CHAPTER - II

REVIEW OF RELATED LITERATURE
CHAPTER - II

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

A survey of related literature is an essential step to get a clear understanding of the problem, it broadens the general concepts and principles and also implies locating, reading and evaluating reports of research as well as casual observation and opinions that are related to the individual’s planned research project (Aggarwal, 2001).

The inspection of related literature saves a researcher from working on a worked topic, besides helping him to select an ideal problem. It also helps to adopt a suitable design for the study. Understanding the limitations of the previous studies ensures perfection in the study to be made. With these aims in view, the investigator has reviewed some of the past studies and has compiled the same in the present chapter.

The purpose of the investigation is to study the Personal Factor (intelligence achievement motivation) and Environmental factor (classroom climate, socio-economic status) on Academic achievement of students at the secondary level in different categories of schools.

The investigator faced out different types of research works, like, dissertation, thesis, journals and varieties of relevant books on education and psychology. An exhaustive review is an integral part of research knowledge and fills in the lacunae of the available literature.
The present chapter deals with the review of related literature of the select variables and the review is grouped as follows:

- Studies related to Academic Achievement
- Studies related to Intelligence and Academic Achievement
- Studies related to Achievement Motivation and Academic Achievement
- Studies related to Classroom Climate and Academic Achievement
- Studies related to Socio-economic Status and Academic Achievement

2.2 STUDIES RELATED TO ACADEMIC ACHIEVEMENT

Academic achievement could be defined as the display of knowledge attained in school subjects developed by test and examination scores or marks designed by the subjects’ teachers. It could also be said to be any expression used to represent students’ scholastic standing.

Over the years, many educational eminent have sought to find out the reasons for the downward trend in the academic achievement of secondary school students (Obemeata, 1971; Daramola, 1994). Many researchers, psychologist and educators, have identified some of the variables that have effects on students’ academic achievement. Results of abundant studies conducted abroad and in India are examined and presented below.

2.2.1 Studies conducted Abroad

Education in its broadest meaning is any activities by which an individual gains knowledge an insight or develops attitudes or skills. It is an experience that has a formative effect on the mind, character, or physical ability of an individual, and in
its technical sense education is the process by which society deliberately transmits its accumulated knowledge, values, skills from one generation to another generation (Holmes, 1971).

The function of education is both social and individual. Its social function is to help each individual become more effective member of society by passing along to him the collective experience of the past and the present. Its individual function is to enable him to lead a more satisfying and productive life by preparing him to handle new experience successfully (Sadler, 1966).

Students are individuals who accumulate knowledge with help of the teachers. The learning experience accumulated in school will serve as his bridge to overcome life's circumstances and eventually becomes a more effective member of the society.

Many empirical studies are carried out to determine the factors affecting student's academic achievement. All of the research reviews support the hypothesis that student's academic achievement depend on different socio-economic, psychological, and environmental factors.

Poverty is an important factor accounting for differences in performance and achievement across rural, sub-urban and urban districts (United States Department of Education, 2000). Some of the researches even tried to explain the relationship between student's achievements, economic circumstances and risk of becoming a drop-out that proved to be positive.

Chansarkar and Mischaeloudis (2001) explained the effects of age qualification distance from learning place on student's performance. Jogi and others
(1992) indicated that the main cause for scholastic backwardness of children was found to be faulty parental attitudes, parents witness, poor motivation for studies.

El-Anzi (2005) examined the relationship between academic achievement and anxiety, self-esteem, optimism, and pessimism. The sample consisted of 400 male and female students in the Basic Education College in Kuwait.

The salient findings of the investigation revealed that there existed a significant positive correlation between academic achievement and both optimism and self-esteem, whereas the correlations were negative between academic achievement and both anxiety and pessimism.

Guardia and others (2006) attempted to determine the factors that affect student performance by undertaking an analysis of a Structural Equation Model and determining its stability over time. The researchers worked with two samples of students enrolled statistics classes.

The first group comprised 211 students enrolled in the academic year 2000-2001, while the second comprised 287 students enrolled in the academic year 2001-2002. By administering a questionnaire, they obtained information concerning such variables as demographic data, previous academic record, information related to the subject and the degree of satisfaction with it, and the final mark obtained by the students in the subject.

The parameters for each group of students were estimated separately and the goodness of fit of the proposed structural model was assessed. The data analysis showed a good fit with both data bases, but the set of estimated parameters differed in the two academic years under consideration.
Fonseca and Conboy (2006) investigated the high rates of failure in secondary level Science classes, a problem worldwide. A sample of 346 students from eight schools in southern Portugal participated in the study. The major factors of failure in 10th grade Science courses, according to students, are quality of teaching and previous student preparation.

One third of the students did not think that secondary Science education prepared them for life in a scientific-technological society. A culture of high expectancy on the part of teachers, parents and administrators was felt to be the key to influencing rates of success.

The main purpose of the study conducted by Olgum and Adali (2008) was to investigate the effects of a case study approach on students' achievement and attitudes towards viruses, bacteria, fungi, and protista. Fifth-grade students (N = 88) from two different classes were involved in the study.

One intact class was assigned as the experimental group, whereas the other intact class was assigned as the comparison group. The comparison group students received their instruction by traditional teaching, whereas the experimental group students were instructed with a case study approach. Achievement and attitudes were measured before and after instruction. Results revealed that there were significant differences favouring the case study approach on students' achievement and attitudes towards Science.

Chhuon and Hudley (2008) examined the experiences of academically successful Cambodian American students as a unique ethnic group to understand their patterns of social and academic college integration.
The data collected from Cambodian American students suggested a close relationship between perceptions and campus environment played a very important role in the academic success of these students. The study offered direction for college administrators, student affairs staff, and faculty in supporting the retention and academic success of Cambodian American college students.

The study conducted by Hacieminoglu and others (2009) examined the relationships among students' learning approaches, motivational goals, previous Science grades, and their Science achievement for the concepts related to atomic theory and explored the effects of gender and socio-demographic variables on students' learning approaches, motivational goals, and their Science achievement for the concepts related to atomic theory.

The sample constituted 416 seventh grade elementary students. A Science Achievement Test (specifically designed for atomic theory), A Learning Approach Questionnaire, and an Achievement Motivation Questionnaire were administered to the students.

Results of the correlation analyses revealed positive relationships among meaningful learning, performance orientation, and self efficacy. Students' previous Science grades were positively correlated with achievement, meaningful learning, and self-efficacy and negatively correlated with rote learning and performance orientations.

ANOVA results expressed that participants' parents' education level had significant effect on their achievement and meaningful learning, rote learning, and approach performance orientations.
The main purpose of the study conducted by Berkant (2009) was to investigate whether students' meaningful causal thinking abilities vary with their academic achievement levels, reading comprehension abilities, and gender. The sample of the study consisted of 124 ninth grade students attending a secondary school in Adana City Seyhan District during 2008-2009 academic year.

The Meaningful Causal Thinking Evaluation Test, the Biology Academic Achievement Test, and the Reading Comprehension Test (IOWA) were used to collect the data. The study documents significant relationships between meaningful causal thinking and academic achievement, and between meaningful causal thinking and reading comprehension.

On the other hand, no significant difference is found between male and female students' meaningful causal thinking abilities. It is concluded that students' academic achievement levels and reading comprehension scores are significant predictors of their meaningful causal thinking ability, but their gender is not. An individual carries all these characteristics in the same cognitive structure and probably uses them in coordination when he/she needs.

Therefore, educational activities can be designed based on the relationship between meaningful causal thinking and academic achievement, and between meaningful causal thinking and reading comprehension.

The study conducted by Engel and others (2009) draws on the Trends in International Mathematics and Science Study (TIMSS) 2007 data for nearly 60 educational systems to explore the characteristics and patterns of school violence
across a number of countries and the extent to which measures of violence are associated with achievement in Mathematics and Science.

Using a multi-level modelling approach, the relationship between school violence and Mathematics achievement was examined. Findings from the international model indicated the extent to which violence at and across different levels impacts achievement in a cross-country, large-scale assessment.

The explorative field study conducted by Eilam and co-workers (2009) examined the mediating role of self-regulated learning (SRL) in the relationship between the personality trait of conscientiousness, SRL, and Science achievement in a sample of junior high school students.

Over the course of an entire academic year, data on enacted SRL were collected each week for 52 eighth-grade students in the context of an inquiry-based ecology project. Data were also collected on personality traits, self-reported study strategies, Science project achievement, and grade point average.

Findings show significant relationships between conscientiousness, SRL, and achievement. As hypothesized, conscientiousness was shown to significantly impact academic achievement in the inquiry-based course, mediated by enacted SRL.

In the study conducted by Li and others (2009) based on data collected from 211 elementary school children in central Taiwan over four years, the role of temperament in Science achievement was examined with multivariate analysis of covariance (MANCOVA) with repeated measures design.
The results revealed that the students' Science achievement is stable over time. The task orientation characteristics (i.e., distractibility, hyperactivity, and persistence) identified by previous research as important in Mathematics and reading achievement are not consistent with the findings of this study that although the impacts of distractibility and persistence are significant, the simple effect of activity level on Science achievement was not significant.

However, the interaction effect of activity level and persistence is significant. Further break down analyses conducted to pursuit the interaction effect revealed that:

(i) persistence has a consistent significant positive effects on all children over the years, except for the ones with high activity level (the upper 25th percentile); and

(ii) activity level has significant negative effects on high persistence (the upper 25th percentile) children only, and the interaction effect of activity level increases over time--the older the child the more significant the influence. Also, the tendency of approach/withdraw has significant impact on Science achievement Chen and Pajares (2010) investigated: (a) the associations of implicit theories and epistemological beliefs and their effects on the academic motivation and achievement of students in Grade 6 Science and (b) the mean differences of implicit theories, epistemological beliefs, and academic motivation and achievement as a function of gender and race/ethnicity (N=508).

Path analysis revealed that an incremental view of ability had direct and indirect effects on adaptive motivational factors, whereas fixed entity views had direct and indirect effects on maladaptive factors. Epistemological beliefs mediated the
influence of implicit theories of ability on achievement goal orientations, self-efficacy, and Science achievement.

Olatoye and Agbatogun (2009) investigated the achievement of pupils in the public and private primary schools in Mathematics and Science. The descriptive survey research design was employed to carry out this study. Four hundred and eighty (480) pupils from thirty primary schools in Ogun State, Nigeria were randomly selected for this study.

From the results of this study, parental involvement accounts for 16.1% of the total variance in Mathematics achievement of primary school pupils. These percentages are significant at 0.05 level of confidence. It shows that parental involvement is an important predictor of academic achievement.

There exists a significant difference in the parental involvement of public and private primary school pupils. Private school pupils enjoy more parental involvement than their counterparts in the public schools.

The study conducted by Jaiyeoba and Atanda (2011) investigated nine school quality factors that are likely to influence students’ achievement in Mathematics in South-Western and North-Central Nigeria.

The study adopted the descriptive survey research design of the ex-post facto type and made use of a sample of 1,014 Mathematics teachers and principals selected through a multi-stage sampling procedure. The two validated instruments used were School-based Quality Inventory and School-Based Quality Factor Questionnaire.
Data collected were analyzed using means, standard deviation and multiple regression. Out of the nine variables, the two variables that contributed significantly to student’s achievement in Mathematics were conveniences and instructional materials respectively. Instructional materials and conveniences have been adjudged to have contributed significantly to students’ achievement in Mathematics.

The study conducted by Abubakar and Adegboyega (2012) considered age and gender as determinants of academic achievement (CGPA) of Mathematics students. The study used thirty eight (38) females and forty (40) males giving a total sample of seventy eight (78).

Results revealed a linear relationship between, age and academic achievement; gender and academic achievement. A low positive correlation coefficients were obtained for ages and gender which were not significant. The predictor variables jointly accounted for 2.1% of the variance, age was the better predictor.

The null hypothesis tested was accepted implying no significant gender difference in academic achievement of the students. It was suggested that some more variables be included so as to determine significant correlation of students’ academic achievement of Mathematics students.

Alwan and others (2013) conducted a study primarily to investigate any relationship between selected factors namely, gender, school factors and academic achievement in Statistics of high school students in Tripoli, Libya. The sample consisted of 100 science students, 50 males and 50 females from two randomly chosen high schools in Tripoli, Libya.
Two instruments were used in the study. The Statistics Achievement Test (SAT), was designed to assess student performance in Statistics. The second was a student questionnaire (SQ), designed to obtain information on personal characteristics of the students, school factors.

The main findings of the study are (i) gender was found to be significantly associated with achievement in Statistics. Specifically, female students were found to perform better than male students; (ii) among the school factors, the factor which emerged as influencing students' achievement in Statistics was the teacher factor.

The two elements of teacher factor which were significantly related to students' achievement in Statistics are (a) making students understand of what were taught and (b) teacher's provision of adequate exercises.

2.2.2 Studies conducted in India

In developing countries, education, especially formal education, has been accorded with much importance not just as a means of disseminating knowledge and developing citizenship but also used as a tool for upward social mobility. Hence, not surprisingly, success in public examinations conducted by the government or other recognized authorities are deemed to be a passport to future betterment and advancement.

Parents and teachers alike are very much concerned about the students' performance in the various public examinations which are being held at different levels and at different periods of the year.
That these initiations attract so much interest and attention is nothing unusual because success or failure in these examinations may well prove to be the vital determinant of the course a student will have to take.

Furthermore, poorer and lesser academic qualifications often act as obstacles which impede an individual's career advancement. Although this does not mean that a person of lesser academic achievement is doomed in his career pursuit, it does, however, signify that his road to success has been made more difficult.

As such, it is true to say that academic achievement does boost a person's morale and enhance as well as facilitate his occupational endeavours. In view of the above, many studies have been conducted to assess the possible factors which affect student's academic achievement in our Indian context.

Rajput (1985) studied intelligence, achievement motivation and socio-economic correlates of academic achievement with specific reference to Mathematics. He concluded from his study of 435 students of both sexes that socio-economic status affected the performance of students in Mathematics.

Mathematics was performed well by students of higher socio-economic group and the middle socio-economic group. Only students of lower socio-economic strata performed low in Mathematics. However, he reported that the interaction of other relevant independent variables did not alter the contribution of socio-economic status to Mathematics performance.

Chitra (1992) investigated the family relations, socio-economic status, intelligence and adjustment of students who failed at the high school level. The
sample consisted of 200 failed and 200 passed students randomly selected from 27 schools of the five districts of the Garhwal region.

The major findings were (i) the passed students were more intelligent, accepted by the parents, better adjusted socially and economically more advanced than the failed students (ii) the failed students were more avoided by their parents than the passed students (iii) the rural passed students were more intelligent than rural failed students (iv) the urban passed and failed students do not differ in their intelligence (v) the rural failed boys were in higher level in their socio-economic status than rural passed boys.

Muthumanickam (1992) investigated the academic achievement of students at the higher secondary level in relation to their reasoning ability, socio-economic status and interest in academics. The sample comprised of 377 higher secondary commerce students (195 boys and 182 girls) belonging to the academic stream of 14 higher secondary schools (8 urban and 6 rural).

The data collected was treated with descriptive, correlation and multivariate analyses. Major findings were (i) boys and girls differ in academic achievement (ii) there was positive correlation between all variables studied.

Mungal (1997) studied the effect of school climate and teacher effectiveness in relation to student achievement. It was found both the variables create an impact on student achievement.

Kiruppakaran (1998) attempted to study academic achievement in relation to types of schools such as public schools and government schools. The results revealed
that students in public schools not only performed high, but also had higher level of aspirations in life when compared to their counterparts in other schools.

Madhusudan and Yeli (2004) found teacher competency to be significantly determining students' achievement in Mathematics. Sansigiry and others (2006) examined factors such as academic competence, test competence, time management, strategic studying, and test anxiety, and identify whether these factors could distinguish differences among students, based on academic performance and enrollment in the experiential program.

Academic performance was significantly associated with factors such as academic competence and test competence. Students with a cumulative GPA of 3.0 or greater significantly differed in their level of test competence than those with a GPA of less than 3.0. Students enrolled in their experiential year differed from students enrolled in their second year of curriculum on factors such as test anxiety, academic competence, test competence, and time management skills.

In the study conducted by Vijayakumar (2007) on a sample of 294 students at the secondary level in different categories of schools, found no significant difference in test anxiety and their academic performance among students in state and matriculation board schools.

But the students in Private schools were found to be significantly better in their academic achievement inspite of perceiving a higher level of test anxiety when compared to their counterparts in other two boards of schools. There was no notable difference found among boys and girls in these categories of schools.
Sivanesan (2008) investigated the influence of classroom climate on academic achievement of 286 secondary level and 284 higher secondary level students. The results of the analysis exposed significant correlation between the variables and no significant difference between students in secondary and higher secondary levels. Corroborative studies were conducted by Ruckmani (2008) who found achievement motivation and intelligence to influence academic achievement of students.

Keziah (2011) investigated self-concept, study habits, school environment, socio-economic status and academic achievement of students at the secondary level in different categories of school, such as, state, matriculation and Private schools and found all variables to influence the academic achievement of students significantly. Self-perception and attitude towards Biology were found to significantly determine the academic achievement of students at the secondary level by Sarasvathi (2012). Similar studies were conducted by Radhika (2012).

In a recent study, Indhumathi (2014) investigated the health awareness, mental health, socio-economic status and academic achievement among students at the secondary level. From students in different categories of schools, a sample 450 students (225 boys and 225 girls) was selected and the results of the analysis revealed a significant correlation between all variables, health awareness, mental health, socio-economic status and academic achievement. Further the girls to be significantly better than the boys in all categories of schools.

2.2.3 Evaluation

A number of psychosocial and environmental variables seem important in influencing success or failure in gaining knowledge among students: Parenting
practices and parental involvement with the school explain much of the variation in school performance according to Desimone (1999). Student perceptions of meaningfulness, challenge, choice and appeal of class activities have been associated with attitude toward studies and learning (Gentry and Springer, 2002; Raineri and Gerber, 2004).

Many psychological and environmental variables have been found to be significant determinants of academic achievement of students. In the Indian context though a number of studies have been conducted the results are not found to be conclusive in determining the most important factors that report for the variations observed in the academic performances of students, especially at the secondary level and thus the variable, academic achievement is found to be important to be analyzed in the field of education.

2.3 STUDIES RELATED TO INTELLIGENCE AND ACADEMIC ACHIEVEMENT

The typical traits of intelligence, like, a person’s ability to solve problems, utilize logic and think critically are sometimes lumped together under the label of "raw intelligence." A person's intelligence, traditionally speaking, is contained in his or her general intellect - in other words, how each and every one of us comprehend, examine, and respond to outside stimuli, whether it be to solve a problem correctly or to anticipate an opponent's next move in a game of tennis.

Our intelligence, therefore, is our singular, collective ability to act and react in an ever-changing world. Because the traditional understanding of intelligence assumes that our ability to learn and do things comes out of a uniform cognitive
capacity, some researchers began to experiment with the possibility that such an intelligence would be fairly easy to measure and thus be very useful in assessing students in order to place them at an appropriate academic level.

In learning of Science, students have many and varied opportunities for collecting, sorting and cataloguing; observing, note taking and sketching; interviewing, polling, and surveying; and using hand lenses, microscopes, thermometers, cameras, and other common instruments. They should dissect; measure, count, graph, and compute; explore the chemical properties of common substances; plant and cultivate; and systematically observe the social behavior of humans and other animals.

Among these activities, none is more important than measurement, in that figuring out what to measure, what instruments to use, how to check the correctness of measurements, and how to configure and make sense out of the results are at the heart of much of Science and engineering. This requires a lot of intelligence which is expected to influence the academic achievement of students. Studies related to intelligence and academic achievement is compiled and presented hereunder.

2.3.1 Studies conducted Abroad

As a society becomes increasingly complex owing to rapid scientific and technological progress, it needs high capacity manpower to sustain and maintain the pace of progress of the society. For reasons such as this, the concept of intelligence is becoming increasingly important in modern societies.

No sphere of life, whether it is education or social and physical science, literature or art etc. has remained uninfluenced by the intelligence. The working force
behind the success and attainments of world’s greatest laureate, scientists, psychologists and politicians etc. has been one and only, and that is intelligence.

Intelligence not only enables an individual to attain great heights of success in life but also develops in him the ability by which he is well adjusted in his environment and saves himself from becoming its victim. Researches have been conducted investigating intelligence and academic achievement of students.

Van Blerkan (1989) examined the relationship among intelligence, field dependence, sex role and Mathematical achievement using 287 undergraduates. The results indicated that number of Mathematics courses taken and intelligence were the two best predictors of achievement in Mathematics.

King and Taylor (1989) examined the intellectual development of Black college students and investigated the relationship among students’ intellectual development, their academic and social integration, and the non-cognitive factors specified by Tracey and Sedlacek (1984). Subjects were 344 Black undergraduate students at a large Midwestern State University.

The subjects provided background information for Institutional Integration Scale (IIS), the Non Cognitive Questionnaire (NCQ), and an Environmental referent. A subsample of 146 students was also interviewed using the Reflective Judgment Interview (RJI).

The major findings from the examination of class and gender differences on the IIS were the class differences found on the Peer Group Interactions Scale and on the Social Integration Scale, with seniors scoring somewhat higher than freshmen.
Because of low internal consistency reliabilities on the NCQ, analyses could only be run on three of the eight scales.

A class main effect was found only for the Knowledge Obtained in a Field Scale. A gender main effect was obtained on the Successful Leadership Experience Scale, with females scoring higher. Prior studies examining class differences have found that RJT scores increased with educational level; this pattern was repeated with this sample. These differences were not attributable to the academic or social integration nor to Tracey and Sedlacek’s noncognitive factors.

Campbell and Ramey (1994) assessed the effects of preschool education on achievement in primary school for 88 impoverished African American Children and their families and found that the positive effects of a preschool intervention program on intellectual development and academic achievement were maintained through age 12 and that school-age intervention alone was less effective.

Johnson (1994) studied intellectually gifted children from diverse ethnic and cultural backgrounds as well as varying levels of risk were evaluated to determine the effect of risk on gifted children when intelligence level has been controlled.

Each of 7,323 children from six ethnic backgrounds had achieved a standardized intelligence test score (Wechsler Intelligence Scale for Children–Revised [WISC-R] or Raven’s Standard Progressive Matrices) attitude least two standard deviations above the mean. Areas of risk evaluated in a case study approach included cultural, economic, emotional, environmental, health and language factors.

Although each child in the sample demonstrated high intellectual potential, differences were found for disadvantaged students on several measures of aptitude,
achievement, and verbal intelligence. Implications and limitations of these findings for assessment of giftedness, identification of potential gifted underachievers and development of gifted curricula are discussed.

Hernstein and Murray (1994) discussed issues considered in the book “The Bell Curve; Intelligence and Class Structure in American Life” which stressed the importance of genetic differences between individuals and groups. The concept influenced a cognitive elite, cognitive classes and social behaviour, ethnic differences in cognitive ability and implications for social policy are discussed.

Lassiter (1995) examined the validity of brief measures of intelligence and explored how well these instruments related to academic performance. The WPPSI-R, the Kaufman Brief Intelligence Scale, Draw-A-Person: Quantitative Scoring System and the K-ABC Achievement Scale were administered to 50 kindergarten and first grade children. Results indicated all measures provided similar scores in the average range.

Ackerman (1995) discussed the development and uses of various aptitude tests in higher education from the 1920s through the early 1960s. Although seen as a gateway to educational attainment for returning World War II veterans, intelligence tested faced criticism in the early 1960s as a restrictive practice.

Jarvelin and others (1995) studied the records of 6,007 males born in northern Finland in 1966 and found that 6% acquired a criminal record between 15 and 22 years. A higher than average delinquency rate was found among those with lower socioeconomic status especially when combined with low intelligence. Family social
problems had a greater predisposing effect of delinquent behaviour than did mental disability.

Ackerman (1996) investigated adult intelligence across the fields of education, cognitive Science and adult development and suggested that much of adult intellect is indeed not adequately sampled by extant intelligence measures and might be better assessed through the pedagogical method.

Schaefer Barbara and McDermott (1999) studied the learning behaviour and intelligence with achievement in Mathematics. They analyze with 1100 students in the range of 6 to 17 years. They found that Intelligence played a major role in achievement in Mathematics.

They also found that individual ability in learning also improved the achievement. They also found that other factors such as students’ attitude, teacher experience, motivation and Socio economic level to be equally significant to academic achievement.

The objective of the research conducted by Naderi and others (2010) is to examine if a relationship exists between intelligence and academic achievement and if the relationship differs between males and females. Participants (N=153; male=105 and female=48) completed creativity test. Cumulative grade point average (CGPA) was used to select the participants.

Intelligence was measured using the Catell Culture fair Intelligence Test (CFIT-3a & b). Pearson Correlation analysis indicated that aspects of intelligence were not related to academic achievement for both males and females. Corroborative researches have been conducted establishing the relationship between intelligence and
academic achievement of students (Day and others, 2010; Ong and others, 2010; Asthana, 2011; Husain, 2011).

Ilirjan (2013) investigated several dimensions of students’ intelligence levels and their correlation to the final exams outcome in relevant subjects are measured and observed. The empirical study included 60 out of 70 students from the International Business course at bachelor degree, and 43 out of 69 students of management of human resources course at master degree in Public Administration.

The analysis of data collected showed that students of master degree course result with lower academic achievement than the bachelor’s degree students and this is mainly attributed to higher logical skills of bachelor’s students which have maximized their academic results.

Logical reasoning comes second in bachelor’s degree for the correlation strength with academic results, but has the lowest average, while in professional master’s degree it comes first for the correlation size but it also has the lowest average. The study established the fact that improvement of intelligence skills during the study period is important for achieving better academic results.

2.3.2 Studies conducted in India

Intelligence is the ability to learn quickly and to retain for a long time. It is the ability to adjust to new situations (Stern, 1914) and to judge well, to comprehend well and to reason well (Burt, 1950). Thus intelligence includes the abilities to develop solutions to problems, which requires understanding, and comprehension. The word ‘intelligence’ is relatively a recent term in psychological literature, rarely encountered before the beginning of the present century.
In the study conducted by Singh (1986) achievement in Mathematics was found to be positively related to intelligence, socio-economic status and study habits. Intelligence, study attitudes and socio-economic status contributed in the order of importance to discriminate between high and low achieving groups.

Chitra (1992) investigated the intelligence, family relations, socio-economic status, and adjustment of students who failed at the high school level. The sample consisted of 200 failed and 200 passed students randomly selected from 27 schools of the five districts of the Garhwal region.

The major findings were (i) the passed students were more intelligent, accepted by the parents, better adjusted socially and economically more advanced than the failed students (ii) the failed students were more avoided by their parents than the passed students (iii) the rural passed students were more intelligent than rural failed students (iv) the urban passed and failed students do not differ in their intelligence (v) the rural failed boys were in higher level in their socio-economic status than rural passed boys.

Kumari (1991) studied the effect of intelligence, achievement in Biology of extraversion on the questioning ability of class IX pupils, on the basis of interaction analysis and it was found that intelligence, achievement in Biology and extraversion influenced the number of level of questions asked and teacher talks in the classroom.

Singh (1993) indicated a significant contribution of intelligence, academic achievement in Mathematics and Mathematical creativity in the development of Mathematical problem solving performance of high school students.
Bhujendra Nath Panda (1996) investigated the Saaras, one of the primitive tribes in India and one of the important tribes living in District of Orissa. The history relating to social and cultural background of Saaras has been narrated by many, it is not sufficient enough to know the mental health status and academic achievement of these sections of the society and its charges due to culture-contact.

Aspects of tribal children and their results are also contradictory, the present study was planned to examine the effects of acculturation on mental health status and academic achievement of Saaras. Thus it was hypothesizes that there would be a significant difference in the mental health status and academic achievement of least and more cultured Saara tribe adolescent.

Kalyani (2002) studied the relationship between intelligence and cognitive styles of a sample of children studying 8th, 9th and 10th standards in Tripathi town. To study cognitive styles of children (i.e.) field dependence/ independence and reflectivity/ impulsivity, Group Embedded Figure Test (GEFT) and Matching Familiar Figure Test (MEFT) were used. Results revealed that intelligence and cognitive styles are related. Corroborative researches have been conducted establishing the relationship between intelligence and academic achievement of students (Palaniappan, 2007).

In the study conducted by Uma (2010) investigating the relationship between intelligence and academic achievement of students in Science, investigation 649 students at the secondary level found intelligence to be significantly correlated to academic achievement and intelligence was also found to contribute significantly in determining the variations observed in the academic achievement in Science among the students.
Saranya (2011) investigated the study habits, intelligence and academic achievement of 509 boys and girls at the higher secondary level in different categories of schools. The results of the analysis explicitly showed that the students in different categories of schools were significantly better than their counterparts in state board schools with regard to study habits, intelligence and academic achievement.

However, there was no significant difference in academic achievement among students other categories of schools. Further in all categories of schools, the girls were found to be better than the boys with reference to all variables. Similar studies were conducted by Suja (2012) and Anitha (2013).

2.3.3 Evaluation

The perception that intelligence facilitates learning became more evident after the learning theories classes. Participants appreciated the importance of intelligence (although it is not the only variable) in learning, supporting the view of Watters and Watters (2007). In current years, several researchers have shown more interest in the relationship between intelligence and academic achievement.

According to Watkins, Lei and Canivez (2007) there has been considerable debate regarding the causal precedence of intelligence and academic achievement. Some researchers view intelligence and achievement as identical constructs. Others believe that the relationship between intelligence and achievement is reciprocal. Still others assert that intelligence is causally related to achievement.

Laidra, Pullmann and Allik (2007) reported that students’ achievement relies most strongly on their cognitive abilities through all grade levels.
Due to dearth of studies pertaining to intelligence and academic achievement of students, especially with reference to the Indian context, investigation into the intelligence of students and its impact on academic performance becomes very fundamental.

2.4 STUDIES RELATED TO ACHIEVEMENT MOTIVATION AND ACADEMIC ACHIEVEMENT

Achievement motivation which is the drive for performance has been found to have an influence on students’ academic behaviour. The students’ perception of the worth of academic achievement is related to the fear of failure, parental, and peer group pressure for achievement.

Nenty (1988) noted that achievement motivation is a society related factor and has the highest relationship with, and is the most valid prediction of students’ academic performance. The issue of motivation of students in education and the impact on academic performance are considered as an important aspect of effective learning. It is well documented in literature that motivation plays an important role in influencing students’ academic behaviour.

Several researchers have found that students use different motivational strategies in different learning situations. In general, students are found to value both intrinsic and extrinsic rewards, (Pintrich, 2000; Pajares, 2000; Pietsch, Walker and Champman, 2003, King, 2007). Studies pertaining to achievement motivation and academic achievement are compiled and presented hereunder.
2.4.1 Studies conducted Abroad

Research has shown there is an interest in achievement motivation as it relates to students. Studies conducted by McClelland, (1985); Morgan (1986) and Lovells’ (1982) revealed that academic performance of students is a function of achievement motivation, with students high in achievement motivation out-performing those with low achievement motivation.

Many studies have been conducted to discover what motivates students (Atkinson and Feather, 1966; Spence, 1983; Atkinson, 1999). These studies have also spawned new ideas on motivation (Bar-Tal, Frieze and Greenberg, 1974; Veroff, 1977; Simons, VanRheenen and Covington, 1999; Rathvon, 1999; Atkinson, 1999).

Atkinson and Feather (1966) proposed a theory of achievement motivation. They stated that a person’s achievement oriented behaviour is based on three parts: the first being the individual’s disposition to achievement, the second part being, the probability of success and the third, the individual’s perception value of the task.

Bar-Tal and others (1974) in their study of individual’s perception of probability for achieving task of students, found it to be a cause for need to achieve and fear of failure.

In an earlier study Veroff (1977) has presented a taxonomy of six achievement motivation types, with the categories based on interaction between two factors (i) whether the individual emphasizes the process of achieving or the impact of accomplishment itself and (ii) whether the person derives his standards of excellence from within himself, from some social reference or form an impersonal task demand. The investigator has also elucidated the taxonomy with evidences.
Crohn (1983) investigated on the impact of teacher behaviour and students’ success and found teacher behaviour to have a positive impact on students’ performance.

Michella (1985) made a study on the achievement motivation and attribution theory differentiated by ethnicity for undergraduate female business students. The results revealed that high achievement motivation seems to mediate grade point average of the total sample.

Srivastava and Surya (1986) studied on the Goal Gradient Hypothesis and achievement motivation. Thirty seven high achievers and twenty one low achievers were identified using an achievement motivation scale from a sample of 150 undergraduate students. Results revealed that the delay of reward impaired learning of low achievers, supporting the goal gradient hypothesis, but delay had no effect on high achievers.

Fisher (1988) investigated the academic achievement motivation of 368 black adolescent students who attended the inter-city high schools at Illinois. The purpose of the study is to identify factors that predict academic motivation for these black adolescents and factors that inhibit their motivation.

The findings of the study revealed that the students’ academic self concept is the best predictor of academic achievement. According to the interview, the students’ perception of academic support from others as well as their perception of the opportunities for success in their academic environment is also crucial factors contributing to the academic achievement behaviour of these black adolescent students.
Weiner and Potepan (1990) in their study assessed test anxiety, achievement orientation, and intellectual achievement responsibility among 107 college students. The effect which they associated with the final examination was reported at various times following the mid-term feedback.

Self-report ratings revealed that the change in the level of fear as the examination approached was related to the level of achievement needs. Subjects high in test anxiety, low in achievement orientation or low in resultant achievement motivation or low in resultant achievement orientation have greater fears about final examinations than subjects on the opposite motive group.

They concluded that school or academic success is associated with high achievement orientation, low anxiety, self attribution of success to both effort and ability and a belief that failure is not caused by lack of ability.

Berndt (1990) examined the influence of friends on school achievement motivation grade eight students. The students were paired with a close friend to discuss dilemmas concerning achievement motivation. The friends’ decision on motivation dilemmas made after discussion was similar to that made before discussion.

Wang (1991) studied the effects of achievement motivation, goal acceptance and goal difficulty on task preference and task performance. The investigation revealed that the effects of achievement motivation, goal acceptance and goal difficulty alone and interactively on task preference were significant and insignificant with regard to task performance.
Duda and Nichols (1992) explored the dimensions of achievement motivation in school work and sports. The beliefs about the causes of success in school and sports were related in a logical fashion to personal goals for high school students.

Maqsud and Coleman (1993) investigated the role of parental interaction in developing achievement motivation and found that parents strongly influence the development of their children’s achievement motivation.

Wang and others (1993) studied on students’ performance and found direct influences, such as the frequency and quality of student-teacher interactions to influence students success.

Stone (1994) made a study to determine the achievement motivation measured through academic performance in Officer Training School (OTS) students. The study concluded that academic predictors predict better than motivation predictors to an academic criterion.

Similarly, the investigation made by Fontayne (1994) revealed that more motivated children live in more rigidly structured families compare to their counterparts who are less motivated.

Archer (1995) examined the role of the University lecture in fostering the interplay between motivation, confidence and cognition in students. The focus is on two theoretical frameworks-Achievements Goal Theory for the motivation and confidence aspects and Vygotskian Theory for aspects concerning educational development.
Analyses of the interview transcripts reveal congruence between the motivation theory of achievement goals and Vygotsky’s Theory of Educational Development. The research concluded that a lecture who adopts the mystery goals of wanting students to understand is more likely to employ Vygotskian Teaching Techniques.

Abousire (1995) conducted a study on students’ personality traits in general and their self esteem and achievement motivation in particular. The study sample consisted of 135 undergraduate students and the results revealed that students’ self esteem and achievement motivation have significant correlations with various subscales of two learning style inventories.

The results revealed that personality traits in general and self-esteem and achievement motivation in particular do have a substantial influence on their approaches to study and to levels of processing.

Juarez (2000) carried out research similar to that of Wang and others (1992) and found quality of teacher-student interactions to significantly influence the performance.

Fontayne, Sarrazin and Famose (2001) have assessed the gender and ethnic differences for preferential choices of social situations of achievement and motivational goals pursued. A content analysis of the essays of 202 pupils, both boys and girls of Maghrebian and European origin from the suburb of Paris was used.

The subjects of Maghrebian origin tended to choose the school for social situations of achievement, while those of European origin appreciated the possibility
for sport and art. Gender differences were more specifically pronounced for the Maghrebian girls.

Concerning motivational goals, boys showed a less marked orientation towards mastery goals than girls, whatever the social situation of achievement. Finally, the data analysis revealed that the nature of the social domain of achievement influences whether adolescents become intrinsically or extrinsically motivated.

Franzis and others (2006) investigated the role need for cognition, achievement motivation and conscientiousness on academic underachievement. Forty seven male and 46 female students in grades 7 to 10 participated in the study.

Student attributes were assessed by self-report measures, school performance by academic grades and intellectual abilities by a standardized structure of intelligence test. Results of the investigation revealed that need for cognition as well as facilitating anxiety contributed the most to the explanation of underachievement. All relationships between underachievement scores and need for cognition, achievement motivation scales, and conscientiousness showed linearity.

The study conducted by Steinmayr and Spinath (2009) examined the extent to which different motivational concepts contribute to the prediction of school achievement among adolescent students independently from intelligence. A sample of 342 11th and 12th graders was investigated.

Students gave self-reports on domain-specific values, ability self-perceptions, goals, and achievement motives. Hierarchical regression and relative weights analyses were performed with grades in math and German as dependent variables and intelligence as well as motivational measures as independent variables.
Beyond intelligence, different motivational constructs incrementally contributed to the prediction of school achievement. Domain-specific ability self-perceptions and values showed the highest increments whereas achievement motives and goal orientations explained less additional variance. Even when prior achievement was controlled, some motivational concepts still proved to contribute to the prediction of subsequent performance.

Corroborative researches have been conducted establishing the relationship between achievement motivation and academic achievement of students (Bahago, 2011; Bakhtiarvand et al., 2011; Thijs, 2011; Yusuf, 2011).

The study conducted by Onye and others (2012) examined the relationship between first year education students’ achievement motivation and their academic performance. The design employed for the study was survey (expo-facto). A total of seven hundred and fifty (750) out of one thousand three hundred and fifty two students (1352) students of the 2010/2011 academic session were randomly selected for the study. To guide the study, two hypotheses were formulated on students’ academic achievement motivation and academic performance as well as students’ social achievement motivation and academic performance.

The results of the study indicated that neither students’ academic achievement motivation nor students’ social achievement motivation had any significant influence on education students’ academic performance.

2.4.2 Studies conducted in India

Rukmani (2005) investigated the achievement motivation, intelligence and academic achievement of 300 students in different categories of schools at the
secondary level. Results of the analysis of data collected, though revealed no significant difference in achievement motivation between students in the said schools, the central board school students were found to be significantly better than the students in state board schools.

Corroborative researches have been conducted establishing a strong relationship between achievement motivation and academic achievement (Sharma and others, 2006; Acharya and Shobhna, 2009; Chaturvedi, 2009; Umadevi, 2009; Manjuvani and Anuradha, 2011).

Meenambigai (2012) investigated the achievement motivation, study involvement and academic achievement among students belonging to fishermen community at the secondary level in Thiruvallur District. Using random sampling technique 331 students at the secondary level in government, government-aided and private schools were selected as sample for the present study. A significant correlation was found to exist between achievement motivation and academic achievement of students.

In a recent study Archana and Chamundeswari (2014) investigated achievement motivation and academic achievement of 300 students at the secondary level, in different categories of schools. The results of the analysis explicitly showed that the students in matriculation and central board schools were significantly better in their academic achievement when compared to the students in state board schools.

2.4.3 Evaluation

It is well established that general school achievement is highly related to general intelligence (Kuncel and others, 2004). Given that general intelligence
explains only about 25% of the variance in scholastic achievement (Kuncel and others, 2004), it is worthwhile to look for other concepts that might add to the explained variance.

Motivation is one of the constructs thought to cover a share of school performance variance not explained by intelligence. The issue of motivation of students in education and the impact on academic performance are considered as an important aspect of effective learning. It is well documented in literature that motivation plays an important role in influencing students’ academic behaviour.

Despite the importance that is often ascribed to motivation in school contexts, only a few studies have so far investigated the incremental validity of motivation above and beyond general intelligence. This has necessitated further research investigating achievement motivation and academic achievement of students.

2.5 STUDIES RELATED TO CLASSROOM CLIMATE AND ACADEMIC ACHIEVEMENT

Recently, there has been a significant increase in research examining the effects of classroom learning environments on children’s social (e.g., Brown, Jones, LaRusso, and Aber, 2010), cognitive (Chien and others, 2010), and academic (Mashburn and others, 2008; Pianta, Belsky, Vandergrift, Houts, and Morrison, 2008) development.

Hamre and Pianta (2010) argue that the most critical ingredients of any classroom environment are the interactions among adults and students because, this view of classroom environments provides a broad, holistic view of the classroom
environment that includes all types of interactions—those that are social, organizational, and instructional in nature.

As such, this view of classroom environments is inclusive of research focused on more discrete aspects of classrooms such as quality or effective teaching, learning environments, and student-teacher and peer relationships. Studies pertaining to classroom climate and academic achievement are compiled and presented hereunder.

2.5.1 Studies conducted Abroad

Classroom climate is sometimes referred to as the learning environment, as well as by terms such as atmosphere, ambience, ecology and milieu. Impact of classroom climate on students and teachers can be beneficial for a barrier to learning.

In research classroom climate is seen as a major determiner of classroom behaviour and learning. Understanding how to establish and maintain a positive classroom climate is seen as a basic to improving schooling. Research suggests significant relationships between classroom climate and other factors, namely, student behaviour, self-efficacy, achievement, emotional development teacher burnout (Fraser, 1998; Frieberg, 1999).

Dholakia (1985) studied the relationship between classroom climate and pupil growth. The students felt that their teachers performed their duties with no sense of belonging and did not rise up to the pupils’ expectations and aspirations.

In the investigation made by Dasgupta and Bose (1987) revealed that interpersonal teacher-student and student-student relationships generated field forces
with measurable dimensions and magnitudes that affect classroom behaviour of the participants.

Angel (1991) studied the relationship between classroom climate and citizenship outcomes at elementary level and found democratic classroom climate to be very essential to inculcate qualities of democratic citizenship.

Litecky (1992) in his study has explained the importance of classroom climate and innovative teaching methods in creating a fertile environment for promoting critical thinking.

Wang and others (1992) described classroom climate as encompassing all the socio-psychological dimensions of classroom life. This included common interest and the pursuit of common goal achieved through focused, organized and well planned lessons.

The physical arrangement of the classroom furniture, the availability of resource materials, length of the class period (Chapin and Eastman, 1996), and type and peace of instruction (Wang and others, 1992) were also considered to influence the climate of the classroom. Similar studies were made by Gottfredson and Gottfredson, 1989; Wigfield, 1994).

Litterest (1993) considered the synergistic force specifically imagination which can serve as a catalyst for motivation and learning. The study revealed the importance of classroom climate in fostering imagination and developing growth, discovery and vision is emphasized.
Shapiro (1993) established a positive social climate within the classroom offering students. The environment needed for learning and collegiality. The study described four aspects of the classroom environment that must be examined to create such a climate-values, expectations, leadership and cohesion.

Mayer (1994) investigated the ninth grade students with low grade point averages and high absenteeism rates and found that when the classroom environment became more positive more students completed the assignments and dropouts and suspension of students also decreased.

Pierce (1996) examined how an effective middle school teacher of primarily high-risk students created a classroom environment that enhanced learning outcomes. The result revealed that the normative nature of this particular classroom was intimately entwined with academic learning.

Townsend and Hicks (1997) in their research found girls to view classroom climate more favourable than boys. Girls were more likely to favour a cooperative learning atmosphere in which positive social interactions provided a means of student support rather than individual competitiveness. Corroborative studies were made by Owens and Barnes (1982), Slavin (1991) and Goh and Fraser (1995).

In Taiwan, Li (1997) studied how a teacher manages her classroom by building a positive learning environment. Li interviewed students and used the results as feedback for the teachers. Li reported that students’ prior experiences impacted their perceptions of certain events in classroom.

Female students tended to score higher on their perceptions of classroom climate as well as teachers knowledge and pedagogy (Fisher, Fraser and Rickards,
Female students prefer participation in contrast with male students, who prefer competition and individualization.

Several studies, (Suarez and others, 1997; She, 1998; Lin, 1999; She and Fisher, 2002) identified gender as a significant variable in students’ perceptions of classroom climate. Among these researchers, only Lin (1999) found male students tended to report higher scores and interact with teachers much more frequently, than female students.

Chen (2002) conducted a study of students’ perception of classroom climate and suggestions for classroom interaction improvement and found female students to be unhappy and disturbed about the male students who dominated the classroom interactions, in their classrooms.

2.5.2 Studies conducted in India

Classroom climate has been found to be related to important educational outcomes such as academic achievement, constructive learning process, and reduced emotional problems. Unfavorable school environment characterized by irresponsible behaviour of teachers have been observed to contribute to incidences of school dropout among adolescents (Siddiqui, 2003). Bad school and home environment has also been known to cause developmental psychopathology among adolescents (Das and Basu, 2006).

Sivanesan (2008) investigated the classroom climate and academic achievement of students at the secondary and higher secondary level. A total of 570 students from secondary and higher secondary levels (286 secondary and 284 higher secondary) were selected for the study.
A significant positive correlation was observed between classroom climate and academic achievement of students. A similar study was conducted by Bhuvaneswari (2009).

Gaspar (2013) investigated the classroom climate and academic achievement of 350 higher secondary students and found a significant relationship to exist between them. Further no significant difference was observed in classroom climate and academic achievement of students belonging to standards XI and XII.

2.5.3 Evaluation

A major concern in schools is to increase student achievement. One way to do this is to focus on classroom climate variables which will influence student achievement and create the best environment in which to facilitate learning and engage students.

Research suggests that student achievement is related to a complex interaction of several factors; teacher quality is positively related to student achievement (Lasley and others, 2006); teaching style is related to student achievement (Opendakken and Van Damme, 2006); and using research-based best practice teaching strategies has also been shown to increase student achievement (Kaplan and Owings, 2001).

Additionally, school factors also interact with the teacher factors to make complex relationships affecting student achievement; class size has continued to be a controversial topic in the research regarding its impact on student achievement (Hattie, 2005); and the leadership of the school also indirectly impacts student achievement (Heck, Larsen, and Marcoulides, 1990).
Understanding classroom climate variables will allow for professional development for teachers to focus on areas to increase student achievement has necessitated further investigation of the influence of classroom climate on the academic achievement of students.

2.6 STUDIES RELATED TO SOCIO-ECONOMIC STATUS AND ACADEMIC ACHIEVEMENT

Socio-economic status like parents’ education, occupation, income and standard of living have shown to be related to students’ outcomes, such that students from middle to upper class families tend to outperform those from less advantaged background (Jaffe, 1985; Rani, 1998; Simon, 2004).

However, the most important effect of socio-economic pressure is that it generally makes parents less available to support and encourage their children in their schooling (Baker and Sodem, 1997). Also, literatures reveal that the home background variables have a great influence on the students’ psychological, emotional, social and economic state (Onocha, 1985; Crane, 1993; Rani, 1998; Dubey, 1999; Mitchell, 1999; Musgrave, 2000; Neil and Keddie 2001; Grissmer, 2003; Teese, 2004; Sharma, 2004). This means the family background and context of a child affect his/her reaction to life situations and level of performance. Thus, Ichado (1998) concluded that the environment from which a student comes can greatly influence his/her performance in school. The family lays the psychological and moral foundations in the overall development of the child while the mother’s significant role in this cannot be over emphasized (Agulanna, 1999).
There is evidence that parents’ education will affect students’ academic achievement in Mathematics. Onocha (1985) concluded that a child from a well educated family with high socio-economic status is more likely to perform better than a child from an illiterate family.

Taiwo (1993) submitted that parents’ educational background influenced the academic achievement of students. Musgrave (2000) stated that a child that comes from an educated home would like to follow the steps of his/her family and by this, work actively in his/her studies.

According to Grissmer (2003), parents’ level of education is the most important factor affecting students’ academic achievement. Similar results were found by Teese (2004), in his analysis of the students’ performance where he found clear and consistent trends for children from lower socio-economic background. Studies pertaining to socio-economic status and academic achievement of students are reviewed, compiled and presented hereunder.

2.6.1 Studies conducted Abroad

Many studies have been performed to measure the correlation between low socioeconomic status and test scores, reporting positive relationships from as young as infants (Rubin and Barlow, 1979).

Hooda and Paul (1988) conducted a study to investigate the effect of socio-economic status and academic achievement on the risk taking behaviour of student teachers. It was found that, student teachers having high socio-economic status take the higher level of risk taking as compared to the student teachers having low socio-economic status.
Darching (1989) and Alexander (1990) studied the influence of socio-economic status on achievement in Science and found that socio-economic status contributed significantly to the achievement in Science.


A set of items about the ownership of household materials was used to measure the dimensions of socio-economic status. For most of the countries, a general economic dimension and a cultural dimension were identified at the student level. The cultural dimension had the greatest impact on students' Mathematics and Science achievement.

At the school level, however, only a general economic dimension was found in most countries. The study confirmed that the ownership of a set of household materials can be used as socio-economic status indicators in exploring its multifaceted feature at both individual and school levels.

A similar model structure was found in different countries by applying these indicators, despite the fact that the content of the set of household possessions is different. The findings show that the latent structure of socio-economic status at individual level is different from that at the school level, and that socio-economic status dimensions have different effects on Mathematics and Science achievement at individual and school levels.
The purpose of the study conducted by Graff (2004) was to utilize an ecological perspective to extend and bring together research on home and school factors that affect children's academic achievement during kindergarten, including family and school SES, teacher-child relationships, home reading and math environments, parental beliefs, and parental expectations.

A sample of 306 children, their parents ($N = 280$), and their teachers ($N = 15$) provided the basis for this study. MANCOVA analyses were performed to examine the effect of macrolevel variables on achievement. Significant main effects of family and school SES on fall and spring reading and math achievement were found, with children from high-SES families or schools performing better than children from low-SES families or schools.

The profiles of the beliefs of low- and high-SES parents were examined, but were not found to be significantly different. SEM validated the hypothesized model of academic success. Finally, six hierarchical regression models revealed the importance of aspects from both home and school environments on achievement among students.

Rouse and Barrow (2006) stated that socio-economic status show effects on educational outcomes that include test scores, and continue to affect the child throughout their adulthood. Further researchers have also reported positive correlations, between socio-economic status and student achievement (White, Reynolds, Thomas, and Gitzlaff, 1993).

Olatunde (2010) investigated the relationship between students' socio-economic background and Mathematics achievement in some senior secondary schools in Southwestern Nigeria. The study adopted the descriptive survey design that
employs simple frequencies and percentages for the analysis of the data. Four research questions were answered in the study.

The subjects for the study were 1722 students senior secondary two Mathematics students selected from 36 schools from each of the senatorial districts in Southwestern Nigeria. Two research instruments were used for data collection. The findings revealed that majority of the students lived with their father and mother only and they have the basic things needed in a house for good education.

The findings also revealed that the parents of the students lived mainly in the urban area and are educated with private business of their own; have investments ranging from stocks and shares to houses. Also the results showed that majority of the students were of average academic ability in Mathematics. It was evident that with a conductive environment like this, students’ academic achievement in Mathematics should be better than students, who do not have such facilities.

According to Goodman and others (2012) students from lower socioeconomic status families continue to underachieve within the educational setting; however, little research has examined how psychological trauma may be related to this problem.

Using a sample of 5th-grade students from the nationally representative Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 database, regression analyses was used to determine whether traumatic stress and socioeconomic status influenced achievement. Results showed that low socioeconomic status and traumatic stress predicted lower educational outcomes.
2.6.2 Studies conducted in India

Seeking the association between social variables and achievement was one of the areas of interest of educational researchers. It is justifiable, as long as the social differences are prevailing. There are some research evidence linking socioeconomic status and achievement in Science classrooms.

The social variables used in the study include parental education, parental occupation, parental income and their collective form of socio-economic status. The main aim of the study conducted by Chatterji and others (1971) was to investigate the effect of some important aspects of social class such as income, parents' education, family size, general condition of the home, etc., upon the scholastic achievement.

The study revealed that the economic conditions in the family seemed to have no effect upon the scholastic achievement in all the intellectual ability groups and parents' educational level was directly related to the achievement of their children. Father's occupation was not consistently related to children's achievement.

Menon (1972) found demographic factors and socio-economic status to markedly influence over and under achievement. Higher occupational and educational level of mother, family income and parental attention were related to high achievement, but the existing relationship was not similar for boys and girls.

Chaudhari (1975) noted that bright children normally came from families where parents had higher level of education, were mostly engaged in professions requiring general knowledge and knowledge of Mathematics, and had more income than the parents of dull students. The relationship between mothers' education and
normal achievement is higher for girls than boys and these relationships are significant.

Iyer (1977) analyzed a broad group of causal factors related to under achievement in Mathematics. The study was conducted on a representative sample of 862 subjects selected from Standard IX. It is found that five variables, sex, age, caste, parental profession, and parental education were also associated with all the three achievement levels, over achievers, normal achievers and under achievers.

Reddy (1978) reached at a contradictory conclusion that socio-economic status of the parents was not significantly related to scholastic performance of students at class VIII and IX, but at class X the pupils hailing from homes with higher socio-economic status performed better.

Tripathi (1978) found a positive correlation between intelligence and socioeconomic status, between socio-economic status and social acceptance, between, academic achievement and socio-economic status. Desai's (1979) registered no relationship with socio-economic status and academic achievement. The findings of the Salunke's (1979) study, support the findings of Desai (1979).

Ohja (1979) identified the nature of relationship between socio-economic status and academic achievement of students and analysed the functional relationship of academic achievement with parental education, parental occupation and parental income, and socio-economic status.

Analysis of the data led the investigator to conclude that the higher the socio-economic status; the better would be the academic achievement of students at the high
school level. Parental education, occupation, and income were also related to educational achievement. A similar study was conducted by Ohja (1979).

Khanna (1980) attempted to find out the degree of relationship between socio-economic status and the pupil's academic achievement, income and sex. The finding showed that socio-economic status was positively and significantly related with academic achievement. Srivastava (1980) found moderate correlation between achievement and socio-economic status and between intelligence and socio-economic status.

Homchaudhri's (1980) study was aimed at surveying the levels of self-concept, anxiety, family influence and socio-economic status and studying the relationship of these factors with academic achievement. The analysis of the data revealed that socio-economic status was a significant correlate of academic achievement.

Jain (1981) studied the effect of sex and socio-economic status on reading comprehension and found that the socio-economic level of the parents had a great impact on the pupils' achievement. Reddy (1981) also found positive correlation between socio-economic status of the students and their academic achievement. Aruna (1981) examined the relationship of socio-economic status with academic achievement of scheduled caste and scheduled tribe students and noted a significant correlation between the two variables.

Chopra (1982) noted that socio-economic background was a very important determinant of continuation of education. He also found that the larger number of students who failed in S.S.L.C. classes were from lower socio-economic status.
Khalwania's (1986) study indicated that socio-economic status had no effect on acquisition of process skills in Science. The high socio-economic status group and low socio-economic status group did equally well in the acquisition of process skills in Science.

Bhargava (1986) determined the inter-relationship between the scores on the test of Science process and the variables of socio-economic status, intelligence, and achievement in physics in the context of residence and age levels of pupils. He found that the scores on Science were found to be correlated with intelligence and also with the components of socio-economic status.

Suresh (1991) found that parental education, parental occupation, parental income and socio-economic status contributed significantly to the process skill achievement in Biology.

Ajeh's (1991) study revealed that there was significant difference between achievement of students from high and low socio-economic status levels. Tamir (1991) reached at a conclusion that for functional knowledge in chemistry, the most influential variable is parents' occupation related to Science. Germann (1994) offered evidence that there were significant mediated effects by parents' education on Science achievement.

Rajalakshmi (1995) conducted a study on the combined effect of home environment and socio-economic status on achievement in Biology of secondary school pupils of Kerala and the findings indicated that parental education, parental income, parental occupation, and socio-economic status on achievement were high,
positive and significant. Thejovathi (1995) found that socio-economic status influenced comprehension skill.

Shafeena's (1995) study on home learning environment and socio-economic status on correlates of Mathematics achievement of secondary school pupils and revealed that socio-economic status and Mathematics achievement were found to be positive and significant.

The objective of the study conducted by Thampuratti (1995) was to explore whether the three socio-economic status variables namely, parental income, parental occupation, and level of parental education were related to achievement in Mathematics of pupils high in creativity. It was found that all the three socioeconomic status variables were positively related to achievement in Mathematics within the high creative group.

Muhammad (1996) found a real relationship exists between parental education and pupil's achievement based on selected mathematical outcomes. The relationship was low but positive. Parental education has a direct influence on achievement. A real relationship was also found between parental occupation and pupil's achievement in Mathematics.

Patel (1997) investigated into the causes of underachievement in Mathematics among pupils having high numerical ability. Based on scores of subjects on marks obtained in Mathematics in terminal examination, a sample of 35 high achievers and 40 low achievers was selected by stratified cluster sampling method. The investigator collected information from pupils as well as parents. The chi-square test showed that
parental income, occupation and education had a large impact on academic achievement.

Chaudhari and others (1998) conducted an experimental study to see the effect of teaching strategies—Synectics Models (SM), Gaming Strategy (GS) and Traditional Method (TM) and socio economic status towards self concept. A sample of 162 learners of VI grade was divided into two experimental and one control group. The experiment was carried out for the period of 4 months.

Three treatments namely Synectics Model, Gaming Strategy and Traditional Method of teaching were taken as independent variables. Intelligence and age were taken as controlled variables. Interaction between treatments and socio economic status was not significant.

Khan and Jemberu (2002) studied the influence of family socio economic status on educational and occupational aspirations of high and low achieving adolescents. The present study was an attempt to investigate the influence of socio economic status on the educational and occupational aspirations of adolescents.

The sample consisted of 80 students, selected from four groups – middle status / high achieving, middle status / low achieving, lower status / high achieving and lower status / low achieving. Occupational and educational aspiration scales were administered for data collection and data were analyzed by means of ANOVA.

Results showed that the impact of socio economic status on education aspiration was minimal, its influence an occupational aspiration was larger. Achievement highly influenced educational aspirations, but its impact on occupational aspiration was insignificant.
Devi and Mayuri (2003) reported a study of family and school factors that affect the academic achievement of residential school children studying IX and X classes. The sample consisted of 120 children of Hyderabad city. An interview schedule was developed by the investigator to study the family factors; the questionnaire administered to the teachers was developed by the second author to study school factors. The result indicated that girls were superior to boys. Family factors like parental aspirations and socio economic status significantly contributed to academic achievement.

Bala (2011) investigated the socio-economic status and academic achievement of 250 students of 9th grade, which includes 125 boys and 125 girl students, out of which 60 girl students are taken from government schools, 65 girl students are taken from private schools, similarly 60 boys are taken from government schools, 65 boys are taken from private schools of district Sangrur of Punjab State.

Results of the analysis revealed a significant correlation between the two variables, and a significant difference in socio-economic status between students in government and private schools.

The objective of the study conducted by Mahigir (2012) is to determine the effect of parent’s socio economic background on Mathematics anxiety and academic achievement in high school students. The sample comprised 540 (268 boys and 272 girls) 8th, 9th and 10th grade high school students from Karnataka, Kerala and Tamil Nadu states.

The answers of students were evaluated using a Mathematics Anxiety Scale (MAS) and parent’s socio economic background estimated by a socio economic
background questionnaire. The results have revealed that among the parent’s socio-economic background variables, only parent’s education has a negative correlation with Mathematics anxiety and multivariate regression for this model revealed that combination of age, income and education can be a good predictor for Mathematics anxiety.

The second part of results also exposed that parent’s income and parent’s education has a significant positive correlation with Mathematics anxiety and multivariate regression for this model also revealed that combination of parent’s socio-economic background can be a good predictor for Mathematics anxiety.

2.6.3 Evaluation

Careful consideration of the socio-economic status of parents reveals that the higher the standard of living of the parents, the higher the academic performance of the child. These relationships have been documented in countless studies and seem to hold, no matter what measure of status is used (occupation of principal bread winner, family income, parents’ education or a combination of these).

Researchers have shown that family’s socio-economic status is based on parents’ income, education and occupation. Thus, a family with high socio-economic status is often more successful in preparing its young children for school because they typically have access to a wide range of resources to promote and support their development.

They are able to provide their young children with high quality child care, books and toys to encourage them in various learning activities at home. This in turn, will affect the students’ academic achievement in Mathematics. Fraser (1981)
examined the relationship between student socio-economic status (measured by parental occupation) and proficiency on these separate enquiry skill measures among a large sample of junior high school students and obtained a significant positive relationship.

According to Marjoribanks (2003), the high achievers had a high socio-economic status and they hailed from highly educated families. Lockheed, Fuller and Nyirongo (1989) show that students belonging to upper socio-economic status groups showed better academic achievement than students belonging to lower socio-economic status groups.

With reference to achievement in Mathematics, Howley (1989) and House (2002) contend that students learn better if they are from above average or average income family, with well educated parents who participate in the school’s education process and encourage their children to learn. They established that the socio-economic status of students affected their achievement.

For families in poverty, basic necessities are lacking, parents may place top priority on housing, clothing and health care. Educational toys, games and books may appear to be luxuries. This point was supported by Bookcock (2000) and Lloyd (2002) on the relationship between school performance and parental socio-economic condition where they conclude that students with high achievement values tend to come from families that are more educated and with higher status of occupation.

Taking a close view of the Indian scenario, it is evident that studies have attempted to study Socio-economic status as one of the correlates of academic achievement. Few studies have found boys performing better than girls (Hota, 1995;
Muhkerjee, 1997), a few others found girls doing better than boys (Paria 1996; Pal and Natarajan, 1997), while a few studies did not find any difference between boys and girls (Wangu and Thomas, 1995; Nagalakshmi, 1996; Chakrabarti, 2000).

The significant contribution of this variable to academic achievement and inconclusive results of previous studies necessitated further investigation of the significant influence of socio-economic status on the academic achievement of students in the Indian scenario.

2.7 CONCLUSION

Various factors have been adduced for poor performance of students in academics. The interest of students in academics have been related to the volume of work completed, students task orientation and skill acquisition, students personality and self-concept (More, 1973), feeling of inadequacy (Callaham, 1971), motivation and self-confidence (Aiken, 1976), anxiety (Aiken, 1970), shortage of qualified teachers, (Ohuche 1978, Ale, 1989), poor facilities, equipment and instructional materials for effective teaching (Oshibodu, 1984, Akpan 1987, Odogwu, 1994), use of traditional chalk and talk methods, (Oshibodu, 1988, Edwards and Knight, 1994), large pupils to teacher ratio (Allele-Williams 1988) subject phobia (Georgewill, 1990) and so on.

Wentzel (1998) stated that interest in activities tends to increase the likelihood that individuals formulate goals relating to that activity and invest time and effort to achieve them. Moreover, individual characteristics such as intelligence, cognitive styles, and personality play an important role in learning and instruction as does the context of learning.
Other research findings have shown that individual students’ characteristics variables such as motivational orientations, self-esteem and learning approaches are important factors influencing academic achievements. In the effort to improve students cognition and affective outcomes in school learning, educational psychologists and educators, have continued to search for variables (personal and environmental) that could be manipulated in favour of academic gains.

Thus the present review provides a strong background for initiating an investigation about the Personal and Environmental Factors influencing academic achievement among students at the secondary level.

The following chapter presents a detailed description of the research design, hypotheses, research instruments selected and the procedures to be followed in the conduct of research.