TITLE: **“EFFECTIVENESS OF BEHAVIOURAL MODEL IN TEACHING MATHEMATICS”**

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ABSTRACT

Models of teaching are regarded as patterns or plans prepared in advance that aims for the success of teaching learning process. They differ from general teaching techniques and strategies in the sense that they are designed to meet specific objective or goals. It also helps in specifying the criteria of acceptable performance that is expected from the learners in a specific teaching learning situation. The theory of behaviourism as known holds that the act of learning is based around series of stimulus response mechanism, as such, education can be considered as the process of training a learner to respond in particular way to a set of recognised prompts.

Viewing learning this way, behavioural model of teaching was developed considering the various insights from the work of behaviourist psychologist Edward Thorndike in the field of mathematics.

The present research aims to study the effect of behavioural model of teaching on achievement of upper primary level students in the subject of mathematics. For the same, direct instructional method on school students was adopted. The program was developed by researcher and the same was used to study the effectiveness of program on students’ achievement, also in relation to gender and with respect to different types of school. Lastly the opinions of the students towards the behavioural model of teaching were recorded.

The true experimental research design was adopted and qualitative and quantitative data analysis technique were used.

KEYWORDS

Behavioural model, Model, Mathematics, Behaviour

INTRODUCTION

“The idea that you teach kids how to ask and answer questions, rather than just asking them questions, came as a revelation to me.”

 —A teacher of 20 years, to Bruce Joyce, May 1995

The term "Model" has meaning according to its use. It carries different meaning in daily routine life. Generally, peoples look out some different-different models like model of Lord Buddha and find it an exact prototype of the original one. That’s why models as a substitute of reality in the classroom situation prove a quite effective and important aid.

In the helping individual and in behaviour modification to learn good things and habits, to assimilate desirable attitudes, personality characteristics and interest, generally "Model" or modelling use to presenting some ideal figure of specific behaviour for the purpose of its duplication or imitation by the individually concerned. An ideal teacher, a good leader or an actor may work as a model for an individual child and may grasp the behavioural traits of the personality from that model.

In a different way the term "Model" deeply used in field of engineering, architecture and artistic way in their professional activities, in the beginning, the models of projects, dams, construction and installation of machinery and equipment are prepared and then the work is carried out exactly seems in the model.

Thus, the term "Teaching Models" or "Models of Teaching" having lots of different definitions quite helpful for understanding. The researchers and writers defined in a different way. Some of definitions are produced below:

* Teaching models are just instructional designs. They describe the process of specifying and producing particular environmental situations which cause the student to interact in such a way that specific change occurs in his behaviour. (Jayce & Weil, 1972)
* Teaching model is a "pattern or plan" which can be used to shape a curriculum or course, to select instructional materials and to guide a teacher’s action. (Jayce & Weil, 1972)
* A model of teaching consists of guidelines for designing educational activities and environments. It specifies ways of teaching and learning that are intended to achieve certain kinds of goals. (Jayce & Weil, 1978)
* Models are prescriptive teaching strategies designed to accomplish particular instructional goals. **(**Paul D. Eggen, ET AL., 1979)
* A model of teaching is a set of interrelated components arranged in a sequence which provides guidelines to realize specific goal. It helps in designing instructional activities and environmental facilities, carrying out of these activities and realization of the stipulated objectives. **(**Jangira, 1983)

The first definition of models of teaching considers models in the form of instructional designs, these specific designs help in the teaching process as: They suggest some of ways and different techniques of creating a suitable environmental condition for carrying out the process of teaching. The instructional design helps in achieving desirable teacher-student interaction during execution of teaching. The ultimate goal of applying instructional design as it may shows modification in the behaviour of pupil.

The second definition of models of teaching considers models shows some kind of patterns or plans prepared for the justification of the teaching-learning process as: The selection of the proper instructional materials for teaching gives justification to the prepared curriculum or course. In guiding the teacher to select appropriate teaching techniques, strategies and methods for the effective utilization of the teaching situation and material for realizing the set of objectives.

The third definition of models of teaching considers models are sort of some specific guidelines helpful in the cognition of given task as: Using specific guidelines of given task arrange and design appropriate educational activities for proper teaching-learning environment. The models directing all teaching-learning resources to obtain the special objective or goals.

The fourth definition of models of teaching views models in terms of some specific teaching strategies aimed at the realization of the set objectives.

The fifth definition of models of teaching considers models in the form of well-planned instructional strategy helpful in controlling the teaching environment and specifying the teaching activities which shows the prescribed objectives of teaching.

A magical soul can be born in amazing surroundings which helps to capture its unique personality. That magical soul nothing but an innocent child without any knowledge to survive in this mind-blowing universe. An innocent child can learn through observation and by acquiring knowledge with help of someone. This someone may be parents, teachers or society.

While child start to learn at that time teachers or parents uses lots of different methods to teach a child. This method becomes helpful while child applied it in real life. Children’s have its own way of understanding the concepts.

There are lots of way to teach in classroom. An ideal teacher always being in search of new teaching strategy and experiments on students to open new paths of teaching with better understanding. In previous era, most of teachers were using traditional classroom teaching but in present era new styles of teaching are used by lots of teaching.

There were lots of new styles of teaching that’s why researcher wants to know that other than traditional teaching method does other method might be effective on children or not. So, researcher wants to know that does Behavioural model or Behavioural modification model of

‘Model of Teaching’ is effective? If it is effective then Behavioural model provides new strategy of teaching at middle and high school pupils.

Models of Teaching are designed in the form of specific purposes as shown here the study of socialization values, ways of thought, knowledgeable teaching, and so on by asking students to participate in particular cognitive as well as social tasks. Some models directly focus on the educator while others construct as the learners respond to tasks and the student is regarded as a partner in the educational cycle.

**Definition**

**Behavioural Model:**

**Classical Definition:**

A common theoretical base-most commonly called social learning theory, but also known as behaviour modification, behaviour therapy, and cybernetics-guides the design of the models in this family. The stance taken is that human being are self-correcting communication systems that modify behaviour in response to information about how successfully tasks are navigated.

**Operational Definition:**

In present study Behavioural model means a program developed by the researcher that is based on model of teaching (activities) based on behaviour, prepared for different types of contents related to mathematics.

**Characteristics of teaching model**

* **Encouragement an Art of Teaching** – Art of Teaching is pondered as an ability. Teaching models encourage this ability by conferring learning environment.
* **Development of Inherent Abilities** – The qualitative growth of personality of teaching models helps in developing human abilities. It also enhancement the teachers social competency.
* **Based on Individual Differences** - Teaching model constructed on the basis of individual differences by using student’s interest.
* **Influenced by Philosophy -** The philosophy of education influences every teaching model. On the behalf of their belief, under the effect of the philosophy different models of teaching are formulated by teachers.
* **Answers Fundamental Questions** - All the fundamental questions proven by every teaching model which relating to the behaviour of students and teachers are included.
* **Providing Appropriate Experiences**- Both teacher and student take proper experiences from teaching models. For teacher main essentiality of teaching is selecting the content and presenting it for learning. When a teacher provides proper experience to the student’s then difficulty is solved.
* **Maxims of Teaching**- The maxims are followed by foundation of models of teaching.

They are the base of each models of teaching.

* **Practice and Concentration**- The development of a teaching model is based on regular and continuous practice and concentration. The proper development of a teaching model is only possible when the assumptions are made clear by related thinking.

**Fundamental of teaching model**

Normally majority of teaching models are based on the following six elements:

**Focus: “**The central aspects of a teaching model is denoted by focus. Objectives of teaching and aspects of environment generally forge the focus of the model. Every teaching model is based on one or the other objective as its focal point. By keeping this focal point in mind any teaching model is developed. Every teaching model individually differs in terms of its objectives. Focus is works as the nucleus of a teaching model. Every model has various phases, some particular types of competencies are developed by it.”(Maheshwari V. & Maheshwari S., 2013)

**Syntax: “**Syntax of the model shows the model in action. The order of steps worked in the organization of the complete programmed of teaching includes syntax. It is the orderly sequence of such activities in the model. Each model has a separate stream of phases means the detailed description of the model in orderly action and the teaching activities and interactions between a pupil and the teacher are determined in it. The syntax of any teaching model means those points which produce activities focused on educational objectives at various phases and under syntax, the teaching tactics, teaching activities and interaction between a student and the teacher are determined in such a pattern of sequence that the teaching objectives are achieved conveniently by providing desirable environmental situations.” (Maheshwari V. & Maheshwari S., 2013)

**Principles of Reaction: “**Principles of Reaction tell the teacher how to regard the learner and to respond to what the learner does. This element is concerned with the way a teacher should regard and aspects respond to the activities of the students. These responses should be appropriate and selective. They provide the teacher with rules of thumb by which to select model, appropriate responses to what the student does. This element is concerned with the teacher’s reaction to the student’s responses. In it comes to know that how he has to react to the responses of the students and has to see whether the learners have been actively involved in the process, or not.” (Maheshwari V. & Maheshwari S., 2013)

**The Social System: “**This element is concerned with the activities of pupil and the teacher and their mutual relationships. Every teaching model has separate objectives and will have therefore separate social systems. It is related with the interactive roles and relationship between the teacher and the student, and the kinds of norms that are observed and student behaviour which is rewarded. The Social System describes the role of and relationships between the teacher and the pupils. In some models the teacher has a dominant role to play. In some the activity is cantered on the pupils, and in some other models the activity is equally distributed. This element is based on the assumption that every class is a miniature society. In it also discussed the selection of motivating strategies and tactics for the students. Naturally social system occupies a central position in making the teaching impressive and successful in relation to the previously selected objectives.” (Maheshwari V. & Maheshwari S., 2013)

**Support system: “**Support System describes the supporting conditions required to implement the model. Support refers to additional requirements beyond the usual human skills, capacities and technical facilities. The support system relates to the additional requirements other than the usual human skills or capacities of the teacher and the facilities usually available in the ordinary classroom. Teacher requirements refer to special skills, special knowledge of the teacher and special audio-visual material like films, elf-instructional material, visit to special place etc. This includes books, films, laboratory kits, reference materials etc. It means the additional requirements beyond the usual human skill, capacities and technical facilities. In it, the evaluation is done by oral or written examination, whether the teaching objectives have been achieved or not. On the basis of this success or failure, clear idea is achieved regarding the effectiveness of strategies, tactics and techniques used during teaching.” (Maheshwari V. & Maheshwari S., 2013)

**Application: “**It is an important element of a teaching model. It means the utility or usage of the learnt material in other situations. Several types of teaching modes are available. Each model attempts to desirable the feasibility of its use in varying contexts related with goal achievements in terms of cognitive, and affective behaviour modification.” (Maheshwari V. & Maheshwari S., 2013)

According to the specifications and characteristics, researcher decided to teaching through behavioural model on learning outcome.

Thus, the statement of study was evaluated & researcher synthesized as, in the form of statement of problem.

**Specifications of teaching model by researcher**

* **Specification of Environment-** It specifies in definite terms the environmental conditions under which students’ response should be observed.
* **Specification of operation**- It specifies the mechanism that provides for the reaction of students and interaction with the environment.
* **Specification of criterion of Performance**- It specify the criterion of Performance which is accepted by the students The Behavioural outcome which the learner would demonstrate after completing specific instructional sequences are delineated in the teaching models.
* **Specification of learning outcome**- It specifies what the student will perform after completing an instructional sequence.

**Usefulness of teaching model**

This program developed by the researcher would be useful for the Teachers, Teacher educators , Special Child trainers and the curriculum developers.

CONCLUSION

Teaching models can be thought of logically and systematically arranged plans that can be used to shape or reshape curricular courses, any individuals etc and guide the instructor’s actions that would ultimately help achieve the intended outcomes. Teaching models here reflects the program developed by the researcher by correlating the above mentioned fundamental elements and various specifications. The program would guide the teaching learning process by laying much emphasis on the development of the behavioural aspects of the learners. Also, the program gives space to put in the required content and flexibility to modify according to the usage.The six fundamental elements in the teaching model are included by thinking of various perspectives of teaching learning process taking place in the class. And the four specifications that researcher makes for teaching model makes it precise and concretize the program. These specifications would help the teacher by providing the understanding of the environment that has to be developed for giving enriched experience to the learners and that environment should lead towards the expected learning outcome from the learners. Specifications also helps to theoretically set the intended interaction between learner and the environment and also provides space to reflect that what child will perform after the completion of particular instructional sequence.

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