

**EFFECTIVENESS OF CONCEPT ATTAINMENT MODEL OVER
TRADITIONAL METHOD OF TEACHING ON ACHIEVEMENT
IN BIOLOGY**

INDRAJIT NATH*

BISWAJIT NATH*

Abstract

Teaching a subject like Biology needs special teaching methods. In spite of the fact that Biology has a great importance in modern times, the subject of Biology is considered very difficult among students. It has been felt that in spite of strenuous efforts of Biology teacher, students fail to grasp the certain concepts of subject, which lead disinterest among students towards Biology. More ever students are often unable to apply their knowledge to advance studies. Therefore there is a need to study the effectiveness of the teaching methods in Biology. This study is based on facts collected from Maitri Vidya, Risali, Bhilai, Durg (C.G). The main aim of this study is to bring out the relative effectiveness of concept attainment model of teaching and conventional method of teaching on the achievement of students for acquisition of Biology concepts in class IX. Our study reveals that there is a significant difference between concept attainment model (CAM) method and traditional method (TM) on the achievement of students in understanding of Biology concepts. Of these methods concept attainment model is more effective than traditional method.

KEY WORDS: Effectiveness, Concept attainment model, Traditional method, Achievement Test.

*** RESEARCH SCHOLAR OF VISVA BHARATI, SANTINIKETAN.**

INTRODUCTION –

Educational in the largest sense is any act or experience that has a formative affection the mind , character or physical ability of and individual . In its technical sense , education is the process by which society deliberately transmits its accumulated knowledge , skills and values from one generation to another . Dictionary defines education as , “ strengthening the power of body and soul ” . The new born infant is a helpless human being . He has neither any of the nor an enemy. He is not aware not only this , he is not even keen to achieve any ideal or value . Etymologically the word education is derived from **educate** (Latin) “Bring up” , “bring forth what is within” , **educare** : “to raise”, **educere** : “to lead out” , **educatum** : “to nourish” . A synthesis of the meaning of these terms implies that education is drawing out and leading out something form within the individual by bringing up , nourishing , raising and training .

Education as a process takes into account both the science of education and the art of education . The science of education comprises the corpus of knowledge which is largely responsible for making the art of education more effective . The art of education has relevance to classroom practices and for effective dialogue between the teacher and the pupils . Since knowledge is expanding rapidly in all the disciplines including education , there is need to extend the frontiers of knowledge in areas which constitute the science of education .

METHODS OF ACQUIRING KNOWLEDGE

The methods by which man from the earlier times sought answers to his problems can be classified under the following categories: 1. Authority , 2. Tradition , 3. Experience , 4. Deductive reasoning , 5. Inductive reasoning , and 6. Scientific method .



Teaching is often thought as something that comes naturally to people who know their subject. But teaching is an intriguing, important and complex process. It takes place in a complicated social institution which is filled with diverse people. The teacher must learn to control five processes of teaching.

- i. Making and using of knowledge
- ii. Shaping the school
- iii. Teaching with strategy
- iv. Creating interpersonal climates
- v. controlling a teaching personality

Bruner also emphasized four major features of theory of instruction in effective teaching.

- A. Predisposition towards learning
- B. Structured body of knowledge
- C. Sequences of material to be learnt.
- D. Nature and paving of reward and punishment

However teacher does broadly remain pivot around which the entire process revolves in the formal system. During the last two decades many new methods of teaching and training have

been developed, tested, modified and adopted to different kinds of teaching learning situation. Model of teaching is an innovative method of teaching. There is need to direct efforts towards transformation of teaching methods right upto development of science and technology, curriculum and material research along with teacher orientation to receive attention. The ultimate responsibility of information processing has been enshrined by the society in teachers. Thus a theory of teaching must attempt to set forth the means of maximizing learning on the part of children. For achieving needed learner behavior intellectual development and acquisition of knowledge and specific mental process like reasoning, scientific creativity be primary concerns for effective and efficient information processing.

In the concern Joyce has stated, "To provide an all round development we need to design suitable instructional strategies which helps our students grow emotionally, physically, socially and intellectually. There still exists a big gap between theoretical knowledge and actual teaching in classroom or schools. Models of teaching as strategies need to be incorporated in our teaching practice." 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, interesting. Can only be answered through research keeping each Model's instructional and nurturant effects in view.

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 with examples 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.

Traditional method(T.M)

Traditional teaching methods where classes are conducted in a traditional teaching style, with an emphasis on lectures and note taking. Traditional teacher-centered methods focused on rote

learning and memorization must be abandoned in favor of student-centered and task-based approaches to learning.

SIGNIFICANCE OF STUDY

This present study is very important for constructing knowledge in classroom context. According to Bruner point of view, knowledge can be constructed with the help of concept by which student can able to study with suitable environment. Concept Attainment Model is very effective to construct specific concept of different discipline and organized those concept in their mind. Through Concept Attainment Model (CAM) student can get knowledge by visual (Primary) and auditory (secondary) perception and make concept map about concern topic in different subjects. According to different psychologist, visual perception is very effective to visualize content matter in their mind than auditory perception. Traditional method is not such efficient as like Concept Attainment Model method. This study can generate the gateway of concept building in different discipline such as biology etc and it is also helpful for teachers to modify their teaching strategies and make teaching learning process very effective. In the present context we can believe that holistic development of student is very much essential to achieve their goals. In philosopher point of view, Classroom is a laboratory and teacher is a scientist of this laboratory and students are tested here. The objectives of teacher is the hypothesis of scientist by which every teacher can make their way very smooth and modify teaching learning strategies very effectively through proper instrument (such as CAM method) in classroom situation.

This study is very helpful for those research fellow who are engage in their study on effectiveness of CAM method in different discipline. In service and pre service teacher will get knowledge about ‘how can CAM method effectively use in classroom situation?’.

STATEMENT OF THE PROBLEM

The research under the given report sought to find out – “Effectiveness of concept attainment model over traditional method of teaching on achievement in Biology”

A good statement of a problem must clarify what is to be determined or solved . The most vital step in this respect is to specify the variable involved in the questions and define them in operational terms .

We know ‘study is an art’ some psychologist , philosophies and sociologist has given their own option about this problem . So, it is a potent influencing education .

OBJECTIVES OF STUDY

The Objectives of the present study were as follows

1. To compare the mean scores of achievement in biology taught through concept attainment model and traditional method of teaching .
2. To compare the mean scores of achievement in Biology taught to experiment on control groups with respect to gender .

HYPOTHESES OF THIS STUDY ARE AS FOLLOWING -

- i) There will be no significant difference in mean scores of achievement in Biology taught through concept attainment model and traditional method of teaching .(H_1)
- ii) There will be no significant difference in mean scores of biology achievement taught to experimental and control group with respect to gender.(H_2)

DELIMITATIONS –

Delimitations are those characteristics selected by the researcher to define the boundaries of the study. The researcher makes conscious **exclusionary** and **inclusionary decisions** regarding the

sample (including such information as geographic location), the variables studied, the theoretical perspectives, the instruments, the generalizability, etc.

Delimitation refers to the establishment of limits or boundaries of something or a line that indicates a boundary also known as demarcation. It comes from the term delimit, which means to fix or define the limits of something. The present study has the following limitations :

1. The study was done on a particular one school student .
2. The study was done on students of class IX from Maitri Vidya , Risali , Bhilai , Durg (C.G).

RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem . It may be understood as a science of studying how research is done scientifically. In it, we study the various steps that are generally a doped by a researcher in study in his research and his problem along with the logic behind them . It is a method where a researcher is guided by the rules of logical reasoning and also investigation proceeds in an orderly manner .

Thus research means to observe the phenomena again and again from different dimension. To achieve the aims of any research problem collection of the data the well arranged plan is a must for this the knowledge of research should be exhaustive pertains to tools and devices so that he may select methods and make proper tools sailable of his problem .

RESEARCH DESIGN –

One of the main steps in the development of scientific research is measurement which provides a relatively unlimited number of categories into which phenomena can be ordered and which permits a more a adequate and facile manipulation of the categories by virtue of their susceptibility to mathematical treatment.

Success in research and in science depends upon the availability of measurements in sufficient precision to measure the phenomenon under study. Most of the measurements with which educational research is concerned are derived through pencil and paper tests which are, as yet, relatively imprecise.

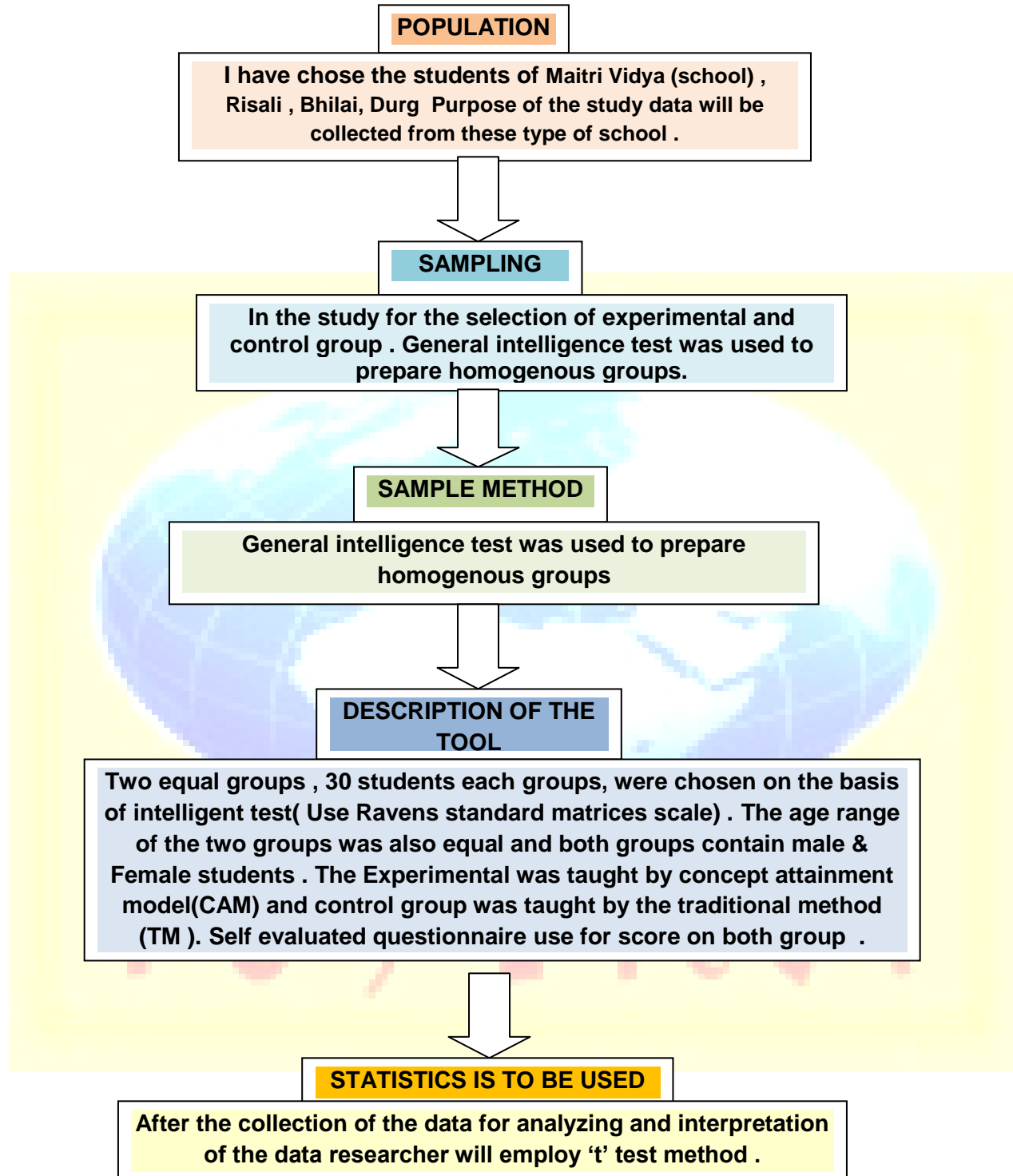


TABLE NO:- 1

[For Effectiveness of CAM(H₁)]

Group	Mean(M)	Number(N)	t-value
CAM Group	21.7	30	2.48**
TM Group	10.53	30	

**Significant at 0.01 level

It is observed that the t value is 2.48 which is significant at 0.01 level .It indicates that mean scores of students liking of CAM and TM groups differ significantly .In this context the first null hypotheses H₁ is rejected .Further it can be seen that mean score of students liking of CAM group was found to be significantly superior to TM group .IT may ,therefore, be said that students of CAM group were found to have significantly higher students liking in comparison to students of TM group.

TABLE NO:-2

[For Effectiveness of CAM (H₂)]

	BOYS	GIRLS	t score
CAM	MEAN-21.4	MEAN-22	t =0.074
	$\sum x^2=6448$	$\sum y^2=7292$	
TM	MEAN-11.26	MEAN-9.8	t =0.368
	$\sum X^2=1935$	$\sum Y^2=1469$	
t score	t =1.68	t =1.891	

It is observed that the t value is **0.074**(within CAM group boys and girls),**0.368**(within TM group boys and girls)which is not significant. It indicates that mean scores of students(Boys and Girls)within CAM and TM groups are equally significant. In this context the second hypotheses H2 is not rejected. Further it can be seen that mean score of students(boys and girls) within CAM group& TM group was found to be significantly equal. It is observed that the t value is **1.68** (CAM group boys and TM group boys),**1.891**(TM group girls & CAM group girls)which is significant . IT may ,therefore ,be said that students of CAM group were found to have significantly higher students liking in comparison to students of TM group.

On the basis of the results drawn and discussion with the Biology teachers of senior schools of Maitri Vidya , Risali , Bhilai , Durg (C.G),the following conclusions have been drawn:

- ✦ Concept Attainment Model of teaching is superior and effective in terms of Biology concept understanding of students in comparison to Traditional Method.
- ✦ Concept Attainment Model has significantly higher students liking in comparison to Traditional Method.

GLOBAL INTERPRITATION –

It is widely accepted that concept attainment model of teaching given by Bruner is very effective for concept building in different discipline. All over the world teachers should emphasis on concept formation in the mind of pupils and through which students can overcome the hard spot of different subject. Concept attainment model is more effective than traditional method of teaching which reflects in researcher study. Concept formation of different subject such as Biology, chemistry, history etc can modify the organization of different domain of body and implemented teaching learning strategies more effectively in our school processes.

CONCLUSIONS

On the basis of the results drawn and discussion with the Biology teachers of secondary schools Maitri Vidya , Risali , Bhilai , Durg (C.G).

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- Concept Attainment Model has significantly higher students liking in comparison to Traditional Method.

EDUCATIONAL IMPLICATIONS

As the present study review that Concept Attainment Model was effective in terms of Biology concept understanding of students, hence CAM should be used by the school teacher in class room teaching specially in teaching Biology concepts. In order to orient the interest of teachers towards use of CAM in class room teaching, workshops and seminars should be organized.

SUGGESTIONS

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FOLLOW UP STUDIES

1. The Simplicity Principle in Human Concept Learning.
2. Thinking and Concept Attainment .
3. Betterment of teaching learning strategies.
4. Motivation for learning.
5. Self desirability and self understanding are elevated.

6. Effective concept formation about text.
7. Effective for slow learner.
8. Tools for effective educational research.

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