UNIT-II

TEACHING MODELS

Bloom's Mastery Learning, Skinner's Operant Training, Bruner's Concept attainment, Ausubel's Advance Organizer, Glaser's Basic Teaching (Classroom Meeting), Byron Massials and Benjamin cox's social inquiry, Carl Roger's Non-directive and William Gordon's Synectics models.

2.1 Introduction

The term 'Model' represents different meaning in our day-to-day life. In change in behaviour and in the task of helping the individual to learn good habits, to interests and so many other personality characteristics, the term model or modelling is used in presenting some ideal image or behaviour for the purpose of its copying by the individual.

Definition of Teaching of Models

According to Joyce and weil "Teaching models are just instructional designs. They describe the process of specifying and product in particular environmental situations which cause the student to interact in such a way that specific change occurs in his behaviours"

Concepts of models are listed below.

- It recommends the method and techniques of creating a good environmental situation for carrying out teaching learning process.
- It helps to achieve desirable teacher and student interaction during the teaching time.
- Using these models, we can achieve the ultimate aim of bringing the desirable change in the behaviour of student.

From the above discussion we can conclude that teaching model may be described as some sort of guidelines, techniques designed to achieve specific instruction objective.

Models of teaching can be defined with the new term blue print is "Model of teaching is just a blue print designed in advance for providing necessary structure and direction to the teacher for realizing the framed objectives.

Fundamental elements of Teaching Model

A teaching model provides valuable guideline and blueprint for carrying out the task of teaching for the understanding of some specific objectives. In order that a teacher makes use of model, he must be properly familiarizing with its theory as well as practice. For this purpose, the proper knowledge of the fundamental elements is very essential. The main element is discussed below.

Focus

The main aspect of the teaching model is called focus. All the teaching models are specially designed for achieving some specific objectives of teaching in relative to the environment of the learner. The focus of the model constitutes **objectives of teaching, learning environment.**

Syntax

It refers the description of the model in action. Every model **consists several stages** and which have to arranged in a specific sequence. The syntax guides the teacher how he should begin and proceed further.

Principles of reaction

The **nature of reaction excepted from the teacher** to every student activity. It gives guidance to the teacher as to how he is expected to react to each activity of the student, to suit the characteristics of the model started.

The Social System

The **relationship between the teacher and the student** as well as the role played by each in the activities that take place.

The Support System

It represents the additional requirements other than the usual human skills or capacities of the teacher. These facilities should be available in the classroom. A description of this support system in advance will help the teacher ensure that he can apply the model successfully.

Application Context

Some models are useful for short lesson some is useful for lengthy lesson. They also differ in terms of the goal achievements, cognitive or affective and subsequently prove suitable for one or the other type of teaching.

Characteristics of Teaching Model

The development of teaching model is based on certain assumptions. 2. The teaching models depend on the individual difference. 3. The teaching use the interests of the student. 4. The teaching models are based on one or other philosophy. 5. With the help of models, teaching can be seen as an art. 6. Teaching models are based on scientific procedure. 7. All the teaching model have their own specific mechanism.

2.2 Bloom's Mastery Learning Model

Mastery Learning Model is an approach for organizing instructions. This approach was formulated by John.B. Carroll and B.S. Bloom. Mastery learning helps in attaining a satisfactory level of performance in subjects. Mastery learning provides a compact and interesting way to increasing the likelihood that more students will attain a satisfactory level of performance in subjects. This model is child centric.

This learning Model based on the assumptions.

- Every student can learn a topic to mastery.
- Some students need more time than others.
- Some students need more help than others to achieve mastery.
- A subject can be mastered from 90 to 95%, if proper teaching methods are adopted.

Focus

Mastery learning model is mainly based on the belief that all students of class can learn and attain the mastery level if sufficient time, adequate instruction is provided to the students according to their need, interests and abilities. Therefore, the model focuses to reach mastery level by almost all the students say 95% of the students of a class with due allocation of sufficient time and suitable types of help.

Syntax

Mastery learning model can be explained through a number of stages given below

Phase one-Planning for Mastery

This model requires a number of pre-preparation and planning like below:

- Framing the instructional objectives of the sub units' level as well as for the entire learning unit and their specification in clearly defined behavioural terms.

- Communicate these instructional objectives to the students.
- Introduction to students with regard to the concept and process.
- Fixing the mastery level aimed. E.g., attaining 95% mastery over the given set of objectives.
- Preliminary arrangement and planning for the use of instructional material, methods.
- Preparing the unit test for the formative as well as summative evaluation.
- Planning the sufficient time.

Phase two - Teaching for Mastery Select the particular unit.

For proper teaching the following things should be kept in mind.

- Learning material related to the subunit should be selected with care.
- Select better way of methods and strategies for the instructional purpose.
- As for as possible individual attention should be provided.
- The speed should always be sacrificed for the sake of proper clarify and understanding of the subject matter.

Phase Three -Formative evaluation for diagnosing mastery

After the teaching is over the degree of the mastery level achieved b the pupils is measured through formative evaluation test.

- Specific objective should be properly considered while preparing the formative test.
- The criteria have to be set 90-95% marks.
- Care is to be taken for knowing the extent to which mastery level has been attained by individual students and class as a whole.

Phase four- Providing differential teaching for mastery

According to formative evaluation result, sincere attempts should now be made for covering up the deficiencies-achievement differences between masters and non-masters.

- If maximum number of students of the class have not been able to achieve the criteria, then teacher should reteach the unit by adopting different strategies.
- The learning difficulties should be solved by giving extra time and more individual attention and adopting various methods like peer tutoring, group discussion extra.
- We can discuss with parents to identify the learning difficulties.

Phase five - Re-evaluation and remedial work for Mastery

After implementing corrective measures and providing differential teaching for helping the non-masters to attain the required mastery level as discussed in previous phase, the second parallel form of the formative test may now be conducted to the group of non-master to ascertain the extent to which the gaps between mastery and non-mastery have been marginalized.

Phase Six -Summative evaluation and grading for the Mastery

In this final phase, a summative evaluation is performed for ascertaining the extent to which the desired mastery over the complete unit or entire course material has been achieved by the individual students and class as a whole. The summative evaluation test is based on the specified instructional objectives aiming towards the mastery over the entire unit of the course material.

Principles of reaction

The main purpose of the mastery learning model is on assisting the students to achieve mastery over the material taught. Through the formative evaluation he has to know the nature of the difficulties faced by the students to achieve the mastery level and then provide them individual or collective help for the rectification of their short comings. A teacher using this mastery model has to remain quite cautious in reminding the students that learning competently is more

important than completing the task easily and late learners are in no way inferior to the early learner.

The Social System

The teacher is assigned more responsibilities from planning to teaching and evaluation stages. Teacher has to analyse the contents properly, specify the instruction objectives, teach properly for the acquisition of these objectives prepare the test and diagnose the learning difficulties and provide suitable corrective measure and remedial instruction for helping the students to attain the decided mastery level. This model gives opportunities not only for teacher-pupil interaction as well. Social system of the mastery learning model presents a picture of cooperate learning environment.

The Support System

Implementation of the model requires some additional support other than usually available in normal classroom situation mentioned as below.

- It required the teachers who know the different techniques of implementing mastery learning model in the classroom.
- It needs some suitable text books, supplementary reading materials and materials for the items for both formative and summative evaluation.
- To overcome learning difficulties providing enriched educational material, multimedia material etc.,
- It allots the flexibility in scheduling and pacing of the coverage.

Application Context

This model brings two types of advantages in terms of cognitive outcomes and affective consequences like below.

- This model is suitable for the mastery of basic skills belongs to all the subjects, may prove more effective in the teaching of subjects and contents which are more structed, organized and sequential in nature.
- The learning material helps the learner to take more interest in the further learning subject. It creates more positive attitude to create the learning.

2.3 Skinner operant Training Model

Prof. B.F. Skinner started his research work on behaviour while he was a graduate in the Department of Psychology of the Harvard University. In 1931 he wrote his thesis entitled, "The concept of the reflex in the Description of the behaviour". He called his theory as operant conditioning as it is based on certain operations or actions. The term 'operant' stresses that behaviour operates upon the surroundings to generate its own effects. An operant is a set of acts which conditions an organism in doing something. In the process of operant conditioning operant responses are modified or changed by reinforcement.

Reinforcement is a special kind of conditioning within which the tendency for a stimulus to induce a response on following occasions is increased by reduction of a bond.

Based on the findings of his experiments, skinner concluded that "behaviour is shaped and maintained by its effects. It is operated by the organism and maintained by its result." The incidents of such behaviour were named as operant behaviour and the process of learning that plays the part in learning such behaviour was named by him as operant conditioning.

Focus

This is a method of learning that occurs through rewards and punishments for the change in behaviour. Through operant conditioning, relation is made between a behaviour and a effect of that behaviour. Skinner introduced a new term into the Law of Effect - Reinforcement. Behaviour that is reinforced tends to be repeated, behaviour that is not reinforced tends to be eliminated automatically.

Syntax

Positive Reinforcement

The favourable events that are presented after the behaviour is known as positive reinforcement. Example; Reward or Appreciation.

Negative Reinforcement

A response or behaviour is strengthened by stopping, removing or avoiding a negative outcome. Stimulus. Example; punishment or harsh words.

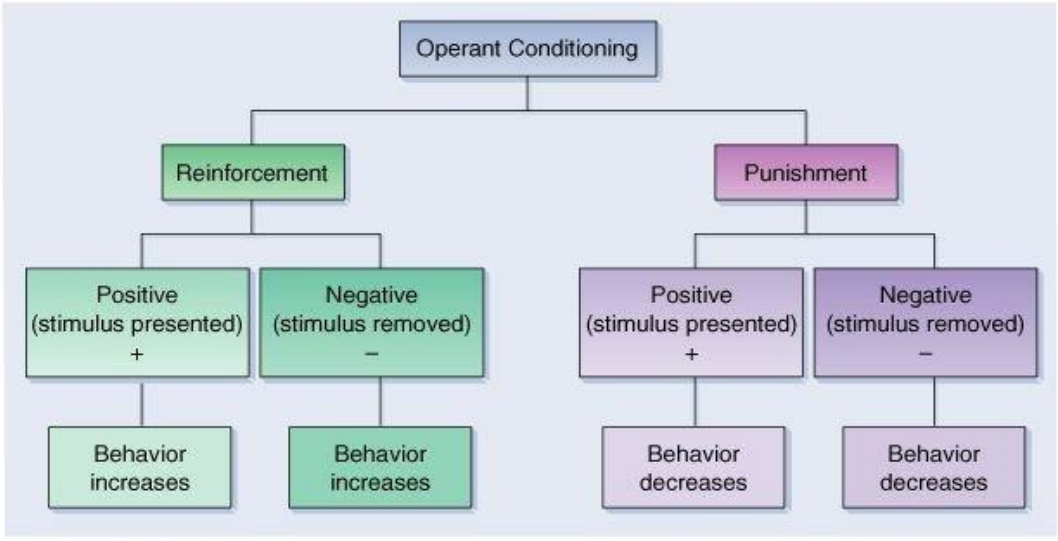
Continuous Reinforcement

The desired behaviour is reinforced every single time it occurs. Generally, this schedule is best used during the initial stages of learning in order to create a strong association between the behaviour and response.

Partial Reinforcement

The response reinforced only part of the time. Schedule of partial reinforcement:

- **Fixed Ratio Schedule:** Where a response is reinforced only after a specified number of responses.
- **Variable:** Ratio schedule occur when a response is reinforced after an unpredictable number of responses.
- **Fixed Interval Schedule**: Where the first response is rewarded only after a specified amount of time has elapsed.
- **Variable Interval schedule:** When response is rewarded after an un predictable amount of time has passed.
- **Punishment: It** is a kind of stimulus that aims to decrease the strength in behaviour due to its consequence.
- **Positive punishment-**Involves presenting an unfavourable outcome or event following an undesirable behaviour. Example, wearing favourite dress to class but punished by teacher for violating the school dress code.
- **Negative Punishment-** It involves taking some thing or desirable away to reduce the occurrence of particular behaviour. Example, after getting low marks in subjects due to spending more time in TV rather than in studying, father taken the remote to his control.



Principle Reaction

Teaching is the arrangement of incident of reinforcement, which expected learning. For effective teaching, teacher should arrange effective incidents of reinforcement. In the teaching learning process child feels unlike experiences also. This unlikeness becomes conditioned to the teacher, subject and the classroom and learner dislikes the subject and a teacher. Operant conditioning is a behaviour therapy method that shape students' behaviour. For this teacher should accept positive behaviour like praise, encouragement etc. for learning. One should not accept negative behaviour. Example punishment.

Social System

Using operant conditioning in the classroom can be beneficial in many ways. But the most important effect, at least from the teacher's perspective, is the establishment of classroom management techniques. Using operant conditioning can give students immediate feedback about their behaviour. When the teacher rewards positive behaviour, other students are more likely to copy that behaviour to earn the reward. The rewarded student is also more likely to repeat that behaviour because of the positive feedback.

Immediate feedback is also useful in curtailing negative classroom behaviours. Light punishment or withholding of praise can function as operant conditioning in education. When the teacher punishes negative behaviour, other students will want to avoid that punishment, and so they will be less likely to perform that behaviour. The punished student will be less likely to repeat the behaviour as well, though outside factors may come into play.

Application

Operant conditioning can also be used to decrease a behaviour via the removal of a desirable outcome or the application of a negative outcome. For example, a child may be told they will lose recess privileges if they talk out of turn in class. This potential for punishment may lead to a decrease in disruptive behaviours

2.4 Bruner's Concept Attainment Model

Concept attainment is an instructional method that uses an organised inquiry process. The Concept Attainment model promotes student learning through a process of structured inquiry. The strategy is based on the research of Jerome Bruner (1977) and his associates, who investigated that the variables affected the concept-learning process. In concept attainment,

students figure out the characteristics of a group or category that has been provided by the teacher. To do so, students compare and contrast examples that contain the hints of the concept with examples that do not contain those characteristics. By observing these examples, students discuss and identify the characteristics of each until they develop a tentative hypothesis (definition) about the concept. Next, students separate the examples into two groups, those that have the characteristics and those that don't. This hypothesis is then tested by applying it to other examples of the concept. This strategy can be used in all curriculum areas. Finally, students demonstrate that they have attained the concept by generating their own examples and non-examples. Concept attainment, then, is the search for and identification of attributes that can be used to distinguish examples of a given group or category from nonexamples. With carefully chosen examples, it is possible to use concept attainment to teach almost any concept in all subjects.

First, the teacher chooses the concept to be developed (i.e., Gravity).

- Begin by making a list of both positive "yes" and negative "no" examples: The examples can be put on sheets of paper or flash cards or written on the chalkboard.
- Positive examples: Positive examples contain attributes of the concept to be taught (e.g., It is very important, without this we can't stand on the earth, It available in all the areas of the earth).
- Negative examples: Next present negative examples of the concept (ie., Its absence in earth some places, it is in the form of solid, it is visible, It affects by temperature).
- Allot one area of the chalkboard for positive examples and one area for negative examples. A chart could be set up at the front of the room with two columns-one marked YES and the other marked NO. • Present the first card by saying, "This is a YES?' Place it under the appropriate column (e.g., It available in all the areas of the earth is a YES).
- Present the next card and say, "This is a NO" Place it under the NO column (e.g., It affects by temperature is a NO).
- Repeat this process until there are three examples under each column. Ask the class to look at the three examples under the YES column and discuss how they are alike. Ask, "What do they have in common?"
- For the next three examples under each column, ask the students to decide if the examples go under YES or NO.

- At this point, there are six examples under each column. Students should begin to hypothesize a name for the concept These hypotheses are tested with further examples and non-examples provided by the teacher. Students determine which hypotheses are acceptable and which ones have to be rejected based on the examples. They also can suggest additional hypotheses at this point The process of presenting examples, analysing hypotheses, presenting additional examples, continuing to analyse hypotheses continues until all the hypotheses but one is eliminated.
- Discuss the process with the class. Students should be asked to explicitly define the hypothesis and identify the characteristics. Students are then asked to define a proper noun.
- ·Next, students are asked to apply the concept by classifying examples or generating examples of their own.
- Students analyse their own thinking (metacognition). Ask questions such as, “Did anyone have to change his or her thinking?" or “What made you change your mind?" or “When did you begin to see this concept?
- There are three model of concept attainment is available. The names are listed below
- The Reception Model of concept Attainment
- The selection Model of concept Attainment
- The model for unorganised Material
- Each of this model has a slightly different sequence of activities (syntax)but all are developed from a common conceptual base.

Concept Attainment Model Steps	Teacher Role	Student Role
Presentation of Examples	Teacher presents examples and non-examples and instruct students to form a hypothesis of the concept.	Students record attributes of examples and non-examples.
Formation and analysis of hypotheses	Teacher asks students to examine hypotheses, verify or refute their hypotheses, and then challenges students to support the hypotheses with data (attributes).	Students form and record hypotheses about the concept. Students then justify their hypotheses based on the data.
Closure	Teacher guides students in forming a definition of the concept being addressed by summarizing the critical attributes of the concept. The teacher then helps student reflect on the entire Concept Attainment process.	Students develop a definition of the concept based on its critical attributes. They then reflect on the Concept Attainment process.
Application	Teacher asks students to apply their knowledge in novel situations.	Students apply knowledge by locating, changing, or creating other examples and non-examples.

The Reception Model of Concept Attainment

Focus

The Concept Attainment Model gives the type of learning referred to as conceptual learning, in contrast with the rote learning. Actually, the model works as an inductive model designed to teach concept through examples. In addition to help the students in the achievement of a particular concept, the model also enables them to become aware of the process of conceptualizing.

Syntax

Phase one: Presentation of Data and Identification of the concept.

Activities

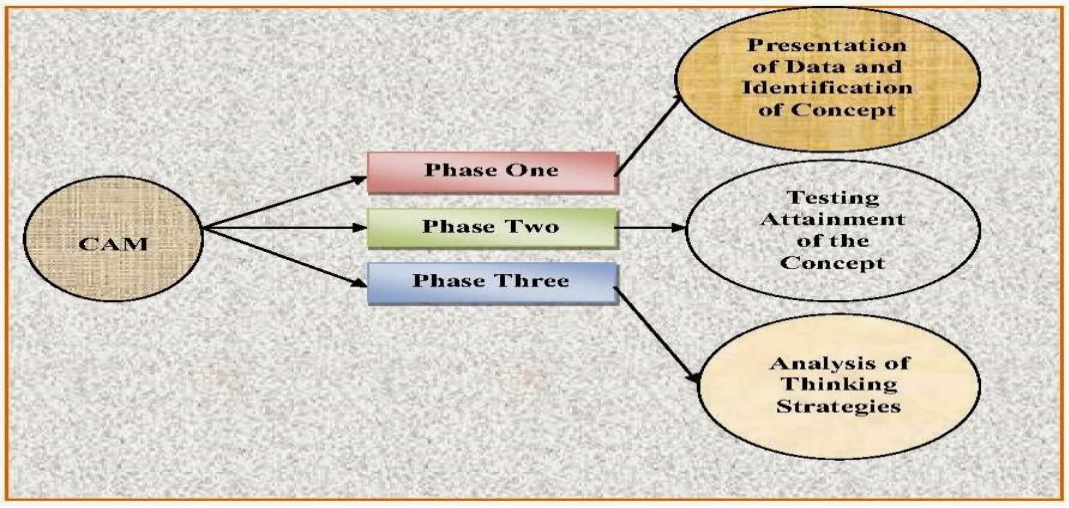
a) Presenting examples with "yes" or "no" labels in a prearranged order by the teacher.
b) Comparing Characteristics in positive and negative examples.
c) Generating and testing hypotheses.
d) Framing the rules of the concept according to its essential characteristics.

Phase Two: Testing Attainment of the concept Activities

a) Using "yes" or "No" response identifying the correct concept.
b) Creating our own example.

Phase Three: Analysis of Thinking Strategies Activities

a) Explaining the thoughts.
b) Describing Role of hypothesis and characteristics.
c) Discussing type and number of hypotheses.
d) Evaluating the methods.



Principle Reaction

- The teacher is to be supportive to the student's hypotheses.
- Teacher has to maintain record by keeping track of the hypothesis of the characteristics as they mentioned by the students.
- The teacher should support to the student to maintain the attention towards analysis of their concepts.

Social System

In most part of the teaching, teacher has to exercise control over the social system. He has to present examples in such a way that the characteristics are clear and that they are both positive and negative examples of the concept. Freedom is given to the students for carrying out their own thinking. They may formulate their own hypothesis.

Application

It certainly helps the students to acquire concepts with which they are unfamiliar it can be used to teach concept related with any discipline of the curriculum. However, its use should be confined in such a way that he may insist his students to determine the concept on the basis of the examples provided.

2.5 Ausubel's Advance Organizer Model

This model is helping teachers organize and transfer information meaningfully and effectively. Through this model the cognitive structure is strengthen. This model is taken from verbal learning principle. The subject is a chain of concepts, when we realise the facts, that is also settled as a chain in our mind, if new Concept is Presented as related with the previous concept. In this model the basic concept known to unknown was adopted. The teacher first recalls the previous knowledge, then explains the new knowledge on the basis of previous one. So that students understand easily the new concept. It also called expository model. The teacher explains the whole concept to the students. The main principle of this model is listed below.

Principle of Progressive Differentiation

The most progressive idea about the subject is presented first, then are progressively differentiated in terms of detail and specifically.

Principle of Integrated Reconciliation

This means how the ideas should consciously reconciled and integrated, with previous knowledge. For that reason, only this model is named as Advanced Organizer Model.

Focus

- The main focus is to develop cognitive structure of the students.
- To enable the students to arrange the knowledge in a social discipline.
- To present the previous-knowledge, explain concepts and then present new concepts so that the new concepts are correlated to pre-knowledge.

Syntax

There are three phases in this model. The activities which mentioned in the phase are designed to increase the clarity and stability of the new learning material. The new learning material are mainly based on activity oriented.

Phase I: Presentation of advance Organizer

- The objective of the lesson explained.
- Identification of odd terms and provide examples.
- Required awareness given to learner's related knowledge and experience
- The learning material is presented in the form of lectures, discussion, films and experiments.

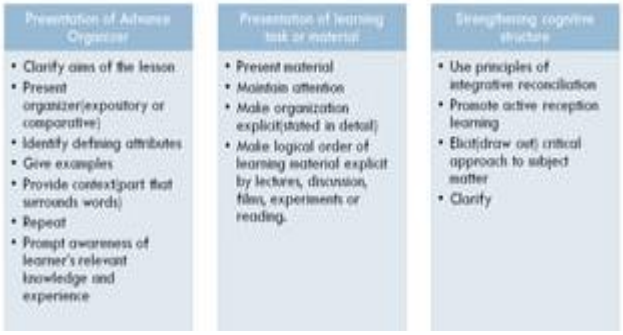
Phase II: Presenting the learning task

- The required learning material is supplied to the students.
- The presentation should be maintaining the student's attention.
- The organization is making crystal clear.
- The learning material is presented in the form of lectures, discussion, films and experiments.

Phase III: Strengthening the cognitive organization

- The principle of integration is implemented.
- Mainly focus on active learning methods.
- The critical approach of subject matter is exposed.
- The new learning material in the student's existing cognitive structure that is, strengthen it.

At first the teacher will have to respond to the student's need for clarification.



Social System

The teacher is able to make effective concepts of knowledge. We cannot control the class the completely. Student's participation is very less, they are only listeners. But, in phase and three interactions of teacher and student is also done. The successful usage of the material will depend on the learner's desire to integrate it with his prior knowledge, on their critical faculties and on the teacher's presentation and organization of the material.

Support System

For this model well organized material is very essential. The effectiveness of the advance organizer depends on an integral and appropriate relation between conceptual organizer and the content. Application The main application is listed below. 1. The confused concepts can be taught easily in this model. 2. Cognitive amins can be achieved by this model. 3. It can also be shaped to teach the various skills. 4. This mode is very good for the school level and within the less time more content may be taught. 5. The presentation is very important and effective. We must focus on presentation to develop cognitive knowledge.

2.6 Glaser's Basic Teaching Model

This Model was developed by Robert Glaser. It is named as 'basic' because it tries to explain the complete teaching process in a correct way. The basic components are

1. Instructional objective
2. Entering Behaviour
3. Instructional Procedures
4. Performance Assessment

Instructional Objective

That represents the goals that a student is to be achieved upon the completion of the instruction.

Entering Behaviour

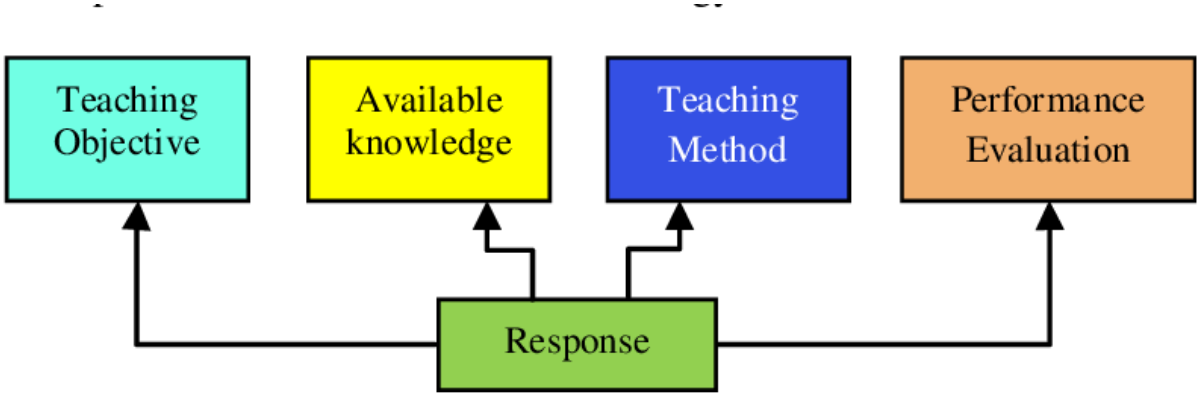
Initial behaviour of the student before the instruction starts. The assessment of entering behaviour is very particular aspect of an instructional process. This is the starting point of this model and is viewed in context of the pre-set instructional objective. In teaching learning situations both of them interact and influence and help each other for the success of the process.

Instructional Procedure

It represents the teaching methods, strategies and student teacher interaction patterns involved in the task of teaching. According to the instruction objective we can choose the instructional procedures.

Performance Assessment

It is related with the task for assessing the performance of the learner. one's entry behaviour and fixed objectives his terminal behaviour is assessed through some suitable evaluation technique. The assessment of the performance may as an effective 'feedback' device for each of the step and element of the teaching process. All the four components are influence each other in the final performance.



Glaser's Basic Model-description in terms of elements

Focus

This model attempts to pin point the process and major activities comprising the entire teaching, learning process. It also brings into the light sequence to be followed in the instructional process.

Syntax

In this model flow of activities is listed below: -

1. The objectives to be followed are fixed in with respect to Blooms Taxonomy.
2. The entering behaviour showing the understanding and background of the student is determined.
3. The instruction work is carried out to achieve the objectives.
4. The ultimate behaviour of the learner is determined by using a different type of tests.

Principles of Reaction

Principles of interdependence

The student's responses are to be understood and carried out within the light of the interaction and interdependence, process and assessments.

The principle of active involvement

Proper execution of this model requires a lot of activity on the part of the teacher. The model requires the active involvement of the teacher from the beginning to the end. Understanding of the potential and deficiencies of the students is required at every stage of the teacher in order to achieve the objectives.

Principles of follow up

If the assessment is made after teaching. In case the results are not accordance with set objectives, gaps and deficiencies are found out by the teacher. Then he tries to rectify the drawbacks by taking corrective measures.

Social System

This model is sufficiently structured and supposed to be dominated by the active role and control of the teacher on the whole process of instruction from beginning till end. Its success depends upon the competency and ability of the teacher.

Support System

For the successful implementation of the model additional support in terms of the following.

- Requirement of sufficient pre-service and in-service training for the teachers.

- The desirable teaching-learning situations and environment for the employment of suitable teaching methods and instructional technology.
- Need for the correct evaluation devices for the assessment of entry as well as terminal behaviour of the students.

Applicability of the Model

The model is quite systematic and structured, it is applicable to almost all the learning and teaching Process. It implies a personal contact between the teacher and the student. It implies a greater emphasis on the competency of the teacher rather than on his personality.

2.7 Byron Massials and Benjamin cox's social enquiry Model

Social inquiry" emerged in the 1960s as part of a shift to embrace the evolving "Social Science" discipline at this time. Massialas and Cox believed that school fosters development and inculcation of values in children and plays a crucial role in 'creative reconstruction of culture'. Social inquiry method is helpful in identifying the social issues and dealing with them effectively.

This model guides students through stages of inquiry, evidence gathering, analysis and reflection for the purpose of resolving, solving, taking a position on the social issue conclusions about hypotheses related to the social issue. It is carried out through the medium of classroom verbal interaction. The teacher student is also actively involved in process of search – defining problems, categorizing data, hypothesizing, taking positions synthesizing evidence and validating hypothesis.

Focus

The aim of this social inquiry was to enable students to develop skills in social- inquiry research and to develop understandings about their local community. To develop competencies of problem solving and adjustment. It is designed for the development of social problem solving primarily through academic inquiry and logical reasoning.

Syntax

Confrontation with the problem

In this stage, the teacher presents a problematic situation to the students and gives information regarding methods of inquiry. The main aim is to create new knowledge among the students.

Data collection and Verification

The students collect necessary information about whatever they see or experience. During verification they can ask questions regarding objects, properties and events. Through this the teacher can wider scope of inquiry done by the students.

Data gathering for experimentation

Exploration and Direct testing are the two parts of the experiment. Simply we can state that doing experimentation data is collected, hypothesis is built up and then test is conducted. The student doing all these with the help of teachers so that they do not waste time in building up wrong hypothesis. The students start putting questions to the teachers and teacher is reacting to their question by saying yes or no as the case may be. The student continuously asking questions till they are able to reach the mystery could be solved.

Formulation and Organisation of an information

The teacher will invite students to explain the process. Through explanations rules may be formulated. The deviation is also checked so that efforts are applied in the right direction and no student's energy go waste.

Analysis of the inquiry process

The students are asked to analyse the methods they adopted for enquiry. In brief, analysis and evaluation of the entire inquiry, collected data or information are done.

Principles of Reaction

This is concerned with the teacher's reactions to the student's responses. In this model the teacher's reaction to the student's responses. In this model the teacher's reactions to the students are very impressive and interesting.

Social system

There is a healthy interaction between the teacher and the student in which the student's ability to solve difficult problems and his scientific attitude helped for that. The success of this model depends on the mutual co-operation, mutual understanding between the student and teacher.

Support System

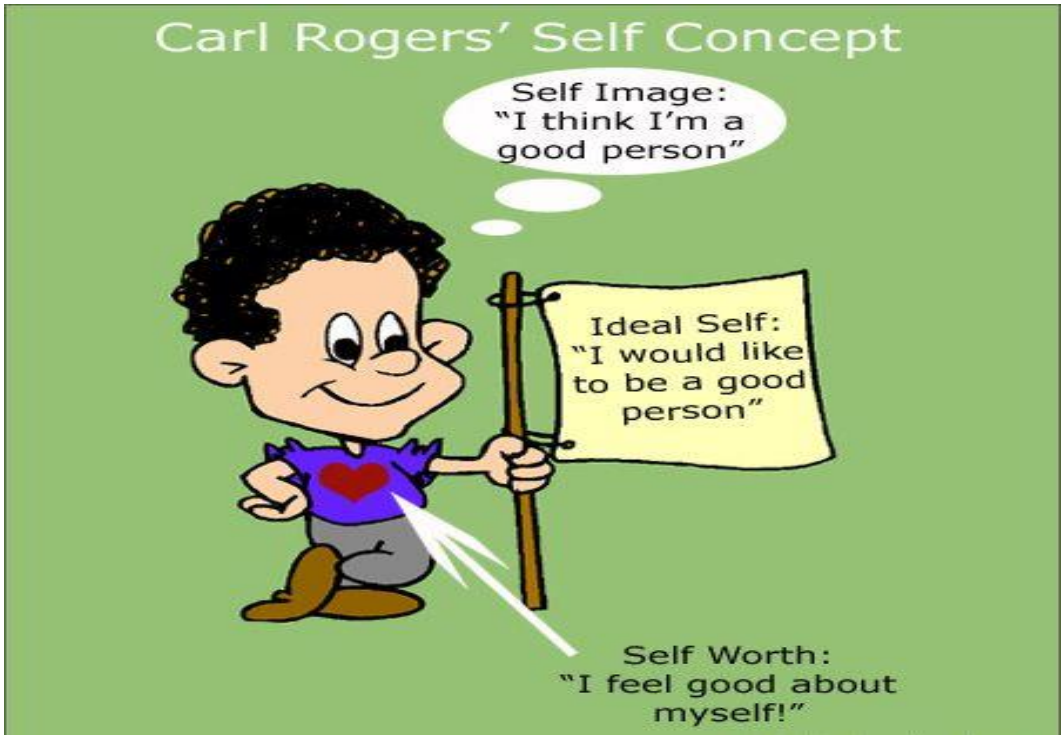
In this model support represents additional books, library, laboratory etc., A set of problem faced material is required technical understanding of the intellectual process and strategic of inquiry is required.

Application

This model is generally used in teaching scientific subjects. The student learns to analysis the various types of collected information. Any topic from a curriculum area which can be converted into problem situation can be selected for inquiry training.

2.8 Carl Roger's Non-Directive Model

Based on Carl Roger's work, he believes that positive human relationships enable people to grow. Therefore, instruction should be based on concept of human relation. A good model that takes into account student emotions and personalities is the nondirective teaching model. This is a teaching model that is based on the work of Carl Rogers, an advocate for using nondirective counselling. Under this model the teacher attempts to see the world from the student's perspective. The teacher should help the student to recognize that they have the ability to define and work through problems by coming up with their own solutions. Under this model the classroom has a warm and accepting atmosphere. Students should feel free to express their feelings symbolically without feelings of being pressured, intimidated, or judged.



Focus

1. To help students in getting greater personal integration, effectiveness and a realistic self-appraisal.
2. To make learning environment conducive.
3. To help the students to understand their own needs and values.
4. To make the students able to direct their own educational decisions.
5. To help the students to make their lives constructive.
6. To make emotional development.

Syntax

According to Rogers, the nondirective interview has a sequence divided into five phases of activity.

Phase I: Defining the Helping Situation

The initial discussion takes place in an ongoing relationship between student and teacher. The teacher makes some necessary structure of interview if needed. Voluntary and involuntary situation also occur and to be framed differently. The teacher encourages the students to express feeling freely. The students are free to make more interaction for heathy and fruitful discussion.

Phase II: Exploring the Problem

The teacher encourages the students to explore and define the problem. The teacher expresses their positive and negative feelings. The teacher clarifies the problem and accept the responses of the students. The students further are induced to ask the question for clarification. The teacher provides well stated positive and short response.

Phase III: Developing Insights

At this stage the students are activated and motivated to discuss problem. The role of the teacher is supporting the students whatever they require for the help in development of their insights for the sake of creating innovative ideas.

Phase IV: Planning and Decision Making

The teacher encourages the students to make planning decision with respect to the problem. The most important role of the teacher is to clarify the alternatives.

Phase V: Planning and Decision Making

The students try to develop more positive actions for solving problems and providing its right solution. They make planes more integrated and positive actions. Integration of each and every learning activity in discussion helps the students to keep in their mind for longer period.

Social System

The students are mainly responsible for the initiation and maintaining the interaction process. The institution in charge takes participation between students and teachers. The student makes open expression of their feelings. The process of rewards and punishment is not occurred in nondirective process.

Principle of Reaction

The principle of reaction is grounded in nondirective responses. The teacher contacts the student. The teacher gives important with the personality of the students with the help of his own experience as a teacher. The teacher tries to understand how the student feel.

Support System

The discussion considers academic aspects, the essential self-directed resources for learning must be provided beforehand. If the discussion is to adjustable counselling for behavioural, no resources beyond the skills of the teacher are necessary. In the above cases the one-to-one situation desires specific settings. The confidentiality should be maintained. The teacher provides proper time for understanding problem sufficiently.

Application

The following things are the application:

1. To solve personal, Social and academic problems.
2. To develop good relationship with others.
3. To use the personal experience of the teacher and the students.
4. To develop communication skill of the students.
5. To understand the students perceives.

2.9 William Gordon's Synectics model

Synectics is a teaching model that was designed by William J.J. Gordon which aims to develop the creative thinking through the use of allegory. which were very successful and effective; Synectics has become a method that people can use to help them overcome obstacles they

encounter by doing brainstorming while doing difficult tasks.Teachers present students with an an issue, or situation and ask the students to make allegory with the aim of making usual unlike concepts thereby providing students with a way to observe the situation in a different way. It permits students to approach the creative problemsolving skills including restructuring ideas about what is known, providing access to the unknown; all important to contemporary learning. There are three categories of metaphors the model describes, with subcategories and an addition. Personal analogies are when the student identifies with what is being studied, direct analogies, which is comparing two objects or ideas, and compressed conflicts, which is working with seemingly unlike or contradictory concepts and descriptions. Synectic can be used with all ages and works well with those who withdraw traditional methods. Synectic activity should be very useful during the Exploration Stage.

Focus

The main aim of Synectic model is to develop the creativity of both the individual students and groups in all are the areas like curriculum, science and arts.

Syntax

The synectics model have two methods: a) Creating something new b) making the strange familiar.

Creating something new method

The aim of the first method is to help the learners see familiar things in unfamiliar way, by using the analogy device to create conceptual distance.

- **Phase one- Description of the present condition**
  Here the students are allowed to explain the situation, and present their condition or problem as by them at the present situation.
- **Phase Two –Direct analogy**
  In this phase, the students are made to suggest direct analogies, select one, and describe it further. Direct analogy means a simple comparison of two objects or concepts. For the real topic or problem situation, the students may be asked to name the similar topic, concept or situation.

- **Phase Three – personal analogy**

  The students themselves become the analogy they selected from the phase two. E.g., for describing the concept of motor Screw Gauge, the students may themselves consider them as a Screw Gauge. Teacher may ask them to act as a Screw Gauge.
- **Phase Four - Compressed conflict**

  Here, the students are required to take their descriptions from phases two and three, suggest several compressed conflicts & choose one.e.g.: How is Screw Gauge working and the difference between screw gauge and vernier calliper.
- **Phase Five – Direct analogy**

  In this phase, the students are made to generate and select another direct analogy based on the compressed conflict.
- **Phase six –Re- examination of the original task**

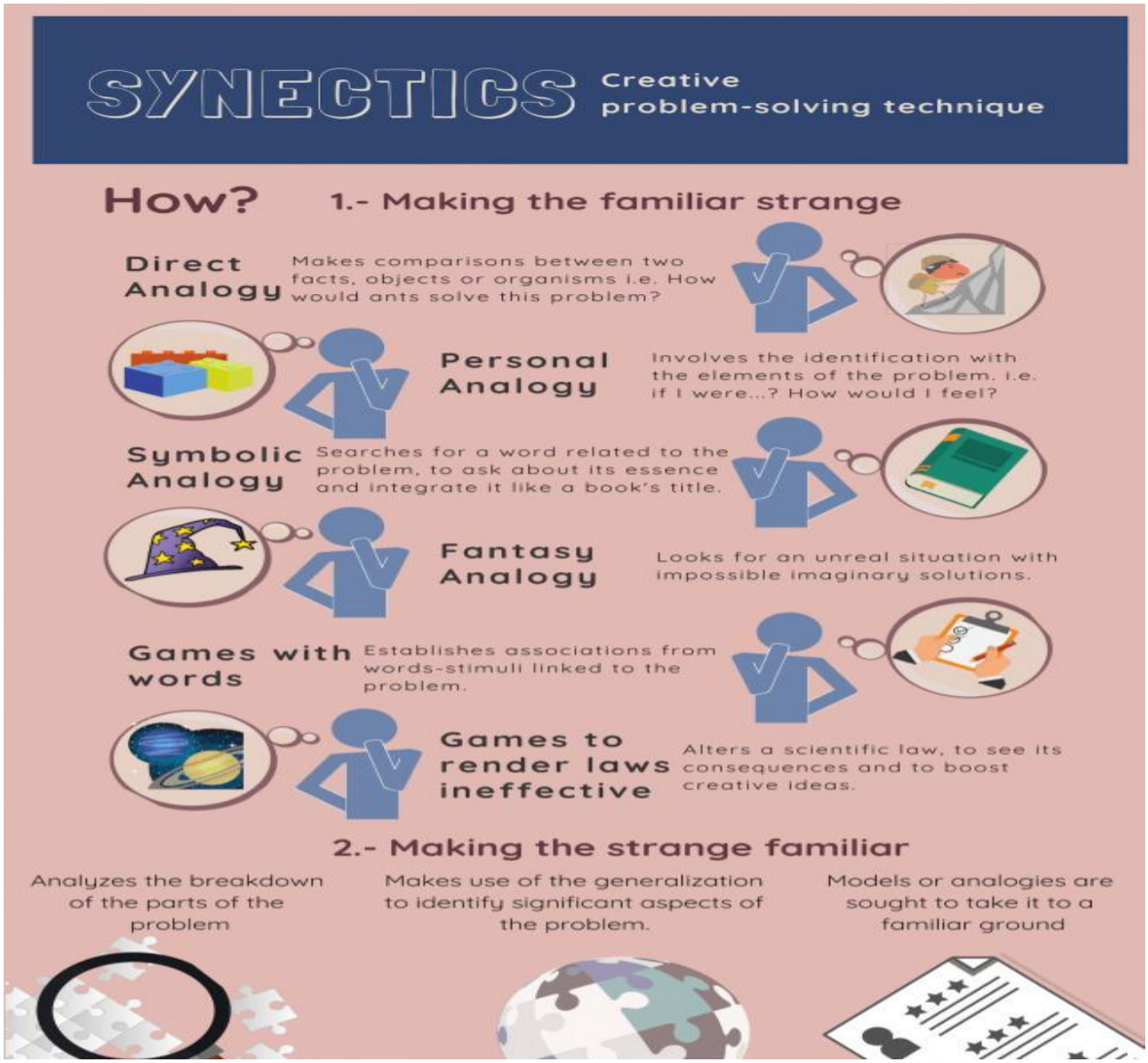
  Here the teacher tries to compel the students in moving back to the original task or problems and uses the last analogy and the entire synectics experience.
- **Making the strange Familiar Method**

  making the strange familiar, aims to help the students in their understanding and internationalization or substantially new or difficult subject matter. It involves seven phases:
- **Phase One- Substantive input**

  In this phase, Introduction on a new topic is given by the teacher either verbally or through the presentation of a short paragraph. For example, he may provide meaningful information on the topic “Nuclear reactor working”.

- **Phase Two- Direct analogy**

  The teacher to suggest some direct analogy to the students and then ask the student to describe the analogy. For example, he may provide direct analogy to the Nuclear reactor working in by citing the example of real time.

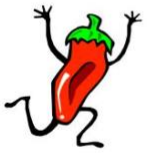


Three Analogies in Synectics

Direct analogy:
Two things compared to create tenor and vehicle

Chili peppers are hot as a fire.

Personal analogy:
Learner takes on the identity of the vehicle



I feel hot.
I make your mouth burn.
I'm burnin' up!
Please don't grill me.

Compressed conflict:
Descriptive oxymoron of the tenor

nourishing flame

- **Phase Three- Personal analogy**

In this phase, the students are instructed to become the objects of the direct analogy by themselves. For example, in their attempts for getting acquainted with the concepts of democracy they may be instructed to compare it with the functioning of their own thing.

- **Phase Four- Comparing analogies**

  Here the students are required to identify and explain the points of similarity between the new material and the direct analogy. For example, they may be asked to locate similarities between the functioning of human brain and the telephone exchange control room.

- **Phase Five- Explaining difference**

  In this phase, the students are instructed to point out the dissimilarities and then where the analogy does not fit, e.g. what are the different points of differences where Nuclear reactor differs with the structure and functioning of a thermos power station.

- **Phase Six- Exploration**

  Here, the students instructed to re-explore the original topic in their own method. They may take the help of direct and personal analogy besides other types of self-thinking, understanding and discussion in the group.

- **Phase Seven- Generating analogy**

  In this phase, the students try to provide their own direct analogy and explain various similarities and differences for understanding and grasping the meaning and nature of an unfamiliar or new topic. Both these two strategies are aimed to provide training opportunities for the development of creativity among the children. Which one of these two strategies should be adopted in a particular teaching or training situation depends on the fact whether the students need to be helped in creating something new or to explore the unfamiliar.

The social system

The Synectic model is considered a moderately structured model as, here, the teacher is supposed to initiate the sequence and guide the students in making use of this model. He is also to help the students in develop their mental processes and solving the problems through the help of Synectic exercises- analogies and compressed conflicts, etc. There stands a quite friendly and wholesome environment for the close cooperation between the teacher and the students. The students are provided full opportunity and cooperation for the proper understanding and controlling of the element of irrationality in creating or exploring something new.

Principle of reaction

- The model requires the following types of reactions and responses on the part of teachers: Encourage the students in making use of the new ways of doing things.
- Learn to accept the response of the students and give recognition to their opinion.
- Encourage and sometimes directly or indirectly help the students in inculcating necessary psychological states helpful in generating creative responses.
- The students should be given proper time and opportunities for developing fresh and new perspectives on problems.
- Here premature analysis should always be avoided for developing the desirable habit of problem solving among the students.
- The motivation provided to the students is almost internal. Hence; they must be given opportunity to enjoy the fruits of their creative expression.

Support system:

1. Service of the skilled teachers well versed in the functioning and use of this model.
2. A smaller compatible and cooperative group for the development of creativity of the children in a democratic group learning situation.
3. Desirable help and guidance from the teacher for introducing elements of irrationality in inventing something new or getting familiarized with the unfamiliar. 4. The needed facilities in the form of laboratory, workshop, library readings, outings, audio-visual equipment, etc.

Application context:

The Synectic model has a quite wide applicability in teaching –learning situation related to almost all the subjects and experiences of the school curriculum as summarized here:

1. The Synectic activities provide unique shared experiences for fostering interpersonal understanding and a sense of community and group feeling. Moreover, the delight and playfulness of these activities inspires and motivates all members of the group to contribute significantly in providing solution of the problem or inventing something new.
2. The synectics model can be used to provide rich and vivid experiences to the students for understanding the unfamiliar and discovering the fact of the school curriculum in a quite

interesting way. It is equally good for all areas of the curriculum- the science arts, theoretical and practical, curricular and co- curricular, etc.

3. The synectics model can be used with the learners belonging to all ages and potential-the average, slow and fast. All types of learners may be benefited by sharing the synectics experiences.
4. As a means for nurturing and developing creativity and creative expression, the model is credited with a number of applications and uses
    (a) In learning the art of creative writing.
    (b) Providing valuable means and techniques for the exploration of social issues, and investigation about the things and events in one's physical, social and cultural environment.
    (c) In developing the problem-solving ability of the students by breaking set and conceptualizing the problem in a new way in order to suggest fresh approaches for its solution.
    (d) In learning art of creating a product (such as an idea for social gathering).
    (e) The strategies use may help in broadening the perspectives of the students related to the acquired concepts- even the difficult and abstract ones such as democracy, culture, economy, liberty, justice, discrimination, and prejudice.