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MODELS OF TEACHING

Article Particulars

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Bruce Jayee and Morshal weil have classified the different teaching models into the following four families according to the objectives.

- Information processing model
- Personal model
- Social interaction model
- Behavioural model

Information Processing Model

Joyce and Well (1980) introduced the idea of information processing as a discrete grouping and defined as the was people handle stimuli from the environment, organize data, sense problems, generate concepts and solutions to problems, and employ verbal and non-verbal symbols. These models aim at giving new knowledge and information providing appropriate environment for the purpose. They also provide opportunity for development of creative thinking, reasoning skill, concept format on and intellectual ability among the learners.

Thus the development of pupils intellectual skill, and the acquisition of knowledge by them are the goals of information processing models, it includes seven teaching models which are as follows:

- Concept attainment model (Burner)
- Inductive teaching model (Hilda Taba)
- Inquiry Training model (Suchman)
- Biological Science Inquiry Training Model (Suhwah)
- Developmental Teaching Model (Piaget)
- Advance Organizer Teaching Models (Ausubel)
- Memory Model (Jerry Lucas)

1. Concept Attainment Model

This model has developed by Jerome Burner. It enables the learners to describe similarities and relationship among things of the environment. Burner's main interest was to elucidate the thinking Effectiveness of adults who already had a grasp of concepts. Teaching situation is moderately structured. It is designed primarily to develop inductive reasoning, but also for concept development and analysis.

2. Inductive Teaching Model

Hilda Taba has developed inductive teaching model. It develop mental abilities and gives emphasis on concept formation. The teaching activities are arranged in a logical sequence in advance.

3. Suchman's Inquiry Training Model

The National Policy on Education (1986) emphasizes the inculcation of scientific temper among children. The development of independent inquiry skills among children is possible through Richard Suchman's Inquiry Training Model. Development of Science and Technology is based upon the investigation.

The model is interested in helping students to develop the intellectual discipline and skills necessary to raise questions and search out answers stemming from their curiosity.

4. Biological Science Inquiry Training Models

Joseph J.Schwab developed biological science inquiry training model. This model is used by Biological science curriculum study (BSCS). The goal of biological science inquiry training model is to teach students to process information according to the research biologists. It inculcates problem solving ability.

5. Developmental Teaching Model

Jean Piaget (1952) has developed this model. It gives importance to intellectual development. This model was based on piagetian theory and has wide application in both cognitive and social development to all subject areas.

6. Advance Organizer Teaching Model

This model was developed by David P.Ausubel (1963). It improves the effectiveness of lectures and other presentations. David Ausubel has built and tested this method of using concepts to improve learning from lectures and readings. The teachers exercises controls the learning structures.

7. Memory Model

Jerry Lucas and Harry Lorayne (1974) designed the memory model. Memorizing and remembering are active pursuits. The capacity to take in information to integrate it meaning fully, and later to retrieve it at will is the product of successful memory learning. Most important, individuals can improve this capacity to memorize material so that they can recall it later. That is the objective of this model. To improve this ability increases learning power, save time, and leads to a better store house of information. They built their model to increase

- Attention to what is to be learned.
- The senses involved in attending and
- The associations we make between the new material and things that have previously been learned.

The teaching act with its pre active, interactive and post active stages is performed under an overall plan or pattern to realize the educational goals. This pattern or plan is known as a 'model' and it can be employed to design a curriculum or a course of instruction, to select instructional materials and to guide a teacher's action.

Every teacher in the classroom operates with his or her own model of teaching so that there is a case for having as many models of teaching as the models of teachers. But this is obviously an extreme position and may not be accepted in terms of the modern state of knowledge in respect of teaching operations with their tactical and strategic concepts which describe, explain and regulate the instructional act.

We have noted that teaching is a process by which teacher and students create a shared environment including sets of values, beliefs and cognitions, which in turn influence their view of reality. This interactional setting and the view of reality with which the process of teaching may be visited become an integral part of one's model of teaching

Inquiry Process

Concepts are changing due to the advances in investigation. Hence an understanding of inquiry is necessary in order to understand the changes in the major conceptions by which it is easy to organize biological information.

Schelenker (1976) reported that inquiry training resulted in increased understanding of science, productivity in creative thinking and skill for obtaining and analysing information.

Memorization Process

Estes (1976), many items are presented to an individual in a short time and only these to which attention is directed enter into memory, and only those receiving rehearsal are maintaining long enough to secure the processing necessary to establish a basis for long-term recall.

Categorical cues, on the other hand, involve conceptualizations of the material. In other words, we replace specific items with categories, and this categorization provides us with the basis for memory.

Requisites of a Model

A model must have the following elements in it:

- A definable focus
- A frame of reference

- A pattern of activities
- A support system and
- A suggested guideline for action and evaluation.

These five elements constitute the requisites of a model or a paradigm. In the social or behavioral sciences. In the field of teaching, we have only recently taken interest for developing models.

The terms 'definable focus' means the highest water mark of an activity or of activities which can be described and specified. A 'frame of reference' or framework implies the logic or reasoning which governs the conduct of activities. The 'pattern of activities' indicates the order or sequence in which they are arranged and integrated. A 'support system' embodies the reinforcing events or stimuli which maintain or sustain the activities into strength. The suggested guideline for action and evaluation is in the shape of a working plan, a sketch or a design in terms of which an activity is initiated and finally put to test.

These five elements must be insisted upon while trying to identify or develop a model for teaching. In case a pattern of teaching activities reflects a definable focus, a defensible frame of reference, a support system and a guideline, we may call it a model of teaching.

The process of teaching is different from the process of learning. Models of teaching are prescriptive teaching Effectiveness (Eggen et.al. 1974). They differ from general approaches, in that they are designed to realize specific instructional objectives. A model of teaching has been defined by joyee and well as a plan or pattern that can be used to shape curriculum, to design instructional materials and to guide instruction in the classroom and other settings. John P.Dececco, asserts that the best substitute for a theory of teaching is a model of teaching and that in many fields, models are proto-types of theories.

John P.Dececco has dealt in detail the psychological and historical models. In addition to these models, Israel Scheffer organized philosophical models of teaching.

Evolving a Model for Teaching

A model of teaching is not an abstract thing. It is rather a tangible and concrete working plan which a teacher may develop for his guidance in selecting the tactics and strategies of teaching, in planning and eliciting the appropriate learning experiences in learners and in evaluating the learning outcomes intended by the instructional system.

In evolving a model for teaching, one has therefore, to be conscious of the learning goals, the strategies and tactics which may ensure their achievement and the frame of reference in terms of which results are to be constantly appraised. Each one of us as a practitioner of the art or science of teaching may evolve of model of teaching in

consonance with these prerequisites. The effectiveness of a model of teaching so evolved has however, to be verified on logical as well as empirical counts.

Concept Attainment in Detail

Background

It seems that most of what we do in science is categorize or classify objects or events for the purpose of generalizing. To do this, scientists must observe carefully. Although scientists are certainly not the only people who classify, scientists often classify in different ways than the rest of us do. Note that there is nothing about the ways in which scientists classify that is better than the ways others classify. It is a different way, not better. However, in science class, we want the students to learn to classify in similar ways to scientists. We want them to be familiar with science categories so they can follow a scientific conversation – at least a little bit. We want them to be able to read a newspaper science article and understand what they have read. Better yet, they would be able to guess at some of the mistakes the journalist has made in interpreting what the scientists have learned. Even better, they might also be able to critique the conclusions that scientists themselves have made.

A concept attainment method involves students learning to classify a set of objects or events in a way that scientists classify. The students will be using the categories that scientists use, and will be attempting to determine the rationale behind the categories.

The Concept Attainment Method has a high tolerance for ambiguity. This means that the students might seem to be following the wrong path, but eventually, they will come up with the expected answer. You would use this method when the concept the students are expected to learn is fairly clear. You would use this method instead of just telling the students or having them read, because students will learn the material much better when they figure it out for themselves. As your students learn more about the classification, you will also learn more about it. As well as learning the material better, and remembering it longer, the students will learn how to learn by using this model. We want students to become independent learners and critical thinkers. This method will help them with both these goals.

This method encourages certain of the Common Essential Learnings. The most obvious are critical and creative thinking, communication, and of course, independent learning. Personal and social values and skills might be included if you help your students work in a positive way with their peers. As well, if the particular concept involves mathematical relationships, the students could use their numeracy. If the particular concept involves understanding a technology, technological literacy might also be addressed. Of course, as the students classify in the ways that scientists do, they will be learning a technique of science, and understanding techniques can be part of technological literacy.

Concept Attainment Process

Bruner provided a model of concept learning. He used a set of cards to study the methods that people use in acquiring concepts. Concept formation is the first step towards concept attainment.

Bruner has given a new direction to the teaching of science.

According to Bayley (1966) concepts and principles provide direction for instructional activity. Once concepts are formed students naturally learn better.

Ausubet (1962) proposes that concepts are functionally important parts of the schemata.

Concept Attainment

Concept Attainment is an indirect instructional strategy that uses a structured inquiry process. It is based on the work of Jerome Bruner. In concept attainment, students figure out the attributes of a group or category that has already been formed by the teacher. To do so, students compare and contrast examples that contain the attributes of the concept with examples that do not contain those attributes. They then separate them into two groups. 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 non-examples.

Purpose of Concept Attainment

Concept attainment is designed to clarify ideas and to introduce aspects of content. It engages students into formulating a concept through the use of illustrations, word cards or specimens called examples. Students who catch onto the idea before others are able to resolve the concept and then are invited to suggest their own examples, while other students are still trying to form the concept. For this reason, concept attainment is well suited to classroom use because all thinking abilities can be challenged throughout the activity. With experience, children become skilled at identifying relationships in the word cards or specimens. With carefully chosen examples, it is possible to use concept attainment to teach almost any concept in all subjects.

Advantages

- helps make connections between what students know and what they will be learning
- learn how to examine a concept from a number of perspectives
- learn how to sort out relevant information
- extends their knowledge of a concept by classifying more than one example of that concept

- students go beyond merely associating a key term with a definition concept is learned more thoroughly and retention is improved

Steps of Concept Attainment

- Select and define a concept
- Select the attributes
- Develop positive and negative examples
- Introduce the process to the students
- Present the examples and list the attributes
- Develop a concept definition
- Give additional examples
- Discuss the process with the class
- Evaluate

A Math Example

- First the teacher chooses a concept to developed. (i.e. Math facts that equal 10)
- Begin by making list of both positive "yes" and negative " no" examples: The examples are put onto sheets of paper or flash cards.
- Positive Examples: (Positive examples contain attributes of the concept to be taught) i.e. 5+5, 11-1, 10X1, 3+4+4, 12-2, 15-5, (4X2)+2, 9+1
- Negative Examples: (for examples choose facts that do not have 10 as the answer) i.e. 6+6, 3+3, 12-4, 3X3, 4X4, 16-5, 6X2, 3+4+6, 2+(2X3), 16-10
- Designate one area of the chalkboard for the 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. i.e. 5+5 is a YES
- Present the next card and say, "This is a NO." Place it under the NO column. i.e. 6+6 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. (i.e. 5+5, 11-1, 2X5) Ask "What do they have in common?"
- For the next tree examples under each column, ask the students to decide if the examples go under YES or NO
- At this point, there are 6 examples under each column. Several students will have identified the concept but it is important that they not tell it out loud to the class. They can however **show** that they have caught on by giving an example of their own for each column. At this point, the examples are student-generated. Ask the class if anyone else has the concept in mind. Students who

have not yet defined the concept are still busy trying to see the similarities of the YES examples. Place at least three more examples under each column that are student-generated.

- Discuss the process with the class. Once most students have caught on, they can define the concept. Once they have pointed out that everything under the YES column has an answer of 10, then print a new heading at the top of the column (10 Facts). The print a new heading for the NO column (Not 10 Facts).

Adaptation

This activity can be done on the chalkboard, chart paper or overhead projector to a large or small group. It also works well as one-on-one work. Rather than starting with the teacher's concept, use a student's concept. Concept attainment can be used to introduce or conclude a unit of study.

Variations on the Concept Attainment Model

- Present all of the positive examples to the students at once and have them determine the essential attributes.
- Present all of the positive and negative examples to the students without labeling them as such. Have them group the examples into the two categories and determine the essential attributes.
- Have the students define, identify the essential attributes of, and choose positive examples for a concept already learned in class.
- Use the model as a group activity.

Assessment and Evaluation Considerations

Have the Students

- Write the definition from memory.
- Determine positive and negative examples from a given group.
- Create their own examples of the concept.
- "think aloud"
- write a learning log
- do an oral presentation
- create a web, concept map, flow chart, illustrations, KWL chart, T chart