SJIF 2014 = 3.189
ISSN: 2348-3083
An International Peer Reviewed & Referred
SCHOLARLY RESEARCH JOURNAL FOR HUMANITY SCIENCE & ENGLISH LANGUAGE

A STUDY OF EFFECT OF CONCEPT ATTAINMENT MODEL ON ACHIEVEMENT OF GEOMETRIC CONCEPTS OF VIII STANDARD RURAL AND URBAN STUDENTS OF AURANGABAD DISTRICT

Shaikh Kashefa Anjum

Assistant professor Marathwada College of Education, Aurangabad (India)

Abstract

The Objective of the Current study is to study the effect of concept attainment model and traditional method of teaching geometry on the geometric concept achievement of rural and urban students of Aurangabad district. Mathematics is the core subject in high school curriculum and geometry is the core of mathematics. Because of the abstract and conceptual nature of geometry it requires special method of teaching. It has been felt that in spite of strenuous efforts of mathematics teacher, students fail to grasp the certain concepts of the subject which lead disinterest among students towards mathematics in general and geometry in particular. Experimental research method was used for present study. Tool used for the research self prepared geometric concept lesson transcripts of geometry and lesson plans of traditional method and for post test standardized 'Geometric concept test' by S.C. Gakhar. The present study reveals that there is a significant difference between concept attainment model (CAM) and traditional method on the achievement of students in understanding of geometric concepts. Of these methods concept attainment model is more effective than traditional method. And students significantly differ in their concept achievement interestingly there is no significant difference in rural and urban students when taught by traditional method.

Key words: *Concept Attainment Model, Geometry, Traditional Method.*

Introduction: - Teaching as highlighted by Joyce and Weil (1980) is a process which stresses the importance of teaching-learning environment created out of the interaction between teachers and the pupils. A variety of teaching approaches have been evolved to design instruction but which approach/Model of teaching is most appropriate having better impact, effective, efficient and interesting can only be answered through research keeping each Model's instructional and nurturing effects in view. The achievement of the instructional objective depends on the method adopted for teaching.

Models are prescriptive teaching strategies designed to accomplish particular instructional goals (Eggen Paul, D. et al., 1979). Models differ from general teaching strategies in that models are designed to reach specific goals.

Models of teaching emerged out of the search by Joyce and Weil (1972) to find a variety of approaches or strategies of teaching. Models of teaching are really models of learning. The product of thinking is called knowledge or content. Everything we teach in the school can be described in terms of fundamental forms of knowledge. These forms are facts, concepts and generalizations. A concept is an abstracted notion that is based on a class of objects, events or ideas with common characteristics. According to Dececco (1968) "A concept is a class of stimuli which has common characteristics. These stimuli may be objects, events or persons".

The use of models requires an ability to specify precise learner outcomes so that a specific model can be selected to match a particular goal. Concept attainment model belongs to the information processing family of models.

Concept Attainment Model (Cam)

The term Concept Attainment Model is historically linked with the work of Jerome S. Bruner and his associates. This Model is intended to teach specific concepts by comparing and contrasting examples that contain the concept and that do not contain the concept. It is built up from Bruner's work on the cognitive activity called categorizing. He is of the opinion that categorizing helps to reduce the complexity of environment and necessity for concept learning.

Concepts in Geometry

Geometric concepts mean the abstract ideas of geometry. These constitute some basic ideas and terms of geometry. These concepts have to be made clear to the students. Their conception is to

precede their definitions. Definitions should be given only after the concepts have been thoroughly understood.

As geometry is an important part in the field like engineering architecture, aerospace engineering fluid dynamics, land records, surveys, chemical structures and many more. No doors will be open for students to enter into these fields, so geometrical concepts of students must be clear for his bright future. Therefore due to its importance geometry as a subject is included as a compulsory subject at school and college level so it is very necessary to know the students geometrical concepts. This research is an attempt to study the effectiveness of Concept attainment model over traditional method of teaching when taught to rural and urban students of Aurangabad district.

The main population of Indian students lived in rural areas, there living standards and school environment significantly differ as we see and many researches revealed that because of various factors, like socioeconomic status, facilities, exposure, and learning environment students significantly differ in their achievements. The main purpose of study is to improve the geometric concepts of rural students too along with urban students. And see whether these students differ or not from urban students.

Significance And Need Of The Study

Mathematics is the compulsory subject at secondary level and it is consists of content of both algebra and geometry. Being a mathematics teacher the researcher observed that there is difference in the achievement of algebra and geometry and students clearly going downside in the achievement of geometry. Geometry being a conceptual subject it is noted that because of poor concepts or lack of understanding of concepts in geometry results in the poor performance in geometry. Present study has made an attempt to test the effectiveness of Concept Attainment Model on Achievement in Geometric Concepts of standard VIII students. It is expected that the findings of the study will help the curriculum planners to make needed changes in the content of Geometry textbook. It will also help the teachers to understand the effectiveness and necessity for the application of model approach in the teaching of Geometry. It will be of great help to all those who are concerned with educational strategies.

Objectives Of The Study:

1. To compare the geometric concept achievement of rural students of VIII standard when taught by traditional method and concept attainment model.
2. To compare the geometric concept achievement of urban students of VIII standard when taught by traditional method and concept attainment model.
3. To compare the geometric concept achievement of rural and urban students of VIII standard when taught by traditional method.
4. To compare the geometric concept achievement of rural and urban students of VIII standard when taught by concept attainment model.

HYPOTHESES OF THE STUDY:

1. There is no significant difference between geometric concept achievement score of rural students when taught by traditional and concept attainment model.
2. There is no significant difference between geometric concept achievement score of urban students when taught by traditional and concept attainment model.
3. There is no significant difference between geometric concept achievement score of rural and urban students when taught by traditional method.
4. There is no significant difference between geometric concept achievement score of rural and urban students when taught by concept achievement model.

Methodology: Method*:* Experimental method of research was employed to study the effectiveness of CAM and traditional method of teaching. In the present study, the experimental group and control group were equated on the basis of their previous achievement. So the investigator decided to conduct the study using the 'posttest only control group design'. The experimental treatment i.e. teaching through Concept Attainment Model was given to one group (Experimental group) the other group was taught through traditional teaching method. The group A was taught by concept attainment model and group B was taught by the traditional method. Two groups were taught on the alternative days for one month and after one month, post-test was administered to the two groups. Posttest was the standardized Concept achievement test prepared by Dr. S.C.Gakhar .

Sample*:* A sample comprises of 240 VIII standard students from Aurangabad District. 120 students were taken as sample for study from city area of Aurangabad (60 experimental & 60

control group), 120 students from rural area of Aurangabad district (60 experimental & 60 control group)

Tools: Tool used for the research was 'Geometric Concepts test' by Dr.S C Gakhar, self prepared lesson transcripts of CAM (Concept Attainment Model) and Lesson plans of traditional method.

Statistical Analysis*:* Mean, SD, and t-test were used to analyze the data.

Analysis And Interpretation Of Result

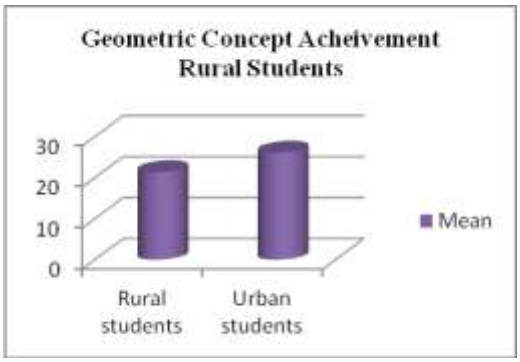
***H0*:** There is no significant difference between geometric concept achievement score of rural students when taught by traditional and concept attainment model.

Table 1- Showing mean geometric score of rural students when taught by traditional method and concept attainment model.

	Teaching Methods	N	Mean	S.D	t-Value	Interpretation
Geometric Concept Achievement Rural students	Traditional Method	60	14.96	4.09	10.48	significant
	Concept Attainment Model	60	21.91	2.37		
			df-118			

Table 1 reveals that the obtained t-value 10.48 at 0.05 level which indicates that There is significant difference between geometric concept achievements of rural students when taught by traditional method & concept attainment model.

Graph 1-Showing significant difference between CAM and traditional method of teaching of rural students.



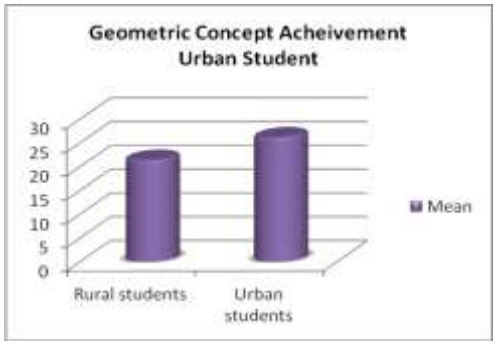
***H0*:** There is no significant difference between geometric concept achievement score of urban students when taught by traditional and concept attainment model.

Table 2:- Showing significant difference between CAM and traditional method of teaching of urban students.

	Teaching Methods	N	Mean	S.D	t-Value	Interpretation
Geometric Concept Achievement urban	Traditional Method	60	14.95	2.71	22.06	significant
	Concept Attainment Model	60	26.11	2.82		
			df-118			

Table 2 reveals that the obtained t-value 22.06. At 0.05 level which indicates that There is significant difference between geometric concept achievements of urban students when taught by traditional method & concept attainment model. There is significant difference between two groups.

Graph2 -Showing significant difference between CAM and traditional method of teaching of urban students.



H0 there is no significant difference between geometric concept achievement score of rural and urban students when taught by traditional method.

Rural urban		N	Mean	S.D	t-Value	Interpretation
Traditional method	Rural students	60	14.96	4.09	0.26	Not significant
	Urban students	60	14.95	2.71		

df-118

Table 3 reveals that the obtained t-value 6.00. At 0.05 level which indicates that There is no significant difference between geometric concept achievements of rural and urban students when taught by traditional method. There is no significant difference between two groups.

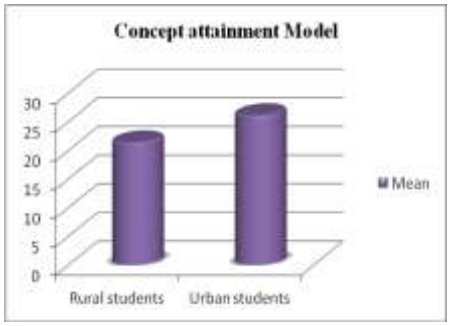
H0: There is no significant difference between geometric concept achievement score of rural and urban students when taught by concept achievement model.

		N	Mean	S.D	t-Value	Interpretation
Concept attainment model	Rural students	60	21.36	2.37	9.966	significant
	Urban students	60	26.11	2.82		

df-118

Table 3 reveals that the obtained t-value 9.66 At 0.05 level which indicates that There is significant difference between geometric concept achievements of rural and urban students when taught by concept attainment model there is significant difference between two groups.

Graph 1-Showing significant difference between rural and urban students when taught by Concept Attainment model.



FINDINGS: - Research finding reveals that

1. There is significant difference between geometric concept achievements of rural students when taught by traditional method & concept attainment model
2. There is significant difference between geometric concept achievements of urban students when taught by traditional method & concept attainment model.
3. There is no significant difference between geometric concept achievements of rural and urban students when taught by traditional method.
4. There is significant difference between geometric concept achievements of rural and urban students when taught by concept attainment model

Conclusion:-

Concept Attainment Model of teaching is superior and effective in terms of geometric concepts understanding of students in comparison to Traditional Method. There is singnificant difference of geometric concept achievement of rural students when taught by CAM and traditional method and urban students also differ significantly when taught by CAM. The Concept Attainment Model will encourage the students to grasp the concept while presenting the concepts to them and provides a fair chance to analyse the thinking strategies behind each concept and this will help them to understand the subject matter more vividly. The Method also helps to correlate the theoretical concepts of Geometric Concepts and its application, which is not so effective in the traditional Method. The Concept Attainment Model will help the students to learn the theory and apply the newly acquired knowledge simultaneously. The conclusions of the study prove that the Concept Attainment Model has helped the students to score better in the Achievement test and it it beneficial for rural and urban students significantly.

Reference

Bruner, Jerome, Goodnow, Jacqualine; and Austine (1967). *The study of thinking*. N.J:Science edition, Inc.

Bruce, R. Joyce, Marsha Weil and Emily, Calhoun (2005). *Models of Teaching*.(7th Ed) My Lab School Edition.

Bruce, R. Joyce and Marsha, Weil (2008). *Models of Teaching* (8th Ed).Publisher: Allyn & Bacon.

Eggen, Paul P; Kauchak, Donald P; and Harvert, Robert J. (1979). *Strategies for teachers*. N.J.: Englewood cliffs, prentice hall.

Goode William J Hatt paul k, (1952).*Methods in social research.* McGraw-Hill Book Company, inc. Kogakusha ltd. Tokyo.

Hershkowitz, R.(1990). Pschological Aspects of Learning Geometry. In P. Nesher and J. Kilpatrick (Eds.). *Mathematics and Cognition*.70-95. Cambridge University Pres: Cambridge.

Joyce, Bruce and Weil, Marsha (1997). *Models of teaching*. New Delhi: Prentice- hall of India.

Jagadeesh Basapur.(2009).Effectiveness of Concept Attainment Model on Pupil's Achievement and Their Attitude.*International Indexed & Refferred Research Journal***,** ISSN 0975-3486, RNI-RAJBAL 2009/30097:VoL III, ISSUE-35

K.S. Parbhakaram, Digumarti Bhaskara Rao(2011). *Concept Attainment model in mathematics Teachin.* New Delhi: Discovery publishing house.

Kumar,Amit & Mathur,Madhu.(2013).Effect of Concept Attainment Model on Acquisition of Physics Concepts. *Universal Journal of Educational Research* 1(3): 165-169, 2013.Retrieved from http://shodhganga.inflibnet.ac.in/handle/10603/22104?

Marsha, Weil and Bruce, Joyce (1978). *Information Processing Models of Teaching.*Expanding Your Teaching Repertoire.

Mujeebul Hasan Siddiqui & Sharif Khan.(2014).*Models of Teaching theory and research.* New Delhi: A.P.H publishing Corporation.

Mujeebul Hasan Siddiqui(2014).*Models of teaching*. New Delhi: A.P.H publishing Corporation.

Prakash K and Premlata Sharma.(sep,2010).Influence of gender and area on concept attainment in mathematic. *Edutrack, Neelkamal*

Singh, L.C. (1996). *Multiple models of teaching for educators.* New Delhi: Vikas publishing house limited.

Sharma, R.A (2008),Educational Research . (Ed -1) ,Meerut:R.Lall book depot.