

## A STUDY OF EFFECTIVENESS OF INQUIRY TRAINING MODEL AND CONCEPT ATTAINMENT MODEL ON ACHIEVEMENT OF POLITICAL SCIENCE STUDENTS

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### ABSTRACT

*To bring a qualitative change in the system of education the models of teaching need to be implemented faithfully in classroom teaching with certain modifications. Keeping in view the previous history, the National Council of Educational Research and Training (NCERT) has taken a wise step to introduce innovations, such as Programmed Instruction, Team Teaching. Teachings models are concept attainment model and Inquiry training are helpful in inculcating the inquiry habits of the students. But as compare to other models in relatively on explored as especially in case school teaching. The present study was conducted on 50 students of class XI, XII. The student belonging to experimental group was taught through concept attainment model and inquiry training model, while the students belonging to control group were taught through traditional method. The main findings of the study were (i) Teaching through concept attainment model (Cam) was found significantly superior to traditional method. When student overall achievement scores were adjusted with respect to pre test score. (ii) Teaching through inquiry training model (ITM) was found significantly superior to traditional method when students overall achievement scores were adjusted with respect to pre-test score.*

**KEYWORDS:** *Qualitative Change, Models of Teaching, NCERT, Concept Attainment Model.*

### Introduction

Teaching is a dynamic and complex phenomenon involving teachers, students and the subject matter. The efficacy of the teaching-learning process has very close relation with the teacher's teaching style and the students' learning style. In India, efforts need to be made in teacher education programme as to match the objectives of education and students learning styles and personality dimensions. The models approach to teaching was first described by Joyce and Weil (1972) who defined a model as, "a plan or pattern that can be used to shape curriculum or course, to design instructional materials and to guide teachers' actions".

### Concept Attainment Model

In concept attainment the concept already exists. The Concept Attainment Strategies (CAS) are concerned with two separate but related ideas. According to Russells the adult does not typically acquire new concepts so much as he learns new variation and hierarchies. The processes involved in concept formation are not closed to the adult, because vast number of concept are formed, by the time adulthood is reached, new concept are mainly less likely to occurs. The method of acquiring concept of adulthood has been referred by Bruner and his associates as concept attainment. Attainment refers to the process of finding predictive defining attributes that distinguish examples from non-examples of the class one seek to discrimination."

### An Inquiry Training Model

Inquiry Training model is one of the models of teaching which is built around intellectual information. It inculcates inquiry habit among the children. This is because individual has natural self motivation to inquire. It keeps students more active, develops creativity, intellectual power and facilitate learning. In this model the students are trained to establish the causal relationship among the phenomenon. The solution of the problem would result in the learning of desired content by pupils and the development inquiry skill among them.

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### Need and Significance of the Study

In the context of knowledge it is essential to find more effective ways of gaining the knowledge two methods of gaining knowledge Concept Attainment Model and Inquiry Training Model. It is considered a effective model which is helpful in inculcating the inquiry habits of the students. But as compare to other models it is relatively on explored as specially in case of school teaching. In this direction attempts have been made by various researchers. After going to the related literature the investigator realised that there are few studies have been conducted to develop Concept Attainment Model at a school level Kumar (1985); Pani (1985) were found that Concept Attainment Model has more effective than the traditional method in terms of achievement in science concepts. Chudhari and Vaidya (1986a) found CAM and traditional model equally effective for teaching Hindi grammar concepts. Musa (1981); conducted a study for knowing the effect of Concept Attainment Model on developing cognitive style. The findings of the study shows that cognitive style did not produce any effect on Concept Attainment.

### Objectives

- To compare adjusted mean scores of the students studying Concept Attainment Model (CAM) and through Traditional Method by taking pre-test scores as covariate.
- To compare adjusted mean scores of the students studying Inquiry Training Model (ITM) and through Traditional Method by taking pre-test scores as covariate.
- To compare the effectiveness of Concept Attainment Model (CAM) in terms of significance of difference between pre-test and post-test mean.
- To compare the effectiveness of Inquiry Training Model (ITM) in terms of significance of difference between pre-test and post-test mean.
- To study the reactions of students towards Concept Attainment Model (CAM).
- To study the reactions of students towards Inquiry Training Model (ITM).

### Hypothesis

- There will be no significant difference between the mean achievement scores of the students studying through Concept Attainment Model (CAM) with those students studying through traditional method when pre-test score is taken as co-variate.
- There will be no significant difference between the mean achievement scores of the students studying through Inquiry Training Model (ITM) with those students studying through traditional method when pre-test score is taken as co-variate.
- There will be no significant difference in pre-test mean and post-test mean when treatment is given through Concept Attainment Model (CAM).
- There will be no significant difference in pre-test mean and post-test mean when treatment is given through Inquiry Training Model (ITM).

### Sample

In the present study purposive sampling was done. 50 students from Janta Adarsh Senior Secondary School irrespective of boys and girls constitute the sample. Age of the students are 16 to 18 years. Though the medium of instruction was English language but they can understand Hindi also. They can read Hindi and English. Socio-economic status of all the students were same. Those 50 students selected from two classes namely Class XI and XII graders. Class XI students constituted 30 students then XII constituted 20 students. Each class was divided into two groups randomly with equal sample size out of the four groups two are experimental and two were control group from both the classes. Details about sample has been give in Table 1.

**Table 1: Details About Sample**

Group	Name of School	Name of Class	No. of Student	Treatment	Total
G1	JASS	XI	15	CAM	
G2	JASSS	XI	15	TM	30
G3	JASSS	XII	10	ITM	
G4	JASSS	XII	10	TM	20

JASS - Janta Adarsh Sr. Sec. School

G - Group

## Design

The present study was pre-test, post-test control group design and experimental in nature. Four groups namely two experimental and two control groups were randomly assigned the treatment. The students belonging to experimental group were taught through Concept Attainment Model and Inquiry Training Model, while the students belonging to control group were taught through traditional method. Five lessons of Political Science were presented through CAM and ITM to the students of experimental group. Both the groups from each class match with respect of pre-test with taking analysis of co-variate. Students belonging to class XI graders experimental groups were taught through CAM about 7 hours in 10 days like this control groups taught through traditional method. Students belonging to class XII graders experimental group taught through ITM near about 7 hours in 10 days. Like this control group taught through traditional method. Schematic representation of design is given in the Table 2.

**Table 2: Sematic Representation of Design**

Activity	Exp. Group	Cont. Group	Type of Variable	Time Taken
Ore. of CAM	*	0	Ind.	40 mts. 1 day
Ore. of ITM	*	0	Ind.	40 mts. 1 day
Ore. of CAM	*	0	Ind.	40 mts. 10 day
Ore. of ITM	*	*	Dep.	80 mts. 2 day
Rea. Scale	*	*	Dep.	80 mts. 2 day

Looking at the table 2 it can be predicted that experiment was completed within 26 days. Treatment was independent variable in the study while achievement, reaction scale were the dependent variables.

## Tools

To obtain the data related with different variables following tools were used.

## Achievement

Achievement of the students was measured by criterion test developed by investigator. It was the test which covered all the main points of teaching and based upon the terminal behaviours. The test consisted of objective types questions. Different types of questions included in the test were, the correct ones. Fill in the blanks with appropriate words, match the groups, true or false statement etc. Time for completing the test was 40 minutes and full marks were 25. Criterion tests are given in Appendix-III.

## Reaction Towards CAM and ITM

Reaction of the students was measured by a criterion test developed by Passi (1987). The scale confined 18 items. There were 9 positive items and 9 negative items in the scale. For each item there were five choices these were strongly agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD). The students had full freedom to select any one out of five from the scale. The performance of reaction scale is given in Appendix-II.

## Statistical Analysis

- To compare adjusted mean scores of the students studying Concept Attainment Model (CAM) and through Traditional Method by taking pre-test scores as co-variate was analysed by using the statistical technique analysis of co-variance (ANCOVA).
- To compare adjusted mean scores of the students studying Inquiry Training Model (ITM) and through Traditional Method by taking pre-test scores as co-variate was analysed by using the statistical technique analysis of co-variance (ANCOVA).
- To compare the effectiveness of Concept Attainment Model (CAM) in terms of significance of difference between pre-test and post-test mean was analysed by using the statistical technique correlated t-test.
- To compare the effectiveness of Inquiry Training Model (ITM) in terms of significance of difference between pre-test and post-test mean was analysed by using the statistical technique correlated t-test.
- To study the reactions of students towards Concept Attainment Model (CAM) was analysed by using the statistical technique Chi-Square.
- To study the reactions of students towards Inquiry Training Model (ITM) was analysed by using the statistical technique Chi-Square.

### Comparison of Concept Attainment Model with Traditional Method in Terms of Overall Achievement

The first objective of the present study was to compare adjusted mean scores of the students studying through Concept Attainment Model (CAM) and through traditional method by taking pre-test scores as co-variate. The five units of Political Science were taught through Concept Attainment Model (CAM), so the number of criterion test were five. To get the overall achievement scores of the students, average scores for each student on five criterion tests were calculated. The data were calculated by using the analysis of covariance where pre-test scores were taken as covariate. The results are presented in Table 3.

**Table 3: Summary of Ancova for Overall Achievement by Taking Pre-Test Scores as Covariate**

Source of Variance	df	SSy.x	MSSy.x	Fy.x
Among	1	48.581	48.581	7.468**
Within	17	110.583	6.504	
<b>Total</b>	<b>18</b>			

\*\* Significant at 0.01 level.

From Table 3 it can be seen that, the f-value of the overall achievement for the two group is 7.468 which is significant at 0.01 level with df=1/17. It shows that, the adjusted mean overall achievement score of the students taught through Concept Attainment Model is significantly different from those taught through traditional method when pre-test is taken as covariate. Thus the null hypothesis, namely there will be no significant difference between the adjusted mean overall achievement scores of the students taught through Concept Attainment Model with those students studying through traditional method when pre-test scores was taken as covariate, is rejected. The adjusted mean overall achievement of the student taught through Concept Attainment Model was significantly higher than those who were taught through traditional method (vide table 4). It may therefore, be said that the teaching through Concept Attainment Model was superior than the traditional method.

#### Finding

Teaching through Concept Attainment Model (CAM) was found significantly superior to traditional method when students overall achievement scores were adjusted with respect to pre-test score.

### Comparison of Inquiry Training Model with Traditional Method in Terms of Overall Achievement

The second objective of the present study was to compare adjusted mean scores of the students studying Inquiry Training Model (ITM) and through Traditional Method by taking pre-test scores as co-variate. The five units of Political Science were taught through Inquiry Training Model (ITM), so the number of criterion test were five. To get the overall achievement scores of the students, average scores for each student on five criterion tests were calculated. The data were calculated by using the analysis of covariance where pre-test scores were taken as covariate. The results are presented in Table 4.

**Table 4: Summary of Ancova for Overall Achievement by Taking Pre-Test Scores as Covariate**

Source of Variance	df	SSy.x	MSSy.x	Fy.x
Among	1	56.096	56.096	11.295**
Within	27	134.083	4.966	
<b>Total</b>	<b>28</b>			

\*\*Significant at 0.01 level.

From table 4 it can be seen that, the f-value of the overall achievement for the two group is 11.295 which is significant at 0.01 level with df=1/27. It shows that, the adjusted mean overall achievement score of the students taught through Inquiry Training Model (ITM) is significantly different from those taught through traditional method when pre-test is taken as covariate. Thus the null hypothesis, namely there will be no significant difference between the adjusted mean overall achievement scores of the students taught through Inquiry Training Model with those students studying through traditional method when pre-test scores was taken as covariate, is rejected. The adjusted mean overall achievement of the student taught through Inquiry Training Model was significantly higher than those who were taught through traditional method (vide table 6.4). It may therefore, be said that the teaching through Inquiry Training Model was superior than the traditional method.

#### Finding

Teaching through Inquiry Training Model (ITM) was found significantly superior to traditional method when students' overall achievement scores were adjusted with respect to pre-test scores.

### **Implications**

The present study is related to the teaching of Political Science through Concept Attainment Model (CAM) and Inquiry Training Model (ITM) for class XI and XII. The findings of the study have implication for teachers, students, text book writer etc.

### **Teacher**

Concept Attainment Model and Inquiry Training Model was found to be significantly superior to traditional methods in terms of achievements of the students. It reflects that teaching Political Science with CAM and ITM is fruitful. Thus the teacher to orient themselves in the use of CAM and ITM for teaching purposes, so that they can make their teaching effective.

### **Student**

Students were not aware of new method teaching in education. Hence to orient the students with CAM and ITM are also necessary, so that they can enjoy their class room teaching CAM, ITM required active involvement of the learners. So it is helpful in removing the passivity of learning.

### **Text Book Writers**

Text book writers should try to give some problems in between the content or discrepant event in their books. Specially when they write the books for school children. It will help the students for better understanding the subject matter.

### **Limitations**

- To clarify the different models like CAM, ITM and TM the study was confined only 10 lessons of Political Science of Class XI and XII graders.
- Only 50 students of class XII and XII graders were taken for experimentation.
- The lessons were developed in English language.
- Treatments were given for only 11 days.

### **References**

- Agrawal, J.C. (2005). Development and Planning of Modern Education, 8th revised Edn., Vikas Publication House Pvt. Ltd., New Delhi.
- Agrawal, J.C. (2005). Development and Planning of Modern Education, 8th revised Edn., Vikas Publication House Pvt. Ltd., New Delhi.
- Agrawal, J.C. (2005). Educational Research - An Introduction, Arya Book Depot, Delhi - 2005.
- Bhatnagar, R.P. (2002). Reading in Methodology of Research in Education, R. Lai Book Depot, Meerut.
- Bhatnagar, R.P. (2002). Reading in Methodology of Research in Education, R. Lai Book Depot, Meerut.
- Bhatt D.C. (1998). Science process skills in teaching and learning, common wealth publishers, New Delhi.
- Buch M.B. (1988). Fourth Survey of Research in Education, NCERT, New Delhi.
- Das, R.C. (1995). Science Teaching Schools, Sterling Publishers Pvt. Ltd., Bangalore.
- Gupta, N.K. (1997). Research in Teaching of Science Models and Strategies. New Delhi: APH.
- Pizzini, E. L., Shepardson, D. P., & Abell, S. K. (1991). The inquiry level of junior high activities: Implications to science activities. Journal of Research in Science Teaching, 28,111-121.
- Sharma, Vibha (.19.86). "Effectiveness of Concept Attainment Model and' their Reactions." (Sponsored by NCERT, Bhopal) Trend Report and Abstract' (1985-86). Indore, M.P.: Department of Education, Devi Ahilya Vishwavidyalaya, p. 73.
- Siddiqui, M.H. and Khan, Moh. S. (1991). Models of Teaching Theory and Research. New Delhi: Ashish Publishing House.
- Zingro, J. S., & Collette, A. T. (1967-1968). A statistical comparison between inductive and traditional laboratories in college physical science. Journal of Research in Science Teaching, 5,269275.

