysis, the teachers with a means to receive immediate feedback regarding his verbally provided behaviour.
2. Interaction analysis can be successfully employed to increase the flexibility of teacher influence and to increase the use of those teacher behaviours that support pupil participation in the classroom learning activities. The research has shown that indirect teachers will gain more when exposed to an indirect in-service programme. Direct teachers will gain most when exposed to direct programme.
3. Interaction analysis can be used to influence the attitudes and teachings patterns of student teacher if they given training in international analysis. Student teaching experience can be tangibly affected and improved in the are of human relations by involving interaction analysis as a technique of practice teaching.
4. The teacher can be employed to improve classroom teaching. The feedback, a student teacher gets from the analysis of his teaching behaviour in the classroom helps him to modify his behaviour. Feedback may be self feedback it may be provided by the supervisory teacher. There are certain precautions that can be kept in view while using interactional analysis.

First, no interaction analysis data could be collected unless the person observed is familiar with the entire process and know its limitations.

Second, the question to be answered by inspecting the matrix should be developed before the observation takes place.

Third, value judgements about good and bad teaching behaviour are to be avoided. Emphasis is laid on the problem being investigated so that cause and effect relationship can be discovered.

Fourth, a certain amount of defensive behaviour is likely to be present at the initial consultation. It is something like listening to be a tape-recording for the first time.

Fifth, a consultation based on the two observations or at least two matrices help to eliminate value judgements or at least control them. Comparison between the matrices are more likely to lead to principles.

5. Interaction analysis can be used in supervising student teacher. Research has revealed that the use of interaction analysis in the instruction and supervision of student teachers produces a positive change in the teaching attitude of the student. It seems to have a predictable and measurable effect in term of improved attitude change in student who are not limited by very strong belief system.
6. Interaction analysis becomes a more effective tool in training student teachers, provided the student teachers are trained in this technique before student-teaching. Interaction analysis should be taught to students as technique for analysing their own verbal behaviour. A research study was carried out by Ober and Hough (1966) to find the effect of training, through interaction analysis on the verbal behaviour of pre service teachers. The investigators reported that student teachers who were taught interaction analysis were found to use more indirect teacher verbal behaviour and less direct teacher verbal behaviour in classes of student teaching experience. In addition, there was more student initiated talk in. Classes taught by student teachers who had been trained in the Flanders system of interaction analysis.
7. Training in the techniques of interaction analysis also appears to make student teachers more self-sufficient in their ability to monitor and correct their own performance when viewed taped

so that the trainees can make of micro-techniques without the need of a supervisor.

8. Inservice training for new teachers had made use of systematic observation for verbal analysis of lecturing and for monitoring the use of over-head projector during lectures.
9. The verbal interaction category system, another technique of interaction analysis, has particular utility in the field of teacher education. It is system that can be used to help teachers and student teachers, focus upon their behaviour in the classroom in objective manner. By recording teaching activities on tape or by having another person trained in the use of the system, categorize the verbal behaviour in the classrooms. Teachers and student-teachers can obtain a record of their classroom conversation for analysis. The use of this system will stimulate teachers and future teachers to develop an attitude of inquiry towards the entire field of teaching behaviour. The system of interaction analysis can work as an effective feedback system.

2.5.4 MEANING OF SIMULATION:

Simulation is one of the techniques used for modification of teacher behaviour. In simulation certain behaviour is induced in an artificial situation. A teacher trainee has to play several roles, i.e. as a teacher, as a student and se a supervisor. It is based on socio-dram and given us greater control over the teaching variable. The most important aspect of simulation is the introduction of the student to teaching is non stressful condition.

Simulation may be defined as a rule playing in which the process of teaching is enacted artificially and an effort is made to practise some important skill of communication through it.

According to **Thomas and Deener**, "To simulate is to obtain the essence of, without the reality." In the view of Tansey, Simulation in the all-inclusive term which contains those activities that produce artificial experiences for the participants in the activity.

In this, the student teacher and the students simulated a particular role and try to develop and identify of the actual classroom environment. Thus the whole simulated teaching programme becomes a training in role perception and role playing. Simulation entails obstructing certain elements of social physical reality in such a way the pupil can interact with, and become a part of that simulated reality.

2.5.4.1 Principles of Simulation

Simulation is based on certain principles which are given as follows:

1. It is assumed that certain underlying of teaching can be modified, described and practised like other skill.
2. Through role perception, the psychological appreciation of the classroom problems will grow and develop in the student teacher a basis for handling the problems in the class.
3. Learners take on roles which are representative of the real world and then make decisions in response to their assessment of setting in which they find themselves.
4. The experiences simulated are consequences which relate to their decisions and their general performance.
5. The results of their actions brought to reflect upon the relationship between their own decisions and the resultant consequences.
6. There are certain patterns of teacher-behaviours which are essential in effective teaching-behaviour.

2.5.4.2 Steps in Simulated Teaching

Simulation is used for developing the social skill of teaching in class-room situation. This is generally employed for the pupil-teachers before sending them in real classroom in their teaching practice. **Ned Flander** has recommended the following six step in simulated teaching.

1. First of all, roles are assigned to all the members of the group. The role assignment are rotated so that each individual has the opportunity to participate and has a chance to be actor (teacher, pupil and observer).
2. After assigning the role, certain skills are discussed which are to be practised. So the second step involves planning, preparation and deciding the topic of the skill to be practised through simulated technique. The teacher should carefully select a topic for each actor according to his knowledge and interest in the subject.
3. The teacher should decide in advance regarding the name of the member of the group who will start conversation. A detailed schedule for actor interaction should be drawn. The teacher should also decide who will stop the interaction and when it will be stopped.

4. The teacher should decide the procedure of evaluation and decide on what kind of date the observers are to record and how their date and opinions can best be presented to the actor when the interaction stops.
5. The schedule is followed for the first practice session. The teaching is organised and observations are taken for evaluating the teaching task of the actor. The teaching is followed by discussion and demonstration to provide feedback to pupil teacher by giving awareness of his social skills of teaching and suggestions for improvement.
6. In the last step of simulation, the teacher should be prepared to alter the procedure, change the topic and move on the next skill so as to present a significant challenge to each actor and to keep their interest as high as possible. The task should be neither too difficult nor too easy for the participants.

2.5.4.3 Teacher Training and Simulation

Cruckshank (1968) developed a teacher training system which is capable of presenting the student with upto 31 different simulated problems related teaching. The various steps are given as follows.

1. The participant is introduced into the situation i.e. if he was a teacher in the school.
2. The participant is provided with information and opportunities to solve the problems of beginning teacher.
3. The participant is exposed to a variety of potential solutions to particular problems.
4. The participant is given the opportunity of observing the results of his chosen line of action.
5. The participant is introduced to the situation by film strips.
6. The participant is also given the materials that a teacher going to the school would actually receive i.e. things such as school rules and regulation, curriculum hand book and record cards of all students in the class.
7. The participant is then presented with 31 problems, ten in films and other role playing situation, written incidents or combinations.
8. After the presentation of each problem, the participant responds to an Incident Response Sheet.

9. The participant then identifies the factors influencing the problem, locates the relevant information, suggests appropriate alternative course of action, communicates and helps at a decision.
10. Small group discussion follows analysis and action taken.
11. Small group discussion is followed by large group discussion.
12. The objective of discussion is to push the analysis of the teaching problem and not to come up with the right answer.

2.5.4.4 Merits of simulation

The use of simulation in teaching is a recent innovation. The use of simulation techniques in instruction at different levels has some advantages which may be described as follows:

1. **Theory and practice are linked :** The major merit of simulation is that theory and practice are linked. In traditional teaching theory and practice are not related. The students in actual situations, learning becomes more interesting and lively than purely theoretical. So it bridges the gap between unreal and real situation.
2. **Motivation :** This is the most distinctive feature of simulation, because learners are interested in it. The element of novelty also makes it an interesting method of learning. It has been found by most of the investigators that learners show heightened interest and excitement in learning activities in the classroom after the simulation exercises.
3. **Role awareness :** In simulation, increasing role awareness is involved. The individual, when plays the role of others, becomes conscious of that role.
4. **Removal of student teacher polarisation :** Traditionally our class-rooms are dominated by teacher's authority, the teacher stand in front of the class, the students sit and listen passively. In simulation, there is self-monitoring; participants recognise their own progress by various feedback methods. They evaluate themselves. In simulation the teachers functions more to inspire, stimulate and motivate, rather than to direct, order and judge.
5. **Interdisciplinary approach :** Simulation technique provides

an integrated view as well as vehicle for free interdisciplinary communication. The different subjects are interrelated with one another.

6. **Simulation as a universal behavioural mode :** Children all over the world are well acquainted, with the various type of role-playing games from early age. The world of play and free drama has close relationship with the more structured use of simulation for learning. Thus simulation has a universal appeal.
7. **Decision making :** The group process simulation defence the understanding of decision-making process in children, because it develops various skills in children in the increasing order to difficulty.
8. **Gains related to relevance and learning :** Some research studies have confirmed that the simulation not only influences the schools achievement, but it also influences the attitude of learners and also helps in the understanding of structure and process of learning at a deep level in the mind. It has also been proved that simulations are useful with both gifted and slow learners in learning.

2.5.4.5 Demerits of Simulation

Inspite of the fact that in the last decade all over the world interest has been shown in simulation it has some demerits. There are as follows:

1. The use of simulation cannot be made in all subjects of the curriculum. For Example, in teaching a mathematical formula simulation cannot be used.
2. Simulation cannot be conveniently used for small children, because the mechanism simulation on in very difficult for children.
3. Simulation requires lot of preparation on the part of the teacher. Very few teachers are prepared to take his extra work.
4. In advanced countries, sophisticated audio-visual aids are used for simulation. India being a poor country, cannot afford these costly aids to be used in our schools.
5. The progress of students in very slow. Teaching through simulation takes much more time.
6. Learning is a serious activity which is highly individualised Simulation reduces the seriousness of learning.

2.5.5 Conclusion

Teaching technology in the recent past has devised some procedures for modifying the teaching behaviour of teacher. (It has been observed that the colleges of education in our country are not producing effective teachers. One of the reasons is that these colleges are not using the recent scientific techniques of developing teaching skills in order to bring changes in teachers behaviour.

In simulation certain teaching behaviour is induced in an artificial situation. It is a role playing in which a student teacher has to play several roles, i.e. as a teacher, as a student and as student and as a supervisor. Here an effort is made to practice some important skills of communication. It is used for developing the social skills of teaching in a classroom situation.

2.5.6 Suggested Questions :

1. Explain Flander's interaction analysis technique.
2. Explain the concept of simulated teaching. Discuss its merits and demerits.

2.5.7 Suggested Readings :

1. A.R. Sharma Advanced Education Technology
2. S.K. Mangal Essentials of Education Technology

Modification of Teacher Behavior–Reciprocal Category System

Structure of the Lesson

- 2.6.1 Objectives
- 2.6.2 Modification of Teacher Behavior
- 2.6.3 Interaction Analysis
- 2.6.4 Reciprocal Category System (RCS)
 - 2.6.4.1 Merits of Reciprocal Category System (RCS)
 - 2.6.4.2 Limitations of Reciprocal Category System (RCS)
- 2.6.5 Short In-text Questions
- 2.6.6 Summary
- 2.6.7 Suggested Readings

2.6.1 OBJECTIVES

After reading this lesson, the students will be able to

1. Understand the concept of modification of teacher behavior.
2. Comprehend the concept of interaction analysis.
3. Describe and differentiate between different types of interaction analysis.
4. Differentiate between Reciprocal Category System (RCS) and Equivalent Talk Category System (ETCS).

2.6.2 MODIFICATION OF TEACHER BEHAVIOR

Behavior modification assumes that observable and measurable behaviors are good targets for change. All behavior follows a set of consistent rules. Methods can be developed for defining, observing, and measuring behaviors, as well as designing effective interventions. Behavior modification techniques never fail. Rather, they are either applied inefficiently or inconsistently, which leads to less than desired change. All behavior is maintained, changed, or shaped by the consequences of that behavior. The systematic observation represents a useful means of identifying, studying, classifying and measuring specific variables as they interact within instructional learning situation. The purpose of developing the observational system is that a teacher can be trained to use them for analyzing classroom behavior and for planning and studying his own teaching activities. Since 1960, the efforts have been made in this direction to develop the systems of observation. The works of with all (1949), Flanders and Amidon

(1960), Medley and Mitzel (1948) and Galloway (1968) have developed system of observation for studying the classroom teaching activities. Interaction analysis is one such procedure for modification of teacher behavior.

2.6.3 INTERACTION ANALYSIS

Interaction analysis is a specialized research procedure that provides information about only a few of the many aspects of teaching. It is an analysis of spontaneous communication between teacher and pupils. The classroom interaction may be analyzed suitably in order to judge the competency of the teacher. The analysis is done as objectively as possible. Thus a reliable assessment is made about the teacher. In fact, the term 'interaction analysis' refers to a technique consisting of objective and systematic observation of the classroom events for the study of the teacher's classroom behaviour and the process of interaction going inside the classroom. By using this technique we can make desirable modification in the behaviour of the teacher. The process of interaction is also made more effective which ultimately results into better teacher, better learner and better teacher-learning situation.

- 1. Objectives of Classroom Interaction Technique:** The fundamental objectives of classroom interaction technique are as under:
 - i. To observe the teaching behaviour of the teacher objectively.
 - ii. To plan strategies in order to remedy his behaviour so as to make it suitable for the teaching-learning situation.
 - iii. To identify the draw backs of the teaching-learning programme and then to suggest remedial measures.
- 2. A few Systems of Interaction Analysis:** A few researches have been conducted in the area of teacher behaviour and classroom interaction. The result is that now more than one hundred systems are available to study the interaction analysis. According to Richard L. Ober et al. (1971) observational systems may be classified into two basic kinds: sign and category.
 - i. Sign System: In sign system, a list of behaviours is given. The observer goes on marking the behaviour during the period of observation. In this way, conclusions about the teacher behaviour are arrived.
 - ii. Category System: A category system is composed of a discrete set of categories. According to this system, the teacher behaviour is divided into various units. Each behaviour unit is classified into categories.
- 3. Selecting an Appropriate System of Interaction Analysis:** Many systems of interaction analysis are available and many more can be developed. It is rather important for every one that he/she should see why a particular system should be used. The different observational systems may differ from one another on the following basis:

- i. Purpose of observation.
- ii. Encoding procedure.
- iii. Nature of persons, nature of contents to be observed.
- iv. Analysis of data.

No system in itself may be fool-proof. For different situations, there may be different systems that may suit.

2.6.4 Reciprocal Category System (RCS)

Reciprocal Category System was developed by Richard L. Ober of University of Florida in 1967. This system is based on the principle of 'Reciprocity'. This means that for every teacher behaviour or talk, there should exist a corresponding student behaviour. This system provides nine categories of verbal behaviour which can be applied to teacher talk or student talk in a reciprocal way. The tenth category for both i.e. the teacher and the students is silence or confusion. In this system, there is scope for recording the warming and cooling behaviours of teachers and students:

Teacher Talk	Description of Verbal Behaviour	Student Talk
1.	“Warms”. (informalizes) the climate; tends to open up; eliminates the tension; praises or encourages the action; accepts and clarifies the feeling tone of another in a friendly teacher	11
2.	Accepts. Accepts the action; behaviour; comments on ideas of others; positively reinforces these.	12
3.	Amplifies. The contribution of another, asks for clarification, builds on and develops the action, behaviour comments, ideas and/or contributions of others.	13
4.	Elicits. asks a question or requests information about the content, subject or procedure with the intent that another should answer.	14
5.	Responds. gives direct answer or response to question or requests informations that are initiated by another; includes answers to one's own questions.	15
6.	Initiates. presents facts, information and/or opinion concerning the content, subject or procedures; expresses one's own ideas.	16
7.	Direct. gives directions, instructions, orders and/or assignments to which another is expected to comply.	17

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| 8. | Corrects. tells another that his answer or behaviour is inappropriate or incorrect. | 18 |
| 9. | “Cools”. (formalises) the climate, makes statements intended to the behaviour of another form an inappropriate to an appropriate pattern; may tend to create a certain amount of tension. | 19 |
| 10. | Silence or Confusion. pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer. | 20 |
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2.6.4.1 Merits of Reciprocal Category System (RCS)

- i. It gives equal attention to teacher talk and student talk by providing reciprocal categories.
- ii. It helps the teacher in planning strategies by providing a set of organized patterns of instruction.
- iii. It makes possible to observe classroom verbal interaction with particular emphasis on the socio-emotional climate of the classroom.
- iv. It may encourage the development of teacher made observation systems.
- v. It may help the teacher in maintaining his secrecy with regard to his teaching performance. He may record the classroom events on a tape or video and evaluate his behaviour for bringing about necessary changes.

2.6.4.2 Limitations of Reciprocal Category System (RCS)

- i. It overlooks some important behaviours like quality of verbal information and reacting behaviour.
- ii. Cognitive aspect and intellectual activities of the classroom are ignored.
- iii. It makes no provision for managerial skills.
- iv. It is not possible to make proper value judgements regarding good or bad teaching behaviour.

2.6.5 SHORT IN TEXT QUESTIONS

- 1) What is the meaning of interaction analysis?

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- 2) Explain Reciprocal Category System (RCS) and Equivalent Talk

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- 3) Describe the verbal behavior in Reciprocal Category System (RCS).
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- 4) What are the merits of Reciprocal Category System(RCS)
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2.6.6 SUMMARY

The teaching learning situations in the classroom involve interaction between the teacher and the students. The success of a teacher may be judged through the degree of effectiveness of his teaching which may be objectively assessed through his classroom behavior or interaction. Thus a systematic and objective analysis of the teacher’s classroom behavior or interaction may provide a reliable assessment of what goes on inside the classroom in terms of teaching and learning.

2.6.7 SUGGESTED READINGS

1. Analysing Teaching Behaviour - Flanders, Ned A. (1970).
2. Essentials of Educational Technology - Mangal, S.K., & Mangal, Uma (2010).
3. Educational Technology - Mehra, V. (2004).
4. Educational Technology - Sachdeva, M.S., & Kumar, Sushil (2007).