SUMMARY AND CONCLUSION

INTRODUCTION

It is not merely the introduction of science at various stages of education that is enough. The teaching of science instead of remaining merely theoretical, must include a predominantly practical bias in terms of its teaching objectives with a view to inculcating scientific attitude, originality, creative and improvisational abilities and stimulating innovative thinking among students needed in a society increasingly becoming more and more technologically oriented. Further, the assessment of these objectives must find a place in the academic achievement of the students.

Although research and evaluation in science education have relied heavily on the assessment of academic achievement and other valued learning outcomes, these measures cannot give a complete picture of the educational process. Because students spend up to 15,000 hours at school by the time they finish senior high school (Rutter, Maughan, Mortimore, Outson & Smith 1979), students have a large stake in what happens to them at school and their reactions to and perceptions of their experiences are significant.

In a primitive nomadic culture, problem solving ability is most important followed by the capacity to acquire knowledge. With the rapid changes that are occurring in our modern world, the capacity to acquire knowledge, or the ability to learn is probably most important, because it influences our ability to adapt. While all three are very important, the ability to think and reason in the abstract is probably least important for most people.

The psychosocial milieu of the classroom has received considerable research interest over the past two decades. Researchers have explored the classroom environment as a potent mediator of various motivational variables, as well as an antecedent of academic performance outcome (Dorman, Fraser & McRobbie, 1997; Fraser, 1986). The classroom environment is an important mediator and determinant of academic performance is evident from the extensive research studies that have
been conducted in Australia, the United States, Netherlands and Singapore (Khine & Chiew, 2001). In order to capture student’s attention and activate their motivation to learn, teachers must consider the relevance of each topic. Then they can connect science with student’s interests, personal lives, societal issues, cultural backgrounds, and other school subjects.

Psychological perceptions of classroom environments have important influences on student achievement performance and self-concept as well as on other valuable educational outcomes. Climate measures are practical. Inexpensive, and they predict learning gains more accurately than do so called objective variables such as students social class, teacher behaviour and other characteristics school and class size and education expenditure. Achievement refers to accomplishment or proficiency of performance in a given skill or body of knowledge. The social acknowledgement of a person’s skill, the range and depth of his knowledge or his proficiency in a designed area of learning or behaviour indicates the extent of his achievement.

Considerable research indicates that EI skills play a central role in children’s academic, personal, and social lives above and beyond the effects of personality and general intelligence. Emotions drive attention, which impacts learning, memory, and behavior. The ability to regulate emotions, for example, can help students to stay focused in class and handle anxiety-arousing situations such as taking tests (Lopes and Salovey, 2004).

Experience strongly influences the capacity to acquire knowledge, because it provides background to which new information can be related. For example, people hear an educational psychology lecture that describes cognitive development; some have had an introductory psychology course and other haven’t. Terms such as “cognitive” and “development” will be more meaningful for those with the additional background, and consequently they will acquire more knowledge.

Educational psychologists have begun to address what has historically been regarded as the soft side of individual differences. This includes mood, feelings and emotions in relation to academic achievement – a way in which students function and perform in accordance with the anticipated tasks at hand. An emotionally safe classroom environment is necessary for students’ cognitive learning, growth, and creative expression.
NEED OF THE STUDY

Science education was given a prime position by Kothari commission for development in India. While curriculum in science has been updated from time to time. Less is known about the classroom environment for learning of science in schools.

With modernisation the complexity of life is assuming wider proportion. The home and social atmosphere are shifting more and more obligations to the school. The present is with extremely busy parents who cannot attend to their children in an ideal manner and the ultimate aim of all round development of children is more dependent upon school. Hence emotional development and classroom environment have become significant for academic achievement.

In most classrooms the teacher is perceived as the knowledgeable one, but the existing teacher student ratio limits the teachers’ ability to interact with each learner. Every field in education has its own importance and today interest in science is dependent on teacher’s ability to arouse and maintain interest in science. Teachers are the role models for children and what they imbibe gets multiplied in the subsequent generations.. Teachers play a prime role in creating classroom learning environments. Their knowledge of subject, enthusiasm, emotional intelligence and teaching competencies determine the nature of classroom environment. It is important to find how students perceive their classroom environment and how it affects their achievement in science.

We are at the beginning of a new century, and intelligence and success are not viewed the same way they were before. IQ alone is no more the only measure for success; emotional intelligence, social intelligence, and luck also play a big role in a person's success (Goleman, 1995). The present investigation has as its main aim to study the achievement in science in relation to students’ perceptions of classroom environment and their emotional intelligence. This study has practical relevance in planning educational programmes and modifying classroom environment. The findings of the study will help in better planning the inputs for achievement in children through formal educational systems. Students achievement and perception of
classroom environment may have significant dependence on their level of emotional intelligence.

Despite the diversity of research reported for science education, very little work has been reported on science performance and its association with pupils’ emotional intelligence and perceptions on science classroom learning environment at the upper primary school level. A research in this area would thus be significant and form a basis to guide improvements in science learning environment at school.

**STATEMENT OF THE PROBLEM**

**ACHIEVEMENT IN SCIENCE IN RELATION TO STUDENTS’ PERCEPTIONS OF CLASSROOM ENVIRONMENT AND THEIR EMOTIONAL INTELLIGENCE.**

**DELIMITATION**

The study is delimited to students of VIIth class of government schools of Chandigarh. Data has been collected through questionnaires from 20 schools of Chandigarh.

**OBJECTIVES OF THE STUDY**

This study was undertaken with the following objectives:

**General Objective**

To study Achievement in Science in relation to Students’ perception of Classroom environment and their emotional Intelligence.

**Specific Objectives**

1. To find the relationship between achievement in science and students’ perception of classroom environment.
2. To find the relationship between achievement in science and emotional intelligence of students.
3. To find the percentage variance contributed by the measures of emotional intelligence and students’ perception of classroom environment in predicting the achievement in science.
4. To compare achievement in science of students with different perceptions (very good, good, not good) of classroom environment.
5. To compare achievement in science of students with different levels of emotional intelligence (high, average, low).
6. To compare achievement in science of male and female students.
7. To compare perception of classroom environment of male and female students.
8. To compare emotional intelligence of male and female students.

**HYPOTHESES**

Related to the above stated objectives the following hypotheses have been formulated:

1. There will be no significant relationship between achievement in science and the students’ perception of classroom environment.
2. There will be no significant relationship between achievement in science and emotional intelligence of students.
3. Conjoint contribution of measures of emotional intelligence and students’ perceptions of classroom environment will be more as compared to their individual contribution in predicting achievement in science.
4. There will be no significant difference in achievement in science due to different perceptions of classroom environment (very good, good and not good).
5. There will be no significant difference in achievement due to different levels of emotional intelligence (high, average and low).
6. There will be no significant difference in achievement in science between male and female students.
7. There will be no significant difference in perception of classroom environment between male and female students.
8. There will be no significant difference in emotional intelligence between male and female students.
METHOD AND PROCEDURE

This study has been conducted following descriptive survey method. It aims to find out the relationship between classroom environment, emotional intelligence and academic achievement. It is descriptive in the sense that it lays great stress on detailed study of dependent and independent variables. The sample for the study was drawn from government schools of Chandigarh comprising students of class seventh by following the procedure of stratified random sampling technique.

The tools for measuring classroom environment, emotional intelligence and achievement of scores were as follows:

1. Achievement in Science (scores in final exams). Pupils’ achievement scores were obtained from the actual school records. The combined assessment constituted the science score for the academic year and reflected pupils’ performance in science throughout the year.

2. Classroom Environment Scale (Constructed and standardized by the investigator).

3. Seven Fold Emotional Intelligence Scale, SFEIS (By Khera et al, 2004)

Statistical techniques employed for the analysis of data were as follows:

1. Descriptive statistics to examine mean, median, standard deviation, skewness and kurtosis for achievement scores, perception of classroom environment, emotional intelligence of adolescents in the sample.

2. ANOVA and t-ratio technique to see the differences in the achievement in science due to different levels of emotional intelligence, and perception of classroom environment and gender differences.

3. Product moment correlation techniques to find the relationship between independent variable of achievement in science and dependent variable of perception of classroom environment and emotional intelligence of students.

4. Step-up regression equation to find the percentage variance contributed by the independent variables of emotional intelligence and classroom environment in the achievement of students in science.

The raw data was statistically treated and processed on computer using SPSS.
MAJOR FINDINGS

The major findings emerging from the analysis of the results were as following:

1. Significant relationship was found between achievement in science & student’s perception of classroom environment.
2. Significant relationship was found between achievement in science and emotional intelligence.
3. Emotional intelligence was found to contribute 5.1% & classroom environment 1.3% variance to achievement in science of students.
4. Among male students emotional intelligence was found to contribute 4.3% & classroom environment 0.2% variance to achievement in science.
5. Among female students emotional intelligence was found to contribute 4% and classroom environment 3.7% variance to achievement in science.
6. Significant difference was found in achievement in science due to very good, good and not good perception of classroom environment among students.
7. Significant difference was found in achievement in science due to high, average and low level of emotional intelligence among students.
8. Significant difference was found in achievement in science of male and female students.
9. Significant difference was not found in the overall perception of classroom environment and its dimensions among male and female students.
10. Significant difference was found in overall emotional intelligence and its dimensions among male and female students.

CONCLUSIONS

1. Hypothesis I i.e., “There will be no significant relationship between achievement in science and the students’ perception of classroom environment” has been rejected.
2. Hypothesis II i.e., “There will be no significant relationship between achievement in science and emotional intelligence of students” has been rejected.
3. Hypothesis III i.e., “Conjoint contribution of measures of emotional intelligence and students’ perceptions of classroom environment will be more
as compared to their individual contribution in predicting achievement in science” has been accepted.

4. **Hypothesis IV** i.e., “There will be no significant difference in achievement in science due to different perceptions of classroom environment (very good, good and not good)” has been rejected.

5. **Hypothesis V** i.e., “There will be no significant difference in achievement due to different levels of emotional intelligence (high, average and low)” has been rejected.

6. **Hypothesis VI** i.e., “There will be no significant difference in achievement in science between male and female students” has been rejected.

7. **Hypothesis VII** i.e., “There will be no significant difference in perception of classroom environment between male and female students” has been accepted.

8. **Hypothesis VIII** i.e., “There will be no significant difference in emotional intelligence between male and female students” has been rejected.

**EDUCATIONAL IMPLICATIONS**

This study has implications for the work of the teachers, counselling and educational psychologists, researchers as well as curriculum planners. They need to develop a greater awareness and understanding of the various interaction involving variables that predict the academic performance of students. Emotional intelligence is a strong predictor of academic achievement, it is necessary for the curriculum developers to integrate emotional intelligence into the school curriculum of secondary school.

There is evidence in the study that the achievement is influenced by emotional intelligence and classroom environment. A possible major implication, is whether the perception and interaction of environment can be modified to improve the achievement. The teachers should be made to become aware of the existence of different perceptions of children and help the children to achieve better cognitive competence.

With an increased importance placed on school-wide performance in order to demonstrate school success in terms of annual academic progress of students, there is
undoubtedly pressure on teachers to produce high scores on competition/standardized exams and science Olympiads. The parental, societal and school-wide demand filters to the classroom and is communicated in various ways to students, directly impacting their experiences in the classroom. Most of the programmes in school are heavily loaded with information content rather than cognitive and reasoning skills. Therefore there is need to review and modify the programmes in schools. The success or the failure of the student depends greatly on the quality of school social climate also. Hence it is necessary to offer congenial classroom environment, supportive teaching materials and develop/provide good interpersonal relationship between the students and teachers.

Teachers, school managements and in-service training providers need to tap all resources to improve classroom environment for science by learning about factors that may shape students' perceptions of their learning environment, how teachers' actions appear to students, and how changes made to the learning environment may stimulate and encourage learning.

Today’s students live in a world full of the products of scientific inquiry and engineering development. When students complete their formal schooling, they will enter a world filled with products that do not exist today—products that will be the result of scientific inquiry and engineering development. Today’s students must learn how to do scientific inquiry and use scientific information to make decisions that will affect their personal lives, careers, and societies. To prepare students to live and work in tomorrow’s world, science teachers must make room for scientific inquiry by decreasing their emphasis on teaching science as a sequence of lectures and reading assignments on the body of scientific knowledge. They must retain the core knowledge in the scientific disciplines and increase their emphasis on scientific inquiry as a core part of science content and as a method of instruction.

The present study will be helpful to school administrators as it shows two definite predictors of achievement. The findings may form a part of refresher courses, seminars and workshops organized for administrators.
SUGGESTIONS FOR FURTHER RESEARCH

1. Studies on school learning environment, and academic achievement may be extended to the other educational levels viz., primary and college.

2. Longitudinal studies are required in the area of learning environment.

3. It would be fruitful to replicate the present study on the teachers teaching in special institutions for mentally retarded, orthopaedic schools and blind schools.

4. Effectiveness of in-service programmes for improving classroom environment for learning science may be found through experimental research.

5. Development of scientific inquiry through innovative classroom strategies for science teaching can be studied at elementary level.

6. Research may be conducted on school environment factors like teacher-student interactions, teachers’ qualifications and characteristics, method of teaching, goal orientation, study habits of students for development of scientific temper.