CHAPTER–V

DISCUSSIONS, SUMMARY AND CONCLUSION

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5.0.0 Introduction

The present study was planned to investigate the effectiveness of concept attainment model (CAM) in terms of achievement in science. In this chapter, discussion on the findings, summary and conclusions is presented on the basis of the interpretation of the data given in the chapter IV.

5.1.0 Findings

The following findings flow from the interpretation of data presented in the previous chapter:

1.Concept Attainment Model was found to be effective in terms of achievement of students in science.

2. The mean scores of achievement in science of the group taught through the CAM was found to be significantly higher than those of who taught through the TM.

3. The mean scores of general mental ability of the group taught through the CAM did not differ significantly from that those of who taught through the TM.

4. There is no significant effect of sex on the achievement of students in science.

5. There is no significant effect and interaction of treatment and sex on the achievement of students in science.

6. There is no significant effect of sex on the general mental ability of students.

7. There is no significant effect and interaction of treatment and sex on the general mental ability of students.

5.2.0 Effectiveness of CAM in Terms of Achievement in Science

The first objective of the present study was to investigate the effectiveness of CAM in terms of achievement of students of class VIII in science.

CAM was found to be effective in terms of Achievmeent of students in Science on a Criterian test. This finding was supported by Kumara (1985) and Agarwal and that the concept Attainment Model of Teaching was effective. As mentioned in the Chapter-I three teaching strategies, namely, Reception and Selection Model were employed. During teaching through the CAM, teacher guided the students from one phase of activity to the other. In all these teaching strategies, the climate of the classroom was open, co-operative and encouraging with a scope for good deal of student's activity. The CAM, thus, provided wide opportunity to students for acquiring concepts, interpreting the data and applying the principles in new and differential situations. All the students were found active in the class. Because the students had

to fill up the worksheets. To fill in these work sheets the students remained attentive and active in the class during teaching. The nature of the CAM demands greater involvement of pupils in the teaching-learning situation. So, the students were motivated and stimulated of retain and improvement in their achievement.

Thus the CAM was found to be effective in terms of students achievement in Science.

5.3.0 Comparison of CAM with TM in terms of Achievement in Science

The mean scores of Achievement of students in science, taught through CAM, were found to be significantly higher than that of their counterparts taught through traditional method. This findings us supported by a large number of earlier studies (Seggei, 1969; Klausimer, 1970; Chelbek, 1970; Moore, 1973; Singleton, 1977; Zammarelli, 1977; Bergmann, 1980; Contessa, 1980; Miller, 1980; Rollens, 1980; cook, 1981; Musa, 1981; Row, 1981; Change, 1982; Hunnicut, 1982; Charles, 1982; Chtrive, 1982; Gerston, 1982; Stout, 1983; Crisman, 1984; Baddar, 1983; Kumara, 1985; Pani, 1985; Manocha, 1990; Ojha (1996).

In this study, the reason for CAM's superiority to Traditional methods might be due to the teacher's domination in the traditional mode of teaching. The objective of CAM is to help the students to acquire a new concepts (Joyce and Weil, 1985). This strategy aims at concept formation.

In this approach, students get an examples. Presented and to differentiate them to finding determine the hierarchical order of information.In CAM, students get opportunity to think openly and freely.

CAM belongs to the family of information processing model. It helps in strengthening the cognitive structure of the students, and it is known that achievement depends upon the cognitive development of the students.

These above stated ingredients of CAM were responsible for the improvement of achievement of students taught through CAM.

5.4.0 Comparison of General Mental Ability of Students

The mean scores of general mental ability of students, taught through CAM, were found to be significantly higher than that of their counterparts taught through Traditional Method. This finding is supported by a large number of carrier studies (Singleton, 1977; Bergman, 1980;). It could, therefore, be concluded from the results that CAM produced significantly differ from that of those taught through the Traditional method.

5.5.0 Effect of Sex on Achievement

There is no significant effect of sex on the achievement of students in science. Therefore. it may be concluded that there is no significant difference in the performance of boys and girls on the measure of achievement in science. Meevareach(1985), Chaudhari and Vaidya(1992) and Singh (1994) support this finding.

In contrast, Abraham (1969), Beedwati (1986), Mathew (!976) and Riley (1985) found in their studies that males were significantly superior to females in academic achievement, in general. These studies were conducted fifteen years ago. There is a lot of difference in the attitude of parents, now. At present, through all media, attempts are being made to promote a feeling of equality among boys and girls. Parents are now have no feelings of difference for sons and daughters. This change in the attitudes of parents and teachers might be the cause of lack of sex difference in the achievement in the present study.

5.5.1 Effect and Interaction of treatment and Sex on Achievement

There is no significant effect and interaction of treatment and sex on the achievement of students in science. The result indicates that the boys and girls were benefited to the same extent in both the modes of teaching. Thus sex differential was not noticed in the said interaction on achievement. But, the achievement of girls of the CAM group was higher than the boys.

5.6.0 Effect of Sex on General Mental Ability(GMA)

There is no significant effect of sex on the general mental ability of students. The result indicates that the boys and girls were benefited to the same extent in both the modes of teaching. Thus, sex differential was not noticed in the said interaction on the general mental ability of students.

5.6.1 Effect and Interaction of Treatment and Sex on General Mental Ability

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5.7.0 Summary

Summary of the study is given under following captions.

5.7.1 Introduction

Education is the most important invention of mankind, it begins at birth and end at his death. It is a process of growth in which the individual is helped to develop his talents, power, interests and ambitions. This growth is an integrated and harmonious process. Education should aim at developing the innate potentiality and unique individuality of each child according to his nature therefore learning experience every attempt is made at all levels of education to match with the capability of the learner and for that suitable curriculum are framed.

Education in a narrow sense is the modification of behaviour of children in a controlled environment. To shape the behaviour or to bring about some change it is necessary to study the teaching process. Teaching is an activity which is designed and performed for multiple objectives in terms of changes in pupil behaviours.

Teaching is often though of as something that comes rather naturally to people who comes rather naturally to people who know their subject. In general, it is thought that is a simple process that produces simple outcomes. But teaching is an entering important and complex process. It takes place in a complicated serial institution, which is filled with diverse people. It is a fluid interplay of events.

5.7.2 Models of Teaching

The content of each subject and the method used in teaching subject this have been subjected to critical appraisal and as consequence various changes are appearing. The reason being that education is never static and it is always better to look for new trends.

With the introduction of new pattern of curriculum in almost all states many old units of syllabus have been replaced, modified and redesigned by new upgraded content units. The new syllabus has made it possible to go much further in systematizing and explaining the facts.

"How then to teach science at this stage for effective learning"? One way of effectively transacting the content could be the use of models of teaching.

Model based teaching was propagated by a number of educationists and psychologists due to its sheer merit of attaining behavioural objectives - cognitive, affective and psychomotor. More than twenty models has been developed so far.

5.7.3 The Concept Attainment Model

Concept attainment model has emerged from the work of Bruner, Goodnow and Austin (1967). Concept teaching provides a chance to analyse the students, thinking process and to help them to develop more effective strategies.

5.7.4 Meaning of the Concept

Tennyson and Park (1980), to be a set of specific objects, symbols or events, which share common characteristics (critical attribute) and can be referenced by a particular name or symbol.

A concept may be defined as a mechanism enhancing a person to categories objectives or events (Anglin 1977).

5.7.5 Rationale of the Study

Large no of studies were conducted in India and abroad where the concept attainment strategy was found to be superior to traditional method in teaching concepts (Seggies, 1964; Wausimer, 1970; Chelbek, 1970; Moore, 1973; Singleton 1977; Zammarelli, 1977; Bergmann, 1980; Contessa, 1980; Miller, 1980; Rollens, 1980; Simon, 1980; Cook, 1981; Musa, 1981; Rowe, 1981; Siokan, 1981; Change, 1982; Hunnicutt, 1982; Charles, 1982; Chitrive, 1983; Gerston, 1983; Stout, 1983; Crisman, 1984; Baddar, 1985;Kumara, 1985; Pani, 1985; Shepherd, 1985; Vermont, 1985; Agrawal, 1985; Frakes, 1985; Gangrade, 1986; Geibprasert, 1986; Gibson, 1986; Keller, 1986; Lynch, 1986; Roth, 1986; Vaidya, 1990 and Manocha, 1990,Ojha; 1996)

The investigator found very few studies conducted where the effect of concept attainment model in terms of achievement in science. Some of the studies indicated above also not present the clarity about the effectiveness of the CAM on the sample which th researcher had undertaken. Thus, to fill up this void the researcher conducted the present study.

5.7.6 Statement of the Problem

"A STUDY OF EFFECTIVENESS OF CONCEPT ATTAINMENT MODEL IN SCIENCE TEACHING OF CLASS-VIII"

5.7.7 Objectives of the Study

The study was addressed to the following major objectives :

1. To study the effectiveness of concept attainment model(CAM) in terms of achievement of students in science.

2. To compare the achievement of students in science of those who taught through the concept attainment model with that of those who taught through the traditional method by taking the pretest scores of achievement of science as covariate.

3. To compare the general mental ability of the students who taught through the concept attainment model with that of those who taught through the traditional method.

4. To study the effect and interaction of treatment and sex on achievement in science.

5. To study the effect and interaction of treatment and sex on general mental ability.

5.7.8 Hypotheses

1. There will be no significant difference between the adjusted mean scores of achievement in science of students taught through the concept attainment model and the students who taught through the traditional method when their pre-test scores of achievement in science are taken as co-variate.

2. There will be no significant difference between the mean scores of general mental ability of the students who taught through the concept attainment model with that of those who taught through the traditional method.

3. (a) There will be no significant effect of treatment on achievement in science.

   (b) There will be no significant effect of sex on achievement of students in science.

   (c) Thee will be no significant effect of interaction between treatment and sex on achievement in science.

4 (a) There will be no significant effect of treatment on general mental ability .

(b) There will be no significant effect of sex on general mental ability.

(c) There will be no significant effect of interaction between treatment and sex on general mental ability.

5.7.9 Sample

As the time was short at the disposal of the experimenter, so incidental sampling method was adopted. It included two government high secondary schools of Indore city. The control and experimental groups in teaching was taken from the school. In each group, there were 30 students comprising of 15 girls and 15 boys.

5.7.10 Design of the Study

The present study was experimental in nature. Pre-test, post-test control group design was employed.

5.7.11 Tools

Criterion test was developed by the investigator for the purpose of measuring the achievement of the students in science. For measuring the General mental Ability (GMA) of the students Raveen's GMA test was used.

5.7.12 Procedure of Data Collection

Data were collected with the help of tools described in the preceding captions. For measuring general mental ability the standardized test developed by Raveen was used. Details of the tool were described in the caption under tools. Achievement test was developed by the investigator and was standardized for the purpose of the study.

For standardization of the achievement test 10 teachers different government schools were consulted by the researcher. The suggested different measures for the standardization and their valuable recommendations were incorporated. Data collection included the test before and after the treatment.

5.7.13 Statistical Techniques used

The statistical technique used in the present study for anlaysing the data are given objective-wise as under:

1. For Studding the effectiveness of concept attainment model Percentile, Mean and Standard deviation were used.
2. For comparison of achievement of experimental and control group Two way ANCOVA was employed.
3. For comparison of general mental ability Two way ANOVA was used.
4. For studying the effect of treatment and sex on achievement in Science 2x2 Factorial Design, ANOVA of equal cell size was used.
5. For studying the effect of treatment and sex on general mental ability 2x2 Factorial Design, ANOVA of equal cell size was used.

5.7.14 Findings

The following findings flow from the interpretation of data presented in the previous chapter:

1. Concept Attainment Model was found to be effective in terms of achievement of students in science.

2. The mean scores of achievement in science of the group taught through the CAM was found to be significantly higher than those of who taught through the TM.

3. The mean scores of general mental ability of the group taught through the CAM did not differ significantly from that those of who taught through the TM.

4. There is no significant effect of sex on the achievement of students in science.

5. There is no significant effect and interaction of treatment and sex on the achievement of students in science.

6. There is no significant effect of sex on the general mental ability of students.

7. There is no significant effect and interaction of treatment and sex

on the general mental ability of students.

5.7.15 Delimitations of the Study

The constraints under which the study was conducted are remained confined to the following: -

1. The study is limited only to the state of Madhya Pradesh.
2. The syllabus for class-VIII was M.P. Board
3. The study was conducted only in the government schools M.P.
4. The experiment is conducted in only Hindi medium schools.
5. The treatment was given only for ten days.
6. The lesson plans were developed in Hindi language.

5.7.16 Suggestions for Further Studies

Looking to the constraints under which the study was conducted, the findings do not warrant wide generalisations. It is, therefore, felt that replication of this study, on a larger smaple, is requisite to arrive at precise results. However, studies may be undertaken on the following topics and themes.

1) CAM may be used in conjunction with other methods of teaching, according to the demand of the phases of this model and than, the impact of this mutually beneficent contribution of strategies can be explored.

2) The effect of CAM on the educable mentally retarded leaner and these having low attitude towards the subject can also be studied.

3) Studies can be conducted on the different thinking strategies of the students.

4) The study can be undertaken with a large sample for pricise results.

5) Rural environment can be consolidated with urban one for a wider scope.

6) Other personality factors can be considered.

7) The finding can be validated with other subjects as well.

8) different grade level can be selected.

9) Other families of model can be mutually contrasted with a variety of personality factors.

Concept Attainment model has tremendous promise and potential for future. As schools and colleges of future will be increasingly asked to prepare children and youth to face emergencies and uncertainties in the complex society of tomorrow. In order to enable students to cope with the challenges of change, the teachers must employ such models and methods which solicit greater involvement of the pupils and encourage and curriculum developers should take adequate steps to prepare instructional material for teaching various subjects in order to meet the future instructional needs of the students.