REVIEW OF RESEARCH

EFFECTIVENESS OF INDUCTIVE THINKING MODEL IN TEACHING SCIENCE OF VIII CLASS STUDENTS IN TERMS OF THEIR ACHIEVEMENT

ISSN: 2249-894X
IMPACT FACTOR : 5.7631(UIF)
UGC APPROVED JOURNAL NO. 48514
VOLUME - 8 | ISSUE - 8 | MAY - 2019

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ABSTRACT:

The research paper is based on "effectiveness of inductive thinking model in teaching science of viii class students in terms of their achievement, "the study is Experimental in nature where one group Pre- test post-test design were used. The purposive Sampling Technique was used for collection of data. The sample consists of 44 male and female students of VIII class from Indore City. the researcher had developed lesson plans in Science from NCERT syllabus based on Inductive Thinking Model. The Achievement test was developed by the researcher which consists of 25 multiple choice questions of Science, for assessing Intelligence Raven's Standard Progressive Matrices was used. Correlated T test and two-way ANOVA was used to analyze the data. It was found that Inductive Thinking Model was effective in terms of Achievement in Science of VIII class Students.

KEYWORDS: *Inductive Thinking Model, Achievement, Science.*

1. INTRODUCTION

The world has become a global village and in this age of globalization no country can live in isolation without seeking impact of global trends in national development. The age of globalization has a great impact on education. Education is very much intimate with individual's process of growth. It is a continuous recognition or reconstruction of individual's life experiences. The process of teaching and learning aims at transmission of knowledge, imparting skills and formulation of attitudes, values and behavior. Teaching is a complex activity, which is cluster of different roles and responsibilities. The Educa - tionists and Psychologists are making efforts to evolve theories of teaching as a result for making teaching learning process effective and successful, so various teaching models has been developed to enhance teaching learning process. Teaching models are relatively a new paradigm which exerts measure theoretical influence on present education system. In the present study the researcher will selected **Inductive Thinking Model** of teaching, because it would improve approaches to information processing in schools and it will be effective in developing actual task in classroom situation.

2. INDUCTIVE THINKING MODEL

Inductive Thinking Model is under Information Processing Family. Hilda Taba developed this model in her experimental studies. She popularized the term Inductive Thinking and prepare entire social curriculum based on **Inductive Thinking**. This Model is based on resent adaption's by Joyce and Calhoun 1996-98 in programmes designed to accelerate students ability to learn.

Taba concludes that thinking skills should be taught using specific teaching strategies, the main focus of the model is to develop the mental ability and give emphasis on **Concept Formation**. This involves the cognitive task in concept

formation.

The primary application of the model is develop thinking capacity. However, in the course of developing thinking capacity, the strategies obviously require students to develop and process large quantities of information. The model can be used in every curriculum area and from kinder garden to high school. This model develops creative thinking, convergent use of information to solve problems.

3. INDUCTIVE THINKING MODEL AND ACHIEVEMENT IN SCIENCE

Pedagogy of Science is not only endless and motiveless, but its stable and fluid, it's self growing, self gathering, self perceived and self forwarding enterprising. Which is curiosity of man's since time immoral.

In the past scenario the traditional method was used for teaching science by the teacher which is outdated and full of loopholes. Where student participation is limited and less. But use of inductive thinking model in teaching science, the teaching became effective, successful and learner centered.

In the present study Achievement in Science refers to marks achieved by the students on selected topics of Science taught by the teacher.

4. REVIEW OF RELATED LITERATURE

Sushma (1987) conducted a study on "*Effectiveness of Concept Attainment Model and comparison to Inductive Thinking Model for Teaching Biological Sciences to VIII class Students*". The Sample Consists of 102 Girls of VIII students. The Findings of the study were Concept Attainment Model as more effective than Inductive Teaching Model when Students achievement in Biological Sciences was taken.

Naik (1997) "*Developing and Trying out Inductive Thinking Model of Teaching in Mathematics to develop students Reasoning Ability***"** They found that Inductive Thinking Model has been found effective in increasing reasoning ability. Inductive Thinking Model is found more than effective than traditional method of teaching.

K. K Leuva (2001) *"Effectiveness of competency based ITM Model in science to develop Reasoning Ability of Primary School Students*" they found that ITM has been found effective in increasing reasoning ability.

Vogel (2011) conducted a study on "Effectiveness *of Inductive Thinking Model of Teaching on learning Grammar in intermediate level of French Classroom"*. The findings indicate a significant greater effect of Inductive Thinking Model on learning Grammar. ii) Inductive Thinking Model performed better with Guided Instruction Learning.

5. RATIONALE OF THE STUDY

From the various researches like Sushma (1987), Naik (1997), K. K Leuva (2001), Vogel (2011) it was found that Inductive Thinking Model was effective and Successful as comparing to Traditional method of Teaching. A big gap was found in the area of inductive Thinking Model and Achievement in Science, so the researcher has conducted a study on the Effectiveness of Inductive Thinking Model in Teaching Science of VIII class students in terms of their Achievement.

6. OBJECTIVES

- To compare the mean Achievement Scores in science of VIII class students at pre test and post test stages.
- To study the effect of Treatment, Intelligence and their interaction on Achievement in Science of VIII class students.

7. HYPOTHESES

- There is no significant difference in the mean scores of Achievement in science of VIII class students at pre test and post test stages.

- There is no significant effect of Treatment, Intelligence and their interaction on Achievement in Science of VIII class students.

8. SAMPLE

The researcher has taken a Sample from Jems Public School Indore, it consists of 44 students of both boys and girls from class VIII.

9. TOOLS

- Achievement test was prepared by the researcher based on Inductive Thinking Model .
- Intelligence was assessed with the help of Raven's Standard Progressive Matrices.

10. STATISTICAL ANALYSIS AND INTERPRETATION OF RESULTS

Objective wise Statistical Analysis and Interpretation of Results are as follows:

1. The first objective of the study was to compare the mean Achievement Scores in science of VIII class students at pre test and post test stages. The data collected was analyzed with the help of Paired Sample T test.

Table 1: Test- Wise Mean, SD, N, r, df and t- value of Achievement in Science

Test	Mean	N	SD	df	r	t-value	Sig.
Pre- test	17.06	44	5.502	43	0.355	12.806	.000
Post- test	30.04	44	6.498				

1. From the above table it is clear that the calculated t- value for Achievement in Science is 12.806 with df 43 and its two tailed probability of significance is .000 which is less than 0.01 level of Significance. Hence it is significant at 0.01 level which is clear that the mean scores of achievement in science of VIII class students at pre -test and post- test stages differ significantly. Therefore, the null hypotheses that. "There is no significant difference in the mean scores of Achievement in science of VIII class students at pre- test and post- test stages." is not accepted. Further it can be also concluded that the mean scores of achievement in science at pre-stage is 17.06 which is significantly less than at post – test stage which is 30.04. thus it can be concluded that there is significant effect of Treatment on achievement in science of VIII class students

2. Second objective of the study was to study the effect of Treatment, Intelligence and their interaction on Achievement in Science of VIII class students. The collected data was analyzed with the help of two way ANOVA.

Table 2: Summary of 2X2 factorial ANOVA.

Source	Sum of Squares	df	Mean Square	F	Sig.
Treatment	3594.671	1	3594.671	86.639	.000
Intelligence	0049.378	1	49.378	1.190	.250
Treatment * Intelligence	0000.116	1	.116	.003	.936
Error	4003.530	84	41.490		
Total	7647.695	87			

From the above table it is clear that the F value for treatment is 86.639 with df 1/ 87 whose two tailed value of sig is .000 which is less than 0.01 level of sig. . Hence it is significant at 0.01 level sig. Which is clear that the mean scores of achievement in science of VIII class students at pre -test and

post- test stages differ significantly, Therefore the null hypothesis that. There is no significant effect of Treatment on Achievement in Science of VIII class students is not accepted.

The calculated F value for intelligence is 1.190 with df 1/87 two tailed value of sig is .250 which is greater than 0.05 level of sig. . Hence it is not significant at 0.05 level of sig. Which is clear that the mean scores of achievement in science of VIII class students belonging to high and low intelligence group do not differ significantly, Therefore the null hypothesis that "There is no significant effect of intelligence on Achievement in Science of VIII class students" is accepted.

The calculated F value for the interaction of Treatment and Intelligence is .003 with df 1/87 two tailed value of sig is .936 which is greater than 0.05 level of sig. . Hence it is not significant at 0.05 level of sig. Which is clear that the mean scores of achievement in science of VIII class students belonging to high and low intelligence group do not differ significantly, Therefore the null hypothesis that " There is no significant effect of interaction of Treatment and intelligence on Achievement in Science of VIII class students" is accepted.

11. FINDINGS AND DISCUSSION

Objectives wise findings and discussion are as follows:

- The finding of first objective was that the Treatment based on Inductive Thinking Model was effective in increasing the Achievement in Science of VIII class students.
  DISCUSSSON:- Inductive Thinking Model was effective because it gave students opportunities to learn in a specific manner with inductive approach and the learning environment was student centered.
- The finding of 2nd objective was that the Achievement in Science is Independent of their intelligence
  DISCUSSSON:- it was also observed that achievement in science is independent of their intelligence it is because science is depends on method of teaching .Teaching through inductive thinking model shows that it was effective and successful.
  Achievement in Science was also independent from interaction of Treatment and Intelligence and the interaction was neutral to nullify the positive effect of treatment.

12. EDUCATIONAL IMPLICATIONS

The educational implications

- ITM is beneficial for boys and girls so Co- educational institutions should teach through ITM.
- ITM is useful for all subjects and all level of students.
- Through teaching ITM it will develop Concepts, hypothesis and skills.
- Teacher's should use of ITM it will enhance teaching learning process.

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