CHAPTER V
SUMMARY OF FINDINGS, SUGGESTIONS AND
CONCLUSION

5.01 INTRODUCTION

Achievement in Chemistry of Higher secondary students is determined by a large number of factors. All the Higher secondary students face some classroom troubles in their schools. This may affect their classroom climate, parental encouragement and Socio-economic Status. Besides, the classroom climate is a significant one for the higher secondary students to perform well in their studies. All these factors directly contribute and determine the Higher secondary students’ Achievement in Chemistry.

5.02 NEED FOR THE STUDY

On the one hand, India’s liberalization of economy policy, privatization, globalization and thrust towards information technology encourage more and more MNCs to make investments in the country, on the other hand, this has resulted in Indian executives having to cope with the high speed of changes and increased stress in life. The challenges get multiplied when the industry executives have to work in diversified work cultures. Parental encouragement is one of the solutions to these kinds of
problems as it can help in managing oneself, handling the relationships and helping others to deal better with the unrest in their lives.

Researches prove that those who are primarily strong in parental encouragement are more likely to succeed than those who are strong in either relevant or previous experience. Hence, it is important to acknowledge that the feelings exist need be dealt with. That is, the role of parental encouragement. Often companies spend a lot of effort on the intellectual aspects of work; people are hired for their academic degrees, credentials, and experience. Many of them are then trained in special business skills, mentored in technical areas or even sent to workshops to improve their abilities to make presentations, write letters etc. However, coaching employees on “soft” skills, is one area that has been relatively ignored. Parental encouragement in coaching is to provide training in adjustment, emotional management, communication, leadership, vision, resilience, flexibility and the other emotional competencies.

The unexpected developments in the field of chemistry and technology in the twentieth century have to be taken into account while framing the school curriculum.

The enlightened citizen is said to be the most valuable asset of a society who cherishes democratic ideas and the preservation of basic human freedom. Although intellectual ability is the primary
determinant factor for academic achievement, it is hazardous to base predictions of academic success on intelligence measures alone. The discrepancy that presents and compels argument between the measures of scholastic achievement and intelligence does not arise entirely through errors in our measurement of these two qualities but is probable due to the presence of factors in scholastic achievement other than intelligence. Reasoning is associated with problem solving and intelligence and it is also related to classroom climate of an individual. In this study, an attempt is made the find out the reasoning ability and classroom climate of students.

Study implies investigation for the mastery of facts, ideas, or procedures, that are unknown or only partially known to the individual. Socio-economic status is the individual’s tendency to act in customary ways, especially, when these are acquired by practice or experience. Socio-economic status is implied as the various methods and practices adopted by students to gain information and knowledge both inside and outside the classroom.

Chemistry is the product of creative thinking by scientists over a period of time. By teaching of chemistry, creativity can be developed in the learners.

The +2 courses were introduced during 1978-79 (academic year) in the state by upgrading the existing High Schools into Higher
Secondary Schools. Science subjects occupy the prime position among all the courses of the study at all schools. More and more students seek admission in Science and Maths group in the order of increasing trend in every year. At the same time the required laboratory facilities are not increased proportionately to meet the increasing trend. So, the available laboratory facilities at neighbouring colleges and polytechnics are being utilized with the permission of the Institutions. It is not accessible to schools located in rural areas.

Subsequently, Government has made some arrangements to provide laboratory buildings, apparatuses and other equipments needed. But separate chemistry laboratories are not available in most of the higher secondary schools in Tamilnadu. Owing to this reason, conducting chemistry practical classes is impossible.

Chemistry subject at +1 and +2 levels, in the Higher Secondary course, is divided into two parts viz. theory and practical which are allotted 150 and 50 marks, respectively. Hence, teaching of chemistry practical assumes greater importance in the curriculum itself. Most of the students work hard to secure higher marks in order to pursue professional course. So, it is imperative on the part of the teachers to emphasize more on the practical side of chemistry
to help increase the level of understanding in the minds of the students.

The present study is focused on the real facilities available in chemistry laboratories and the difficulties in organizing the practical work for the chemistry subject. It is alleged that the students suffer from lack of facilities.

**5.03 STATEMENT OF THE PROBLEM**

In the view of idea discussed earlier, it is felt that the different climate will have different effect on the achievement. The problem chosen by the investigator for the study is, *“A STUDY ON THE CLASSROOM CLIMATE AND ACHIEVEMENT OF CHEMISTRY IN RELATION TO CERTAIN SELECTED PSYCHOLOGICAL VARIABLES.”* The investigator is interested to study the classroom climate and the achievement of chemistry in relation to certain selected psychological variables of higher secondary students in Perambalur and Salem districts.

**5.04 METHODOLOGY**

In the present study, the investigator has employed the normative survey method to analyse the effect of classroom climate on the achievement level of the higher secondary pupils in chemistry in Perambalur and Salem districts.
5.05 VARIABLE OF THE STUDY

For the present investigation, the investigator selected the following variables. Achievement in Chemistry, Classroom climate, Parental encouragement scale and socio-economic status. The personal data sheet is designed by the investigator to find the demographical variables in the present study. It is used to collect the details regarding the pupils, which includes the following variables.

**Dependent variable:**

Achievement in Chemistry

**Independent variables**

The independent variables selected for the study are:

- Class Room Climate
- Parental Encouragement and
- Socio-Economic Status

**Demographic and organizational variables**

a) Gender : Male/Female
b) Type of school : Government / Private
c) Location : Rural / Urban
d) Type of family : Nuclear family / Joint family
e) Community : SC/MBC/BC/OC
f) Birth order : First/Second/Third
g) Parental Education : Illiterate / School Education/College Education

h) Parental occupation : Government/ private/ others

i) Parental income : Below 10,000/10,001-30,000/above 30,000

5.06 OPERATIONAL DEFINITIONS OF THE VARIABLES

Achievement in Chemistry

Achievement signifies the accomplishment or gain or a performance carried out successfully by an individual or group or the completion of a task whether it is academic, personal or social. Thus, achievement means all the behavioural changes, which take place in the individual as a result of learning experience of various kinds.

Higher secondary students

Students studying two years bridge course after 10th standard and before a degree course in Tamil Nadu. Here, higher secondary students are the students referred to those studying the XII standard under the higher secondary system.

Classroom climate

Learning situation is the one where formal learning is to be achieved with certain structured learning processes in a structured
situation is called classroom. The class room is not just a group of pupil but a specified place, where the pupil are exposed to our society's ways and values. Classroom is a pervasive phenomenon. Learning in classroom is not independent but the influence of the class. This emphasizes the importance of classroom climate.

**Parental encouragement**

The father and mother of the child are called the parents. For the betterment of their children, the parents will encourage them in a right way.

**Socio-economic Status**

“Socio-economic status is a level indicative of both the social and the economical achievement of an individual or group.” High socio-economic status group had lesser number of adjustment problem than middle and low socio-economic status group. Socio-economic status depends on a combination of variables, including occupation, education, income, wealth, and place of residence. Sociologists often use socioeconomic status as a means of predicting behavior.

Socio-economic status, sometimes, shortened to SES, is a sociological classification indicating the close relationship between someone's relative wealth and the person's social status. Socio-
economic status is one of the key indicators when looking at a number of different community issues, including school performance, crime and housing. It is most often determined by analyzing family income and assets.

5.07 TOOLS USED FOR THE STUDY

1. Achievement in chemistry test (validated by the investigator)


3. Parental Encouragement scale developed by Kusum Agarwal (1983) and


5.08 SAMPLE OF THE STUDY

Sampling procedure depends upon the research facilities available. It should not be a biased one. The sample was selected by using the simple random sampling technique. The sample includes 800 higher secondary students who are studying in higher secondary schools in Perambalur and Salem districts only.
5.09 STATISTICAL TECHNIQUES USED

The following are the statistical techniques used in the study:

1. Descriptive Analysis
2. Differential Analysis
3. Correlation Analysis and
4. Regression Analysis

5.10 DELIMITATIONS OF THE STUDY

1. The present study is confined to + 1 (first year students of higher secondary course) students in Perambalur and Salem district.

2. There are so many factors responsible for the climate condition of a classroom, the researcher has taken only two factors in the study namely, physical climate and physiological climate.

3. For the achievement of pupils the researcher has taken the half-yearly marks of higher secondary students of Perambalur and Salem district

5.11 MAJOR FINDINGS

Descriptive Analysis

- The result concluded that the classroom climate scores are significant since the higher secondary school students who have got scores between and are having high level of classroom climate.

- The result shows that the mean score of achievement in chemistry
of the higher secondary school students is at high level.

- The result inferred that the mean score of parental encouragement of higher secondary school students shows the higher secondary school students have a high level of parental encouragement among the entire sample.

- The Socio-Economic Status of the higher secondary school students is lower middle class.

**Differential Analysis**

**Classroom Climate**

- The result shows that there is a significant difference between the mean classroom climate scores of male and female higher secondary school students.

- The result reveals that there is no significant difference between the mean classroom climate scores of rural and urban area higher secondary school students.

- The result observed that there is no significant difference between the mean classroom climate scores of private, government aided and government higher secondary school students.

- The result reported that there is no significant difference between the mean classroom climate scores of Hindu, Christian and Muslim higher secondary school students.
• The result reveals that there is a significant difference between the mean classroom climate scores of joint and nuclear family higher secondary school students.

**Achievement in Chemistry**

• The result shows that there is a significant difference between the mean achievement in chemistry scores of male and female higher secondary school students.

• The result reveals that there is a significant difference between the mean achievement in chemistry scores of rural and urban area higher secondary school students.

• The result observes that there is no significant difference between the mean achievement in chemistry scores of private, government aided and government higher secondary school students.

• The result reports that there is no significant difference between the mean achievement in chemistry scores of Hindu, Christian and Muslim higher secondary school students.

• The result reveals that there is no significant difference between the mean achievement in chemistry scores of joint and nuclear family higher secondary school students.
**Parental Encouragement**

- The result shows that there is a significant difference between the mean parental encouragement scores of male and female higher secondary school students.

- The result infers that there is no significant difference between the mean parental encouragement scores of rural and urban area higher secondary school students.

- The result reveals that there is no significant difference between the mean parental encouragement scores of private, government aided and government higher secondary school students.

- It is inferred that there is no significant difference between the mean achievement in chemistry scores of Hindu, Christian and Muslim higher secondary school students.

- The result reports that there is no significant difference between the mean parental encouragement scores of joint and nuclear family higher secondary school students.

**Socio-economic Status**

- The result reported that there is no significant difference between the mean socio-economic status scores of male and female higher secondary school students.
• The result reveals that there is significant difference between the mean parental encouragement scores of rural and urban area higher secondary school students.

• It is inferred that there is no significant difference between the mean socio-economic status scores of private, government aided and government higher secondary school students.

• The result reported that there is no significant difference between the mean socio-economic status scores of Hindu, Christian and Muslim higher secondary school students.

• The result reveals that there is a significant difference between the mean socio-economic status scores of joint and nuclear family higher secondary school students.

**Correlation Findings**

• Result shows that Parental Socio-economic Status and classroom climate of higher secondary school students is positive and significant.

• It is inferred that Parental Socio-economic Status and Achievement in Chemistry higher secondary school students is significantly and positively correlated.
• Result reveals the Parental Socio-economic Status and parental encouragement higher secondary school students as significant and positively correlated.

• Result shows that there is no significant relationship among Parental Education (SES) and classroom climate.

• Result shows the Parental Education (SES) and achievement in chemistry as significant and positively correlated.

• Result inferred that Parental Education (SES) and parental encouragement is significant and positively correlated

• Result concluded that the Parental Occupation (SES) and Classroom climate in higher secondary school students is positive and significant.

• It is inferred Parental Occupation (SES) and achievement in chemistry is significant and positively correlated.

• Result observed that the Parental Occupation (SES) and parental encouragement is significant and positively correlated.

• Result shows the Parental Income (SES) and Classroom climate in higher secondary school students as positive and significant.
• Result reveals that the Parental Income (SES) and achievement in chemistry higher secondary school students is positive and significant.

• Result inferred that the Parental Income (SES) and parental encouragement of higher secondary students is positive and significant.

• It is concluded that the classroom climate and achievement in chemistry of higher secondary students is positive and not significant.

• It is observed that the Classroom Climate and Parental Encouragement of higher secondary students is positive and significant.

• Result inferred that the achievement in chemistry and parental encouragement of higher secondary students is positive and significant.

Regression Findings

• The results of multiple regression analysis of higher secondary students achievement in chemistry indicate that all the explanatory variables considered the higher secondary students Classroom Climate, Parental Encouragement Parental Socio-economic Status (SES), Gender, Location and Type of Management significantly related to higher secondary students
achievement in Chemistry. The six variables explained showed 65.9 per cent variation in higher secondary students' achievement in Chemistry

**Path Analysis Findings**

- It is concluded that the achievement in chemistry has greater impact of the classroom climate. Based on the analysis, the researcher has found that the Parental encouragement and socio-economic status in relation to achievement in chemistry of higher secondary students.

**5.12 DISCUSSION**

It this study, an attempt has been made to find the level of classroom climate and achievement of chemistry in relation to certain selected psychological variable in Salem and Perambalur District. This study has also attempted to find the relationship between classroom climate, parental encouragement and socio-economic status with regard to the background variables like gender, Type of school, Locality of students, Type of family and Religion.

It is found that the level of classroom climate among the Higher secondary students is positive which is similar to the findings of Hall, Lund and Jackson (1968) who tried to study whether teacher behavior of the higher secondary teachers. They suggested that the teachers' behaviour is significant in determining the
individual and group behaviour. A similar study of **R.P. Singhal** suggests that in providing reasonably. In this study, he found that class size and achievement of pupils are positively related. According to the **Madsen, Becker and Thomas (1968)**, **Hall, Pandyam, Robon and Broden (1968)** reported that the revealed the significance of students behaviour in determining individual and group behaviour.

**Madhavan (2012)** studied the classroom climate among the higher secondary school students at Pachaperumalpatty, Trichy District, Tamil Nadu State, India. According to him, significant gender difference is observed in his study. Similar findings is also reported by the investigator.

**Ming-Lung Wu et al. (2014)** found out the classroom climate and learning satisfaction on senior high school students at Taiwan. They have identified that teacher gender on student learning overall satisfaction levels have a significant impact. Here, the investigator has identified gender difference in respect of students only.

It is found that the study titled “A study of achievement and socio-economic status among Secondary School Students” and concluded that there is significant difference in the socio-economic level among high and low achievement motivation school students which is similar to the findings of **Ready (1973) and Solunke (1979)**.
Also a study by **Ohja (1979)** about the achievement and residential background of students, found that the rural students achieved higher with respect to score than the urban students.

**Ready (1978) and Singh (1986)** conducted a study and have reported that significant correlation exists between classroom climate and achievement during high school level. It was also found that such a relationship could not be found at later stages of development. **Shivappa (1980) and Shanmugasundaram (1983)** made an investigation and have found that the classroom climate enhancement could lead to improvement in Achievement in Chemistry.

The study on gender differences found the effect in the Achievement in Chemistry of classroom climate. The findings of the study revealed that the female students had a higher mean score on classroom climate than the males. Classroom climate of female subjects was susceptible to the influence of Achievement in Chemistry, but the same was not true for their male counterparts (**Srivastava, 1978; Agarwal, 1982**). It was concluded that the enhancement of pupil’s classroom climate should be of vital concern to every teacher and it is as important as the intervention to improve Achievement in Chemistry **Sommer and Olson (1980)**.
**Bindu and Aruna (2014)** studied the parental encouragement and process skills in social studies belonging to Kerala region, India. They have identified that local difference existed among students for parental encouragement. Urban adolescent students show more parental encouragement level have significant impact. Here, in the present study similar findings have been observed in case of locality as far as the higher secondary students are concerned.

In this study, similar to the findings tested on equal number of subjects with low, middle, on high socio-economic status (SES) for their conservation of radicalism tendency. The relationships were in the positive direction and none of the correlation however was significant. The correlation between the conservation and radicalism scores of mothers and children were the highest in the lower socio-economic status groups and the lowest in the middle socio-economic status group (**Saini et al. 1977**).

**Farkhande Ahmar and Ehtesham Anwar (2013)** studied the socio-economic status and its relation to academic achievement of higher secondary school students. They have identified economic status, and differences in academic achievement of female students belonging to high and low socio-economic status. Similar findings are also reported by the investigator. The results of this study
substantiates the main objectives of the study that the level of achievement of higher secondary students in chemistry, the level of classroom climate of higher secondary students, the level of parental encouragement of higher secondary students and the level of socioeconomic status of higher secondary students. The result concluded that the classroom climate scores are significant since the higher secondary school students who have got scores between and are having high level of classroom climate. The result shows that the mean score of achievement in chemistry of the higher secondary school students is at high level. The result inferred that the mean score of parental encouragement of higher secondary school students shows the higher secondary school students have a high level of parental encouragement among the entire sample. The Socio-Economic Status of the higher secondary school students is lower middle class.

5.13 RECOMMENDATION

The present study is an attempt to find the Higher secondary students’ achievement level in relation to certain selected variables. The investigator has furnished some of the implications which will be highly useful for the educational institutions to improve the achievement in chemistry. The educational institutions must conduct awareness programmes to enhance students training
programme and also to highlight the significance of students development. Apart from these, management should create conducive surroundings in order to create interest among the Higher secondary students groups which in turn may develop a parental encouragement. Thus, the students will get high level of classroom climate and proper understanding of the Achievement in Chemistry in the right direction. Classroom environment enhance students’ performance in the classroom. Classroom robustness is considered to be an important factor which ultimately influences students performs in the academic activities.

5.14 EDUCATIONAL IMPLICATIONS

It is found from the study that higher secondary students are having average level of classroom management. So, the following Educational implications are given by the investigator.

1. Conduct of special training to all students on Classroom climate by the way of orientation, refresher and other special programmes and faculty recharge programmes.

2. Passive students fall into two subcategories: those who fear relationships and those who fear failure. Teachers can build strong relationships with these students by refraining from criticism, rewarding small successes, and creating a conducive
classroom climate in which students feel safe from other categories.

3. The category of aggressive students comprises three subcategories: hostile, oppositional, and covert. Hostile students often have poor anger control, low capacity for empathy, and an inability to see the consequences of their actions. Oppositional students exhibit milder forms of behavior problems, but they consistently resist following rules, argue with adults, use harsh language, and tend to annoy others. Students in the covert subcategory may be quite pleasant at times, but they are often nearby when trouble starts and they never quite do what authority figures ask of them. Strategies for helping aggressive students include creating behavior contacts and providing immediate rewards and consequences. Most of the teachers keep in mind that aggressive students, although they may appear highly resistant to behavior change, are still children who are experiencing a significant amount of fear and pain. They are also the part of the system and our nation.

4. Students with attention problems fall into two categories: hyperactive and inattentive. These students may respond well when teachers contract with them to manage behaviors; teach them basic concentration, study, and thinking skills; help
them divide tasks into manageable parts; reward their successes; and assign them a peer tutor. Managing all students is the need of the hour.

5. Socially inept students have difficulty in making and keeping friends. They may stand too close and touch others in annoying ways, talk too much, and misread others' comments. Teachers can help these students by counseling them about social behaviors and their role in the classroom.

6. To improve the Classroom climate among students the experienced students should help the fresh students in the school by the one to one mentoring. And there should be no studied touch but human touch.

7. Using a wide variety of verbal and physical reactions to students' misbehavior, such as moving closer to offending students and using a physical cue, such as a finger to the lips, to point out inappropriate behavior. Non verbal reactions will be powerful than any other in every class room. Keeping silence and making silence are very great things in teaching learning process.

8. Cuing the class about expected behaviors through prearranged signals, such as raising a hand to indicate that all students should take their seats.
9. Providing tangible recognition of appropriate behavior such as verbal praise.

10. Employing group contingency policies that hold the entire group responsible for behavioral expectations.

11. Employing home contingency techniques that involve rewards and sanctions as at home. Home is the first school and the school is second home.

12. Understanding students’ personal and psychological needs and giving appropriate counseling.

13. Creating an affirmative classroom climate and a community of support by establishing positive teacher–student and peer relationships and maintaining constructive involvement with students’ caregivers.

14. Involving students in developing and committing to behavior standards that promote on-task behavior and help support a calm, safe learning environment counseling the students remove the elements of inferiority complex, fear etc.

15. Using instructional methods that facilitate optimal learning by responding to the academic needs of individual students and the classroom group.

16. Implementing responses to unproductive student behavior that treat students respectfully and help them develop skills for working effectively in the classroom and school settings.
17. The higher secondary students should interact with the Heads or senior students regarding the subject matter and identifying the difficult area of the students in classroom climate and it should be synthesized into small and remedial measures should be developed for the students.

18. The policy makers should update the curriculum according to the need of the industries and interest of the students keeping their higher studies and research activities along with their employment.

19. The higher secondary school students themselves motivate intrinsically to achieve good knowledge in classroom climate with latest technological development including, incorporating and using all electronic gadgets in classroom.

5.15 SUGGESTIONS FOR FURTHER RESEARCH

To overcome the limitations of the present study and to extend the research findings of the study, a few suggestions are given below for further research. The study suggests the following new topics for further research.

1. A comparative study between the rural and urban Higher secondary students be undertaken.

2. An expressway stage study may also be conducted
3. A study also can be carried out to find the influence of parental encouragement and its related variables on the Higher secondary students classroom climate.

4. A study can also be attempted on higher level of education in Tamilnadu state with special reference to the Achievement in Chemistry.

5. A study of the Achievement in Chemistry in relation to their parental encouragement the selection of technical/ professional courses can be conducted.

6. A study of the classroom climate in relation to their parental encouragement the selection of technical/ professional courses can be conducted

7. A study on college students' work experiences with some selected psychological variables can be conducted.

The above suggestions may act as an eye-opener for the new investigators who wish to do research in Education.

5.17 CONCLUSIONS

The present study aims to find out the influence of certain psychological variables like classroom climate, parental encouragement and Socio-economic Status of Higher secondary students on their Achievement in Chemistry.
Further, the result shows that Parental Socio-economic Status and classroom climate of higher secondary school students is positive and significant. It is inferred that Parental Socio-economic Status and Achievement in Chemistry higher secondary school students is significantly and positively correlated. Continuous result reveals that Parental Socio-economic Status and parental encouragement higher secondary school students is significant and positively correlated. The result shows that there is no significant relationship among Parental Education (SES) and classroom climate. The result indicates Parental Education (SES) and achievement in chemistry as significant and positively correlated. The result inferred that Parental Education (SES) and parental encouragement is significant and positively correlated. Result concluded that the Parental Occupation (SES) and Classroom climate in higher secondary school students is positive and significant. It is inferred that the Parental Occupation (SES) and achievement in chemistry is significant and positively correlated. The result observed that the Parental Occupation (SES) and parental encouragement is significant and positively correlated; it shows that the Parental Income (SES) and Classroom climate in higher secondary school students is positive and significant. The result reveals that the Parental Income (SES) and achievement in chemistry higher secondary school students is positive and significant. It is inferred that the Parental
Income (SES) and parental encouragement of higher secondary students is positive and significant. It is concluded that the classroom climate and achievement in chemistry of higher secondary students is positive and not significant. It is observed that the Classroom Climate and Parental Encouragement of higher secondary students is positive and significant. The result inferred that the achievement in chemistry and parental encouragement of higher secondary students is positive and significant.