CHAPTER - 5

SUMMARY AND CONCLUSIONS

The present study was designed to examine the Comparative effectiveness of Concept Attainment Model and Traditional Method for acquisition of physics concepts in class IX. The method used for the study was Non-equivalent pre-test post-test experimental design. The data collected were computed and analyzed using appropriate statistical techniques. The details are:

5.1.0. Statement of the problem

The problem was worded as given below:

“Comparative Effectiveness of Concept Attainment Model and Traditional Method for Acquisition of Physics Concepts in Class IX”

5.2.0. Objectives

The following were the objectives of the present study:-
1. To compare pre and post mean scores of physics concept understanding of students taught through concept attainment model.

2. To compare the adjusted mean scores of concept of motion understanding of CAM Group and TM Group by taking pre concept of motion understanding and intelligence as covariates.

3. To compare the adjusted mean scores of concept of inertia understanding of CAM Group and TM Group by taking pre concept of inertia understanding and intelligence as covariates.

4. To compare the adjusted mean scores of concept of Acceleration understanding of CAM Group and TM Group by taking pre concept of Acceleration understanding and intelligence as covariates.

5. To compare the adjusted mean scores of concept of Force understanding of CAM Group and TM Group by taking pre concept of Force understanding and intelligence as covariates.

6. To compare the adjusted mean scores of concept of Gravitation understanding of CAM Group and TM Group by taking pre concept of Gravitation understanding and intelligence as covariates.

7. To compare the adjusted mean scores of concept of Work understanding of CAM Group and TM Group by taking pre concept of Work understanding and intelligence as covariates.
8. To compare the adjusted mean scores of concept of Power understanding of CAM Group and TM Group by taking pre concept of Power understanding and intelligence as covariates.

9. To compare the adjusted mean scores of concept of Sound understanding of CAM Group and TM Group by taking pre concept of Sound understanding and intelligence as covariates.

10. To compare the adjusted mean scores of concept of Evaporation understanding of CAM Group and TM Group by taking pre concept of Evaporation understanding and intelligence as covariates.

11. To compare the adjusted mean scores of concept of Change of states understanding of CAM Group and TM Group by taking pre concept of Change of states understanding and intelligence as covariates.

12. To compare the adjusted mean scores of physics concept understanding of concept attainment model group and traditional method group (as a whole) by considering pre-physics concept understanding and intelligence as covariates.

13. To compare the mean scores of students liking of concept attainment model and traditional method groups.

14. To compare the adjusted mean scores of physics concept understanding of males and females of the concept attainment
model group by considering pre-physics concept understanding as a covariate.

15. To study the effect of treatment, sex and their interaction on physics concept understanding by considering pre-physics concept understanding and intelligence as covariates.

16. To study the effect of treatment, intelligence and their interaction on physics concept understanding by taking pre-physics concept understanding as a covariate.

5.3.0. Hypotheses

1. There will be no significant difference in pre and post mean scores of physics concept understanding of students taught through concept attainment model.

2. There will be no significant difference in adjusted mean scores of physics concept understanding of concept attainment model group and traditional method group by considering pre-physics concept understanding and intelligence as covariates.

3. There will be no significant difference in mean scores of students liking of concept attainment model and traditional method groups.
4. There will be no significant difference in adjusted mean scores of physics concept understanding of males and females of concept attainment model group when pre physics concept understanding is taken as a covariate.

5. There will be no significant effect of treatment, sex and their interaction on physics concept understanding of students when pre physics concept understanding and intelligence are taken as covariates.

6. There will no significant effect of treatment, intelligence and their interaction on physics concept understanding when pre physics concept understanding is taken as a covariate.

5.4.0. Sample

The study was conducted on IX class Students studying in English medium schools. The sample was comprised of 228 students.

5.5.0. Method and Procedure

The present study was experimental in nature. The design of the study was based on the lines of non-randomized control group pretest- post test design.
5.6.0. Tools Used for the Study

The tools used in the present study were:

1. Raven’s standard progressive matrices scale set.
2. Students liking scale by Malhotra and passi.
3. Lesson transcripts based on concept attainment model of instruction (Developed by investigator)
4. Achievement test in physics (Developed by investigator)

5.7.0. Data Analysis

The pretest and posttest scores of the Experimental and Control Groups were consolidated for statistical analysis along with the intelligence and students liking scores. The achievement test scores were subjected to ‘t’ test. Since the groups were intact and unequated, Analysis of Covariance (ANCOVA) was used for comparison of data.

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<th>Group</th>
<th>Pre-test</th>
<th>Treatment</th>
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<td>Experimental</td>
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5.8.0. Main Findings of the Study

On the basis of analysis of data finding of the study are:

1. CAM was effective in terms of physics concept understanding of student.

2. CAM was superior to TM.

3. CAM group had significantly higher students liking in comparison to students of TM group.

4. Females and Males had benefited equally when pre Physics concept understanding was taken as a covariate.

5. CAM was significantly superior in comparison to TM when pre-physics concept understanding and intelligence scores were taken as covariates.

6. Physics concept understanding was independent of sex, when pre-physics concept understanding and intelligence scores were taken as covariates.

7. Physics concept understanding was found to be independent of the interaction between treatment and sex when pre-physics concept understanding and intelligence scores were taken as covariates.

8. CAM was significantly superior in comparison to TM when pre-physics concept understanding was taken as a covariate.
9. Physics concept understanding was independent of the intelligence when pre-physics understanding score was taken as a covariate.

10. Physics concept understanding was independent of the interaction between treatment and intelligence when pre-physics concept understanding was taken as a covariate.

5.9.0. **Educational Implications**

As the present study review that CAM was effective in terms of physics concept understanding of student, hence CAM should be used by the school teacher in classroom teaching especially in teaching physics concepts. Reception model of Concept Attainment used in the study can be used in Indian situations with profit, as it does not require elaborated sophisticated technology except the competency and efficiency on the part of teacher to develop suitable instructional material according to the syntax of the model.

The use of Concept Attainment Model promotes various thinking strategies among students. Use of CAM facilitates the teacher-student and student-student interaction and thereby improves classroom interaction and group morale.

The teacher educators, who are guiding trainee teachers, in practice teaching lessons of Physics, should advocate Concept Attainment Model
wherever teaching of concepts is involved. National Council of Educational Research and training, State Council of Educational Research and training, Extension service, Text-book bureau and Extension Department should arrange various training programmes, seminars and workshops at national, State and district levels to train teachers that how to implement Concept Attainment Model actually in class-rooms.

The practical use of Concept Attainment Model should be invariably included not only as theoretical aspect but also as a practical aspect during the compulsory in service training programmes of teachers.

Teacher handbook for almost all subjects is prepared at primary and secondary level. The handbook writers should advocate Concept Attainment Model with detailed guidelines for its effective use.

5.10.0. Suggestions for Further Studies

1. More intensive study can be done by taking large sample & providing longer treatment to the sample selected.

2. Effectiveness of CAM can be found in other schools and in various subjects.

3. Researches can be done to check the effect of CAM in developing creativity of students.
4. Researches can be done to check the effect of CAM in terms of physics concept understanding of exceptional children.

5. A comparative study of effectiveness of CAM on students representing rural and urban areas can be taken up.

6. Effectiveness of CAM representing schedule caste and general category students can be studied.

7. A similar study can be undertaken to find out effectiveness of CAM at primary, secondary or college level.

8. The same study can be replicated in other media of instruction such as Hindi, Urdu, Sindhi, Telgu, Tamil, Gujrathi etc.

9. The same study can be replicated for other concepts which are not tried by researcher.

10. A comparative study of CAM with other models of information processing family can be undertaken in terms of their effectiveness.

11. A study to determine the nurturant effects along with instructional effects of CAM can be undertaken.

12. This study was limited to Reception model of CAM. Similar study can be undertaken to Selection model and Unorganized material model of Concept Attainment.

13. A similar study can be undertaken to find out effectiveness of CAM at Primary, secondary or college level using selection model of CAM.