# CHAPTER VI: SUMMARY, FINDINGS AND CONCLUSION

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6.1 INTRODUCTION

With the advent of building society the learning mass has grown exponentially where as the existing educational system can not accommodate all the aspirants to build a knowledge society and leads to the search of an effective alternative system of delivery that will fulfill their desire and offer qualitative improvements such as grater individualization of learning, easier access to information and more use of simulation techniques. Among the alternative modes, e-learning has the edge of catering to a huge number of learners with less per capita expenditure. But may e-learners are expressing that they are craving for some live face to face interaction with peer and instructor and there fore small group learning is considered to be the promising one. This chapter deals with statement of the problem, objectives of the study, variables of the study, hypothesis of the study, method, findings, educational implication, recommendations, scope for further study and conclusion.

6.2 STATEMENT OF THE PROBLEM

Students are the grass roots of any nation. It is imperative to make them technically sound and professionally confident to create the knowledge society. This formidable task of nation building can be achieved only with the help of hybrid learning environments. It is the hour to think various possibilities of integrating the conventional face to face classroom environment with small groups learning environment. Hence the problem of the present study may be stated as “Effect of Small Groups Learning on Students’ Performance in Science at High School Level”.
6.3 OBJECTIVES OF THE STUDY

The following are the objectives of study

1. To prepare a tool to assess the achievement of High School students in Science.

2. To study the achievement of High school students in science learning through small groups learning with respect to their personal variables.

3. To study the Scientific temper of High school students learning through small groups learning with respect to their personal variables.

4. To study the Creativity of High school students learning through small groups learning with respect to their personal variables.

5. To evaluate the effectiveness of small groups learning in science subjects.

6. To find out the relationship between the Achievement and Creativity of high school students learning through small groups learning.

7. To find out the relationship between the Scientific temper and Achievement of high school students learning through small groups learning.

8. To find out the relationship between the Creativity and Scientific temper of high school students learning through small groups learning.

6.4 VARIABLES OF THE STUDY

The independent variable of study is the small groups learning strategy. The dependent variables is the achievement of High school students in science. The other variables involved in this study are Scientific temper and Creativity. These variables are studied with respect to gender, locality, parents qualification.
6.5 HYPOTHESES OF THE STUDY

The following hypotheses were formulated based on the objectives and variables of the study.

1. There is no significant difference in the achievement in science between the control and experimental group of High school students.

2. There is no significant difference in the achievement in science between the Boys of Control and Experimental group of High school students.

3. There is no significant difference in the achievement in science between the Girls of Control and Experimental group of High school students.

4. There is no significant difference in the achievement in science between the Rural students of Control and Experimental group of High school students.

5. There is no significant difference in the achievement in science between the Urban students of Control and Experimental group of High school students.

6. There is no significant difference in the achievement in science between the Control and Experimental group of High school students with their Parents qualified up to SSLC.

7. There is no significant difference in the achievement in science between the Control and Experimental group of High school students with their Parents qualified above SSLC.

8. There is no significant difference in the Scientific temper between the control and experimental group of High school students.

9. There is no significant difference in the Scientific temper between the Boys of Control and Experimental group of High school students.

10. There is no significant difference in the Scientific temper between the Girls of Control and Experimental group of High school students.
11. There is no significant difference in the Scientific temper between the Rural students of Control and Experimental group of High school students.

12. There is no significant difference in the Scientific temper between the Urban students of Control and Experimental group of High school students.

13. There is no significant difference in the Scientific temper between the Control and Experimental group of High school students with their Parents qualified up to SSLC.

14. There is no significant difference in the Scientific temper between the Control and Experimental group of High school students with their Parents qualified above SSLC.

15. There is no significant difference in the Creativity between the control and experimental group of High school students.

16. There is no significant difference in the Creativity between the Boys of Control and Experimental group of High school students.

17. There is no significant difference in the Creativity between the Girls of Control and Experimental group of High school students.

18. There is no significant difference in the Creativity between the Rural students of Control and Experimental group of High school students.

19. There is no significant difference in the Creativity between the Urban students of Control and Experimental group of High school students.

20. There is no significant difference in the Creativity between the Control and Experimental group of High school students with their Parents qualified up to SSLC.

21. There is no significant difference in the Creativity between the Control and Experimental group of High school students with their Parents qualified above SSLC.

22. The small groups learning strategy is not effective in improving the Achievement in science of High school students.

23. There is no significant relationship between the Achievement and Creativity of High school students.
24. There is no significant relationship between the Scientific temper and Achievement of High school students.

25. There is no significant relationship between the Creativity and Scientific temper of High school students.

6.6 METHODOLOGY

6.6.1 METHOD

To study the effectiveness of small groups learning strategy, the Pre-test, Treatment, Post-test equivalent group experimental design was adopted in the study.

6.6.2 SAMPLE

The sample consisted of 56 students as Control Group from High school students of Govt. Higher Sec. school, Palavanatham at Virudhunagar district, 53 students were as experimental group from the High school students of Govt. Higher Sec. school, Meesalur at Virudhunagar District respectively. They were selected through purposive sampling technique.

6.6.3 TOOLS

The following tools were used in the study.

Tool 1: The Achievement test in science constructed and validated by the investigator.

Tool 2: Scale of Scientific temper constructed and validated by the investigator.

Tool 3: The Verbal Test of Scientific Creativity developed by Dr. V.P.Sharma and Dr. J.P.Shukla (2005)
6.6.4 DATA ANALYSIS

Descriptive statistics were used to describe the sample with reference to the variables taken for the study. In differential analysis, the significance of difference between groups was studied using M, S.D, ‘t’ test The co-efficient of correlation was determined by using Pearson’s product moment method. Also regression analysis was used in this study.

6.7 FINDINGS OF THE STUDY

1. There is significant difference in the achievement in science between the control and experimental group of High school students.

2. There is significant difference in the achievement in science between the Boys of Control and Experimental group of High school students.

3. There is significant difference in the achievement in science between the Girls of Control and Experimental group of High school students.

4. There is significant difference in the achievement in science between the Rural students of Control and Experimental group of High school students.

5. There is significant difference in the achievement in science between the Urban students of Control and Experimental group of High school students.

6. There is significant difference in the achievement in science between the Control and Experimental group of High school students with their Parents qualified up to SSLC.

7. There is significant difference in the achievement in science between the Control and Experimental group of High school students with their Parents qualified above SSLC.

8. There is significant difference in the Scientific temper between the control and experimental group of High school students.

9. There is significant difference in the Scientific temper between the Boys of Control and Experimental group of High school students.
10. There is significant difference in the Scientific temper between the Girls of Control and Experimental group of High school students.

11. There is significant difference in the Scientific temper between the Rural students of Control and Experimental group of High school students.

12. There is significant difference in the Scientific temper between the Urban students of Control and Experimental group of High school students.

13. There is significant difference in the Scientific temper between the Control and Experimental group of High school students with their Parents qualified up to SSLC.

14. There is significant difference in the Scientific temper between the Control and Experimental group of High school students with their Parents qualified above SSLC.

15. There is significant difference in the Creativity between the control and experimental group of High school students.

16. There is significant difference in the Creativity between the Boys of Control and Experimental group of High school students.

17. There is significant difference in the Creativity between the Girls of Control and Experimental group of High school students.

18. There is significant difference in the Creativity between the Rural students of Control and Experimental group of High school students.

19. There is significant difference in the Creativity between the Urban students of Control and Experimental group of High school students.

20. There is significant difference in the Creativity between the Control and Experimental group of High school students with their Parents qualified up to SSLC.

21. There is significant difference in the Creativity between the Control and Experimental group of High school students with their Parents qualified above SSLC.

22. The small group learning strategy is effective in improving the achievement in science of High school students.
23. There is significant relationship between the Achievement and Creativity of High school students.

24. There is significant relationship between the Scientific temper and achievement of High school students.

25. There is significant relationship between the Creativity and Scientific temper of High school students.

The case studies about the strategy confirm that the small groups learning strategy is effective, interesting and offers better satisfaction to the learners.

6.8 DISCUSSION OF RESULTS WITH OF OTHER STUDIES

The results of the present study “Effect of small Groups Learning on Students’ Performance in Science at High School Level” is discussed with the results of other related studies

Discussion related with student achievement in science.

The study reveals that there is significant difference in the achievement between the boys and girls of control and experimental group of High school students. It is not congruence with the result of “Baskaran (2011), Gocer’s (2010), Sahin’s (2010)”. Who reported that there is significant difference in the achievement between the boys and girls of control and experimental group of High school students

Discussion related with student scientific temper.

The study reveals that there is significant difference in the scientific temper between the boys and girls of control and experimental group of High school students. It is not congruence with the result of “Negihan Yildirim and others (20091), Jagdish Arora Prakash P. (2011), Balamurugan M. (2012)”, Who reported that there is significant difference in the
Scientific temper between the boys and girls of control and experimental group of High school students.

Discussion related with student Creativity.

The study reveals that there is significant difference in the Creativity between the boys and girls of control and experimental group of High school students. It is not congruence with the result of “Elizabeth Joshua, & Jayasree P. (2012),” Who reported that there is significant difference in the Creativity between the boys and girls of control and experimental group of High school students.

6.9 CONCLUSION AND EDUCATIONAL IMPLICATIONS OF THE STUDY

Conclusion:

The study reveals that small group learning strategy is effective in improving the achievement in science at High school level. The overall outcome of the study underlines the effectiveness of small group learning strategy with large effect size in achievement of science, Scientific temper and creativity of High school students. The small group learning strategy is effective in improving the achievement in science of High school students. There is significant relationship between the Achievement and Creativity of High school students. There is significant relationship between the Scientific temper and achievement of High school students. There is significant relationship between the Creativity and Scientific temper of High school students.
Educational Implications

The small groups learning strategy will be helpful in augmenting the teaching learning process in the following ways,

1. The study reveals that the small groups learning approach is appreciably effective in teaching of science than the conventional lecture method.
2. Show the small groups learning method can be adopted by the teacher to teach science for the High school students.
3. This method will motivate the students to ask higher order questions during the learning of science. It will develop the critical thinking among the students. It also develop the problem solving skill among the students. So the small groups learning approach will enhance the achievement of the students in science and their Scientific temper, Creativity.
4. Small groups learning strategy in High school students will make our budding teachers confident of facing the challenges of new age teaching.
5. Small groups learning strategy is not full technology dependent the teacher is having a lion share to mark his creativity along with abundant e resources available in the web world. This will give the balance of human touch and technical punch.
6. Cross media navigation is the integral part of small groups learning. This will make the learners transform the abstract ideas in to concrete learning to enable the teacher to cover the syllabus in time.
7. Along with teachers, learners are also having due importance to become self regulated learners so as to attain mastery in learning.
8. With the advent of building knowledge society the increasing learner mass can be easily accommodated through this strategy.
Teacher of Middle Schools and High Schools can be given orientation as to how to apply the cooperative learning strategy, especially group activities for the benefit of various categories of students.

6.10 RECOMMENDATIONS

The following recommendations are made based on the findings of the study.

Recommendations to the Teacher:

1. Small group learning strategy is effective in teaching of science so all upper primary science teachers can follow this methodology.
2. Slow learners also can easily follow the steps in this methodology so we can use this method of teaching of science specially for the slow learner.
3. The result of the study have established that the cooperative learning strategy is more effective than the traditional lecture method in teaching and learning Science standard XI. When it is very effective to the below average students, it has to be equally effective, if not more effective, to the normal students also.
4. Teachers of Middle Schools and High Schools can be given orientation as to how to apply the cooperative learning strategy, especially group activities for the benefit of various categories of students.

Recommendations to the Government:

1. If Government implement this methodology to tech science in all government upper primary school, definitely students science attitude will grow effectively.
2. For handling of the methodology, all practical portions of the text books should contain appropriate method’s logo.
3. Keeping the result of the study in mind, the NCERT and SCERT can conduct orientation programmes for the in-service teachers for creating awareness among them about the effectiveness of the cooperative learning strategy which will find an expression in their classroom practices.

4. Since the use of the cooperative learning strategy enhances the achievement of below average students the achievement of below average students, it will diminish wastage and stagnation in our schools. So, a necessary orientation can be given at DIET level also so that awareness can be developed among primary school teachers also.

6.11 SCOPE FOR FURTHER STUDY

The purpose of the study was to create more achievement in science in VIII standard level. Future research could possible cover the following areas;

1. High school level students achievement by using this methodology teaching.

2. Higher secondary school level students achievement by using this methodology teaching.

3. It is suggested that experimental study on small groups learning strategy can be carried out in subjects like Language, Mathematics, Commerce, Economics, History and Geography of School curriculum.

4. Small groups learning strategy with reference to scientific temper and creativity at various levels on various subjects like, Agriculture, Engineering, Medicine and law can be studied.

5. It is suggested that the same study can be carried out in optional, core and elective subjects of other teacher education programmes like, D.T.Ed., B.Ed., M.Ed., and special education.
6.12 CONCLUSION

The study on the title “Effect of Small Groups Learning on Students’ Performance in Science at High School Level” was conducted by adopting experimental method and the findings and summary of the study are presented in this chapter.