CHAPTER-2

REVIEW OF RELATED LITERATURE
CHAPTER-II

REVIEW OF RELATED LITERATURE

This chapter deals with the internal review of the literature. It is an attempt to discover relevant material published in the problem area under study. This covers the empirical research studies done previously in the problem area. The studies conducted during the last few decades in the field of achievement that are more relevant and pertinent to the present investigation are discussed in this chapter.

2.1. Purpose of related literature

Review of related literature, provides a comprehensive understanding about what has already been known about a topic. It forms the basis for subscribing rationale for having chosen the problem for the study. Review of related literature allows the researcher to acquaint himself with the current knowledge in the field or area in which, he is going to conduct his research. It enables the researcher to define the limits of his study. It also helps the researcher to delimit and define his problem. The knowledge of the related literature brings the researcher up-to-date on the work, which others have done and thus state the objectives clearly and concisely.

By reviewing the related literature the researcher can avoid unfruitful and useless problem areas. He can select those areas in which positive findings are very likely to result and his endeavors would be likely to add to the knowledge in a meaningful way. Through the review of related literature, the researcher can avoid unintentional duplication of well established findings. It is no use to replicate a study, when the stability and validity of it’s results have been clearly established.

The review of related literature gives the researcher an understanding of the research methodology, which refers to the way, the study is to be conducted. It helps the researcher to know about the tools and instruments, which proved to be useful and promising in the previous studies. It also provides an insight into the statistical methods, through which the validity of the results is to be established.

The important specific reason for reviewing the related literature is to know about the recommendations of the previous researchers, listed in their studies for further research.
Good, Barr and Scates (1941) analysed the purposes of review of related literature as given under.

- To show whether the available evidence material solves the problem adequately without further investigation.
- To provide ideas, theories, explanations or hypotheses valuable in formulating the present study.
- To suggest the research methods to the problems.
- To locate comparative data useful in interpretation of the results.
- To contribute to the general scholarship of the investigator.

2.2. Need to know about related literature

For any worthwhile study in any field of knowledge the research worker needs an adequate familiarity with the library and its many sources. Only then will an effective search for specialized knowledge be possible. The search for reference material is a time consuming but very fruitful phase of research programme. Every investigator must know what sources were available in his field of enquiry, which of them, he is likely to use and where and how to find them. (Sukhia et al, 1980)

According to Best (1959), Practically all human knowledge can be found in books and libraries. Unlike other animals that must start a new life with each generation, man builds up accumulated and recorded knowledge of the past.

Availability of adequate information about educational thought and research does not by itself result in possession of its knowledge by investigator. The investigator may be very keen to possess up-to-date information regarding his field, and may try hard to be posted up-to-date, and yet fails to get enough information due to non-existence of source of such information (Sukhia, 1980).

In the field of education, as in the other fields too, the research worker needs to acquire up-to-date information about what has been thought and done in the particular area from which, he intends to select a problem for research. But it is found that generally the extent of important, up-to-date information regarding educational research and ideas possessed by educational workers, is very limited (Sukhia, 1980).
The investigator should strive hard to be posted with necessary information, relating to his field of enquiry, basing on which, he has to build up his findings.

2.3 Academic Achievement in general

Academic achievement is of paramount importance, particularly, in the present socio-economic and cultural contexts. Obviously in the school/college level, great emphasis is placed on the achievement, right from the beginning of formal education. The school performs the function of selection and differentiation among pupils on the basis of their scholastic achievement and other attainments, which open out avenues for advancement in life.

The central aim of all formal educational efforts is academic achievement on the part of the students. Even though, it is desirable to have all-round development, as the goal of educational process, where academic achievement would be just one of the dimensions; but in most of the educational institutions, academic achievement continues to be the exclusive concern, narrowing down the very concept of educational process. Nevertheless, it is important to note that achievement in curricular subjects is not an independent phenomenon; rather it is influenced by a number of factors, some of which are personal to the individual, while many others are located in the environment, in which learning takes place.

Physical sciences is one of the subjects included in the school curriculum. The main concern of the investigator is to know various socio-demographic and Psychological factors which influence the achievement in physical sciences, which is considered to be one of the most important subjects in the school study. In this context, the investigator has presented some of earlier studies made in this direction.

There are number of studies relating to the scholastic/academic achievement done in the past. However only the literature pertaining to the independent variables used in the present study is referred in the succeeding pages.

In general terms, achievement refers to the scholastic achievement of the student, at the end of an educational programme. It is to this concept that the term achievement is referred here. To maximize the achievement within a given set up, therefore is the goal of every educationist, a teacher or an educational administrator. Research has been to our aid, looking into what variables – personal, home, school etc. promote achievement and what are the determinants to it.
A glance at the related literature reveals that a number of variables have their impact on the academic achievement or in particular achievement in physical sciences.

The present investigation took note of the above facts and attempted to treat some of the prominent intellectual and non-intellectual factors as Psychological and sociological factors and coined it as Psycho-sociological factors. The influence of certain Psycho-sociological factors on the scholastic achievement in physical sciences of IX class students is investigated.

2.4 Under Achievement in Physical sciences

"Human talent is our greatest national resource. Its conservation and development should, therefore, be a primary concern of every one. When human talent is wasted, every one is deprived. When it is rightly developed, every one is benefited" Harriot (1963)

The wastage of talent is mainly observed in under achievers. In fact, under achievement is a crucial problem that needs urgent solution, so as to enable the society, to derive optimum benefits from the system of education. Though it is necessary to identify under achievement at different stages, during the course of the students educational career, there is a strong view that it is unfair to label a youngster as under-achiever. For once he is labeled so, he remains such for ever and very often the label is erroneous in many respects. This is a misconception in students, where they are backward or dull. A child, who is lagging behind in class, is considered backward. On the other hand, a child who does not fair well in class, even though his level of intelligence is normal or even above normal, is also considered to be backward, only because his educational achievements are not satisfactory. In many cases the teachers are not able to distinguish one from the other, and label both these types of children under the category of "Dull children". Under such circumstances, even the child of normal intelligence becomes unable to exert himself, as he is made to believe that he is dull.

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The under-achievers have restricted themselves opportunity for higher education. At the same time, they have difficulties in obtaining a job. Many times these under-achievers who could have been of great use to the society, misuse their potentialities and become a nuisance to the others. They can create tension in the society by their violent behavior.

The studies have proved that the large number of drop-outs at school level is because of under-achievement, especially in physical sciences is a single subject which has caused maximum wastage. Kothari commission (1966) while contemplating on the problem of underachievement has observed: “The group of under-achievers who are not intellectually dull but are not at least of average and may even be superior ability. The failure of such children should be of great concern to developing country like India which can not remain indifferent to this loss of potential man power within the higher ability range. Several factors like physical, intellectual, emotional and environmental contribute to the failure of under achievers to come up to the level of their talent abilities”.

Dr. Akre pointed out that there are 18.46 percent of under-achievers in mathematics at secondary school level. It is a very serious problem, because of importance of mathematics in daily life. Especially in new vista of 21st century, mathematics is one of the important subjects to enable to fit oneself into a changing world and make one ready to adopt one self to new circumstances. Right from human civilization, use of mathematics is very close for development of man. At the present ‘competitive era’, mathematics may be offered in various competitive examinations. It gets witnessed for ‘all-rounder personality’ of the child, one who knows mathematics. Physical sciences are closely related to mathematics.

Under achievers are the lots of large students population of our country, who are just neglected and left unmotivated, thus causing a great loss to the society, collectively and individually. Hence it is our duty to attend these under achievers and challenge to our educators, psychologists and national leaders. Hence necessary steps are to be undertaken to find the root causes for this under-achievement so as to eliminate the problem of under-achievement, thus reducing the wastage of talent.

Some of the earlier studies conducted on the impact of various Psychosociological variables on the achievement are presented in the following pages.
2.5 Earlier studies relevant to the present study.

There are a number of studies relating to the scholastic/academic achievement done in the past. However only the literature pertaining to the independent variables, used in the present study, is presented here under.

2.5.1 Achievement and Educational divisions.

Educational divisions may have influence on scholastic achievement of the students. On the review of literature, the investigator has not found relevant studies with respect to the educational division and scholastic achievement.

2.5.2 Achievement and Age

Age of the students may have some relationship with their scholastic achievement. Some of the related studies are presented here.

Srivastava (1967) found that the relationship between the age and academic achievement is insignificant.

Har Govinda Gupta (1968) reported that no significant relationship existed between the age of the pupils and their academic achievement.

Asud Ulla, Prakasham et al. (1982) revealed that the age of the pupils was found to be not effective in bringing any variation in scholastic achievement.

Vyas (1982) reported that age of B.Ed students was significantly related to the total marks.

Quraishi and Bhat (1986) found that there is no significant relationship between the age and academic achievement.

Dowson et al (1999) observed that age is strongly related to the academic motivation and achievement.

Biswas (2001) investigated into the relationship between the age and academic achievement of distance education learners and found that age has no effect on their performance.
Govinda Reddy (2002) found that there is no significant relationship between the age and total marks of D.Ed students.

Suneetha and Mayuri (2002) found that age has significant influence on academic achievement.

Manchala (2007) found that age has significant influence on the academic achievement of B.Ed students.

Krishna Reddy (2008) investigated that age has no significant influence on the scholastic achievement of X class pupils in mathematics.

Banarugu (2009) showed that age has significant relationship with academic achievement. Age \( (r = 0.33, \ p < 0.01) \) was inversely related with respondents academic achievement.

Fayegh, Yousefi & Rumaya Juhari (2010) studied that age and academic achievement were significantly correlated.

Junani & Redzuan (2010) studied that age and academic achievement were significantly correlated \( (r = 0.23, \ p < 0.000) \).

It is observed from the above studies that there is controversial results showing the relation between the age and academic achievement of the students. Hence age is taken as one of the variables in the present study.

2.5.3. Achievement and Annual income

Annual income of the family may have some impact on the scholastic achievement of students. Studies related to annual income and achievement, conducted earlier, are presented here under.

Fraser (1959) found higher correlation between income and scholastic achievement \( (r = 0.44) \), than between income and IQ \( (r = 0.35) \).

Wiseman (1964) did not find any significant influence of father's income on the brightness of the child in the school.

Gopal Rao (1965) found a significant and positive correlation between economic status and scholastic achievement \( (r = 0.39) \).
Har Govinda Gupta (1968) found that except in the high intelligent group a significant relationship between academic achievement and their father's income, seems to exist, than in the moderate and low income groups.

Jagannadhan (1986) conducted a study on high school pupils and found that father's income had much impact on the academic performance.

Vijayakumar Sethi (1990) observed that the parents of high achievers of all four courses engineering, medicine, law and teaching were generally had better income than those of low achievers.

Bujendra Nath Panda (1991) found that IX and X class students with high income parents were better in their academic achievement, than those of students with low income parents. The studies of chopra (1964) and Khanna (1980) strengthened the above findings.

Jayachandrama Nadiu (1998) found that the influence of father's income is not significant on the academic achievement of learners from formal education (N=300); where as mother's income has significant influence on the academic achievement of learners of non-formal education (N =300) and total sample (N =600).

Krishnamoorthy (1999) observed that the economic conditions of the family has caused no significant differences in respect of academic achievement in History of the second year higher secondary students.

Govinda Reddy (2002) found that the family income has significant influence on academic achievement of DIET Students (N = 600).

Selvam and Sundaravalli (2002) conducted a study on 300 higher secondary students and found that the academic achievement has significant relationship with their economical, educational and vocational problems.

Thomas (2005) : Indicated that family income affects academic achievement. He indicated that students with low family income had low academic achievement.

Manchala (2007) found that ‘Annual income’ of the family has significant influence on the scholastic achievement of B.Ed.students.
Krishna Reddy (2008) found that 'Annual income' of the family has significant influence on the scholastic achievement of X class pupils in mathematics.

Ekber Tomul and Kzim Celik (2009) investigated the effects of familial variables (education of the parents and family income) on the academic achievement (in mathematics, reading skills and science) of 15 years – old students in Turkey with respect to regional diversity. The study was carried out based on the data obtained from the PISA 2006 research in Turkey. The independent variables of the research are education level of the parents, and average annual income; the dependent variables the students proficiency levels in science, mathematics and learning skills. Familial variables affect students academic achievement in mathematics most and their reading skills least. As regional developmental levels decreases, effects of familial variables on academic achievement decreases as well.

Sanadaj & Junani (2010) showed that family income significantly affected academic achievement [ ( F(2) = 19.17; p = 0.000) ].

From the above observations, it is clear that there is a difference in results with respect to the variable income of the family. Hence 'income of the family' has been included as one of the variables in the present study.

2.5.4. Achievement and Father's Education

Education of the father may have some influence in the academic achievement of the pupils. General assumption is that educated fathers would assist their children in their studies in the form of counseling and guidance. Hence there may be some relationship between the scholastic achievement and father's education. Some of the studies reviewed in this regard are given below.

Fraser (1959) found that there exists significant relationship between academic achievement and father's education.

Pavithran and Feroze (1965) found that there is no significant relationship between the scholastic achievement of X class pupils and the education level of the fathers or other members of the family.
Har Govinda Gupta (1968) observed that in the case of all the three (i.e.) high, moderate and low intelligence groups of VIII class pupils, no significant relationship seem to exist between subjects academic progress and their father's education.

Sarma (1984) found that father's and mother's education is highly associated with the scholastic achievement.

Jagannadhan (1986) found that high school pupils academic performance and father's education are significantly related.

Vijaya Kumar Sethi (1990) found that father's education has got much impact on the academic achievement of their sons and daughters studying in professional course (or) engineering, law, medicine and teaching.

Shamsuddin (1996) found that most of the secondary school male teachers were from families where fathers were not highly qualified, whereas most of the female teachers were from families with highly qualified fathers.

Krishnamurthy (1999) found that there is significant relationship between father's education and the academic achievement in history of second year higher secondary students. This gets support from earlier studies: Chatterjee et al. (1971), Khanna (1980) and Rajput (1985).

Grouws, Douglas and CebullaKristis (2000) stated that there is a positive relationship between educational level of the parents and students' performance in mathematics. But there is a considerable overlap in the performance of students from different educational background. Infact many students whose parents had a high school education or less scored higher than students whose parents had a university degree. Students whose parents were university educated, performed about two-thirds of a proficiency level higher than those whose parents had no more than high school education. However there is one important nuance to add to this finding. Students whose parents worked in an occupation that required advance mathematics skill, infact, performed almost one proficiency level higher than students whose parents had similar education levels and income but whose occupation did not require advanced mathematics.
Barbara and Rupa Das (2002) reported that

1. Backward caste children of literate parents scored higher than the children of illiterate parents.

2. The academic achievement of first generation learners (i.e.) children of illiterate parents was found to be the lowest.

3. The achievement of girls was found to be comparatively better than that of boys.

Chakrabarthish and Sharmista (2002) observed that the education level of the family influenced female learners (N=320) literacy achievement attending to literacy centres.

Gnanasundararatharasu and Vincent De Paul (2002) found that due to video assisted instruction, there is no significant difference in mean achievement scores in social science among the primary school pupils of parents with below metric and those of above metric.

Govinda Reddy (2002) investigated that

1. Father's education and mother's education have significant influence on the academic achievement of DIET students.

2. Brother's education has significant impact on the total academic achievement of DIET students.

Panda (2002) revealed that V class pupils of college educated fathers had shown better achievement in mathematics.

Manchala (2007) found that, there would be no significant influence of 'Father's education' on scholastic achievement of B.Ed students.

Krishna Reddy (2008) found that, father's education has significant influence on the scholastic achievement of X class students in mathematics.

Muola (2010) studied relationship between academic achievement motivation and home environment among standard eight pupils. He found that there is significant relationship ($r = 0.15$) between father's education and academic achievement motivation.
It is noticed from the above studies that very few studies are found showing relationship between the scholastic achievement of students and education of father. Hence father’s education is included as one of the variable in the present study.

2.5.5. Achievement and Father’s Occupation

Scholastic achievement of the students may vary according to the occupational status of father. Some of the studies reviewed are presented here under

Pavithran and Feroze (1965) found that the occupational status of the parents highly accelerates the scholastic achievement of X class students.

Har Govinda Gupta (1968) found no significant relationship between academic achievement and occupation of the father in the case of VIII class students, except in the case of moderate intelligent group. Other research studies namely Fraser (1959), Alexander (1965) and Smith (1966) corroborate these results.

Rangaswamy and Visvesvaran (1977) reported that no definite pattern of correlation could be noticed between the academic achievement and occupational status of the family of XI class students.

Jagannadhan (1986) found much impact of father’s occupation on the achievement of students

Bhujendranath Panda (1991) observed that IX and X class pupils (N=280) with skilled professional parents were found to be better in their academic achievement when compared with their counterparts. This finding is in agreement with the findings of Jammar (1964).

Jayachandrama Naidu (1998) found that the influence of father’s occupation is not significant on the academic achievement of learners from formal education (N=300); whereas father’s occupation has significant influence on the academic achievement of learners from non-formal education (N=300).

Govinda Reddy (2002) reported that the employment of father, brothers and sisters have significant effect on the academic achievement of DIET students in practical work and practical examination (N=600).
Panda (2002) investigated that father's occupation did not have any significant impact on the learning achievement of V class pupils (N=882) in rural, urban and tribal primary schools.

Manchala (2007) found that father's occupation has significant influence on the scholastic achievement of B.Ed students.

Krishna Reddy (2008) found that father's occupation has significant influence on the scholastic achievement of X class students in mathematics.

Muola (2010) found significant relationship (r = 0.22) between father's occupation and academic achievement motivation of standard eight pupils.

2.5.6 Achievement and Mother's Education

Educational status of the mother may have influence on the scholastic achievement of the students. If mother is educated, it would have an impact on the child's performance. Some of the studies reviewed are presented hereunder.

Pavithran and Feroze (1965) found that there is no significant relationship between scholastic achievement and educational status of the mother in the case of X class students.

Har Govinda Gupta (1968) found that there is no significant relationship between academic achievement of pupils and their mother's education.

Ranga Swamy and Visveswaran (1977) reported that no definite pattern of relationship between the academic achievement of pupils and educational status of parents, is noticed.

Sarma (1984) showed that mother's education is highly associated with the academic achievement of their sons and daughters.

Jagannadhan (1986) conducted a study on high school pupils and found that mother's education is not associated with the achievement of the pupils whereas father's education has impact on the scholastic achievement.

Vijaya Kumar Sethi (1990) revealed that the parents of high achieving students of all the four professional groups i.e., engineering, law, medicine and teaching are better qualified than those of low achieving students.
Bhujendranath Panda (1991) concluded that IX and X class pupils with college educated mothers are having better academic performance than illiterate or elementary class educated mother’s.

Krishnamurthy (1999) revealed that there is significant relationship between academic achievement and education of mother.

Borabora and Rupa Das (2002) reported that backward classes children of literate mothers showed better academic achievement, than the children of illiterate mothers.

Chakrabarthi and Sharmistha (2002) observed that educational level of the mothers influenced female learners’ literacy achievement attending the literacy centres.

Gnanasundararathas and Vincent Depaul (2002) inferred that due to video assisted instruction, there is no significant difference in mean achievement scores among the primary school pupils whose mother’s qualification is below metric and those above metric.

Govinda Reddy (2002) investigated that mother’s education has significant effect on the academic achievement of DIET students both in theory and total achievement.

Hijazi and Naqvi (2006) conducted a study on the student performance by selecting a sample of 300 students (225 - males, 75 - females) from a group of colleges affiliated to Punjab University of Pakistan. It was found that factors like Mother’s education and Students family income are highly correlated with the student academic performance.

Manchala (2007) found that, mother’s education has significant influence on the scholastic achievement of B.Ed students.

Krishna Reddy (2008) found that, mother’s education has significant influence on the scholastic achievement of X class students in mathematics.

Moula(2010) found that there is significant relationship \( r = 0.14 \) between mother’s education and academic achievement motivation of standard eight pupils.
It is noticed from the above studies that very few studies are found showing the relation between scholastic achievement of the students and mother's education. Hence mother's education is included as one of the variables in the present study.

2.5.7. Achievement and Mother's Occupation

Scholastic achievement of students may vary depending upon the occupation of mother. Some of the earlier studies are shown hereunder.

Pavithran and Feroze (1965) found that the occupational status of the parents highly accelerates the scholastic achievement of X class students.

Ford Dawson (1970) found that the employment of mother had no effect on the achievement of children either in a positive or negative direction.

Rangaswamy and Visvesvaran (1977) reported that no definite pattern of correlation could be noticed between the academic achievement and occupational status of the family of XI class students.

Bhujendranath Panda (1991) observed that IX and X class pupils (N=280) with skilled professional parents were found to be better in their academic achievement when compared with their counterparts. This finding is in agreement with the findings of Jammar (1964).

Ayishabi and Moly Kuruvilla (1998) found that there is no significant difference between mean scores of achievement motivation of pupils of IX standard of working and non-working mothers, for the total sample (N=871). The findings are congruent with the findings of Stein (1973) and Bal (1988) who found a positive effect of maternal employment on the achievement motivation of adolescent and college going children.

Goswami and Meenakshi (2002) found that children studying IX class with working mothers were more achievement oriented than the children of non-working mothers. Boys with working mothers were most achievement oriented than girls with working mothers.

Manchala (2007) found that mother's occupation has significant influence on the scholastic achievement of B.Ed students.
Krishna Reddy (2008) found that, mother's occupation has significant influence on the scholastic achievement of X class students in mathematics.

Muola (2010) found significant relationship ($r = 0.26$) between mothers occupation and academic achievement motivation of standard eight pupils.

2.5.8. Achievement and Number of the children in the family

It is assumed that number of children in the family may have relation with scholastic achievement of students. Some of the earlier studies are presented hereunder.

Bhujendranath Panda (1991) observed that IX and X class pupils coming from small families were better in their academic achievement, when compared to that coming from big families.

Jayachandra Naidu (1998) reported that family size has no significant influence on the academic achievement of learners from formal education centres ($N = 300$); whereas family size has significant influence on the academic achievement of total sample i.e. formal and non-formal education learners ($N = 600$).

Manchala (2007) found that there would be no significant influence of total children to the parents on the scholastic achievement of B.Ed. Students.

Krishna Reddy (2008) found that there would be no significant influence of total children to the parents on the scholastic achievement of X class students in mathematics.

From the above, it is clear that there were limited studies on the effect of family size on the academic achievement. Hence size of the family is included as one of the variables of the present study.

2.5.9. Achievement and Birth Order

Birth order means, the child born first, second, third and so on. Birth order may have some relationship with the academic achievement of the students. The investigator included Birth order as one of the variables in the present study. Some of the earlier studies are presented hereunder.
Jagannadhan (1983) found that the birth order of V, VI and VII class pupils did not have any significant influence on their academic achievement.

Bhujendranath Panda (1991) found that birth order of IX and X class students did not have any significant influence on their academic achievement.

Govinda Reddy (2002) revealed that the birth order of DIET students have significant influence on the academic achievement in practical and in total achievement.

Manchala (2007) found that birth order did not have significant influence on scholastic achievement of B.Ed students.

Krishna Reddy (2008) found that birth order did not have significant influence on scholastic achievement of X class students in mathematics.

Tenibiaje Joseph (2009) found that family size and birth order have no significant influence on academic performance of pre degree students of the University of Ado-Ekiti, Nigeria.

2.5.10. Achievement and total members in the family

It is assumed that total members in the family may have some impact on the studies of the children and hence on the academic achievement. Some of the earlier studies are presented hereunder.

Bhujendranath Panda (1991) observed that IX and X class pupils coming from small families were better in their academic achievement, when compared to that coming from big families.

Jayachandrama Naidu (1998) reported that family size has no significant influence on the academic achievement of learners from formal education centres (N = 300); whereas family size has significant influence on the academic achievement of total sample i.e. formal and non-formal education learners (N = 600).

Manchala (2007) found that, family size did not have significant influence on the scholastic achievement of B.Ed. Students.
Krishna Reddy (2008) found that, family size did not have significant influence on the scholastic achievement of X class students in mathematics.

Tenibiaje Joseph (2009) found that there is no significant difference between family size and academic achievement of students in higher institution.

Muola (2010) found significant relationship ($r = 0.26$) between family size and academic achievement motivation of standard eight pupils.

From the above it is clear that there were limited studies on the effect of family size on the academic achievement. Hence size of the family is included as one of the variables of the present study.

2.5.11. Achievement and sex

In a male dominated society, girls are deprived in all aspects in the society. Pre-determined notion of Parents, Partiality in treatment, restrictions in their mobility, lack of freedom, Social evils like dowry system, have been the biggest impediments in the progress of the girls in the field of education. Sex is one of the important variables in the academic achievement.

The following are some of the studies reviewed on this aspect.

Farquhan (1963) observed no significant relationship between academic achievement and sex of XI grade High School students.

Pavithran and Feroze (1965) found that there is no marked difference between boys and girls in the scholastic achievement of X class pupils. Both are more or less on the same levels of achievement.

Padmanabhan Nayar and Visweswaran (1966) found that there was significant difference between the achievements of urban boys and girls of X class. But however, they found that there existed a marked difference in the achievement of rural boys and girls.

Balasubramanian and Feroze (1966) found that there existed no significant difference in the achievement of boys and girls of urban locality, while there was some marked difference in the achievement in mathematics between boys and girls of rural areas of X class.
Gupta (1968) observed no significant differences between boys and girls of IX class in three variables (ie) academic achievement, intelligence and economic status.

Hargovinda Gupta (1968) observed that except, in the high intelligence group of VIII class Pupils, a significant relationship between academic achievement and sex appears to exist in both the moderate and low intelligence groups.

Vasantha Ramkumar (1969) found that there existed significant differences in the achievement of boys and girls.

Aggarwal (1974), Sharma (1976), Tiwari (1980) and Dubey (1982) have found that girls performed better than boys in all the school subjects.

Rangaswamy and Visveswaran (1977) found that there was no significant difference in the achievement of sports men and non sports men in SSLC (XI class) Pupils examination. However they said that girls who participate in sports are better achievers than boys. Sex difference is however not significant in case of non sports boys and girls.

Roach (1979) conducted a study on 206 boys and 212 girls from 5(five) urban elementary schools in Jamaica and found that the girls scored significantly higher than boys on a mathematics achievement test.

Dhalakia (1980) found no significant difference in the achievement of male and female teacher trainees.

Aruna (1981), and Chanda and Sunanda Chandira (1985) have reported that boys had better achievement than girls.

Asudullakhan et al. (1982) showed that sex of Pre-university students (XII class) was found to be not effective in bringing about any variation in the scholastic achievement.

Gupta (1983) found that girls on the whole, had better achievement motivation than boys and had higher academic achievement than boys. The relationship between achievement motivation and academic achievement is positive and significant.
Jagannadhan (1983) reported that sex does not have any significant influence on the academic achievement of V, VI and VII class pupils.

Gopalacharyulu (1984) found no difference in the achievement levels between male and female teacher Trainees (TTIs).

Watkins, Hattie and Astilla (1984) showed that there existed significant influence of sex, self-concept and intelligence on academic achievement of pupils.

Quraishi and Bhat (1986) conducted a study on 200 undergraduate students of M.S. University of Baroda and found that sex has a significant effect on academic achievement.

Ramaswamy (1990) observed no significant difference between boys and girls of high and low achievers.

Verma and Gupta (1990) revealed that VIII class boys belonging to the high environment group achieved significantly greater mean than boys belonging to the low environment group. However no significant differences were found in the case of girls of high, medium and low environment groups.

Bujendranath Panda (1991) observed that IX and X class boys of rural areas and urban girls were better in academic achievement than their counter parts.

Vijayalakshmi and Hemalatha Natesan (1992) found that XI class girls (N=50), have better mean academic achievement than boys (N=50) which is significant at 0.01 level.

Rama Rao and Sinha (1993) reported that the performance of girls in examinations at all levels of higher education was much better than that of boys.

Gilson and Judith (1999) observed that large differences were not found in mathematics achievement, quantitative ability of VIIIth grade girls from single sex schools or girls from Co-educational schools.

Sood (1999) in her study found that although girls achieved somewhat higher than boys, yet insignificant differences exist in their mathematical achievement.
Natesan and Susila (2000) reported that there is a significant difference at 0.01 level in the scholastic achievement of V standard boys (N=300) and girls (N=300) in Environmental Science.

Erllekka kumar (2001) found that there was no significant deference in achievement in Physics between boys and girls: 1. The mean scores of achievement related motivation was higher for Girls than boys. 2. The positive correlations were found between the achievement related motivation and achievement marks in physics in respect of girls students studying in Tamil medium.

Govinda Reddy (2002) found that sex does not have any significant influence on the academic achievement of DIET students (N=600).

Panda (2002) observed that V class boys (N=478) and girls (N=404) studying in Urban, Rural and Tribal areas did not differ in their achievement in all the school subjects.

Suneetha and Mayuri (2002) reported that gender was found to be more important variable than IQ in deciding the high academic performance, as more girls were found among top ranking students of classes IX and X.

Gakhar and Aseema (2004) found no significant difference in the academic achievement of boys and girls of X class, in their Previous annual examination (Class IX).

Mohammad Khayyer and Philip Delaccy (2005) found that girls academic achievement was higher than boys academic achievement.

Abiam and Odok (2006) found that there is no significant relationship between gender and achievement in number and numeration, algebraic process and statistics.

Manchala (2007) found that 'Sex' has significant influence on the scholastic achievement of B.Ed students.

Krishna Reddy (2008) found that 'Sex' does not have significant influence on the scholastic achievement of X class students in mathematics.
Paavola Sapiyonja (2008) stated that a research group from Kellago school of management of North Western University headed by professor Paavola Sapiyonja conducted a study on the Proficiency in mathematics of boys and girls below the age of 15 years over 40 countries. The research group made a study on 2.70 lakhs students. The details of the study were given, by “Daily Telegraph”. As per the details given; in the worldwide average rate of efficiency in mathematics, girls average rate is 2% higher than boys. In Britan girls, average rate of scoring is 0.7% less than boys. Where there is no much encouragement for girls education, like in Tourkey, the girls average performance is 4% less than boys. If equal opportunities are given, the difference in scoring between boys and girls can be reduced.

Pondey and Faiz Ahmad (2008) conducted a study on a sample of 621 students of XI standard (Male adolescents = 417 and Female adolescents = 204) from, Azamgarh (Dt), Bhihar (State) and found that there is no significant difference between male and female adolescents on the measures of academic performance.

Subramanyam, and Srinivasa Rao (2008) revealed that boys and girls do not differ significantly in academic achievement.


Sam Willam Bassey and Joshua (2009) concluded that there is a significant gender differences in rural students of mathematics achievement in cross river state Nigeria.

Noorjehan & Wajiha (2009) concluded that many factors like mathematical creativity, attitude towards Mathematics and achievement motivation and low level of anxiety, influence the academic achievement in mathematics at secondary stage and recommend the inclusion of curricular and co-curricular programs to improve performance in mathematics.

Umadevi (2009) concluded that there is a positive relationship between emotional Intelligence and academic achievement. Male and female, arts and science students do not differ in emotional intelligence and academic achievement.
Chandran & Lim (2010) concluded that cognitive ability, gender, pre-maturity and social factors contribute to poor academic achievement during the early school years.

From the above observations, it is clear that there is a difference in the results with respect to sex and academic achievement and hence sex has been included as one of the variables in the present study.

2.5.12. Achievement and Religion

Cultural background of the students may have some influence on the academic achievement of the students. Community / religion may also have some impact on the scholastic achievement. With this view, studies related to community / religion and achievement are presented hereunder.

Nair (1974) and Asudullah Khan et al. (1982) found that religion of pre-university students (XII class) was found not to be effective in bringing any variation in the scholastic achievement.

Radhamohan (1998) reported that there is significant difference in the high school students academic achievement belonging to different religions viz., Hindu, Muslim and Christian.

Kobil-Palcic et al (1999) showed that French pupils scholastic achievement was more, when compared to that of Slovenian pupils.

Regnerus Mark’s (2000), study indicates that respondents’ participation in church activities is related to heightened educational expectations and those more intensely religious students score higher on standardized Maths/reading tests.

Haynie’s (2004) study on the association between parent/child religious homogamy and delinquency by examining how adolescent academic achievement relates to intergenerational religious dynamics between parents and children.

Manchala (2007) found that religion does not have significant influence on the scholastic achievement of B.Ed. Students.

Krishna Reddy (2008) found that ‘Religion’ has significant influence on the scholastic achievement of X class students in mathematics.
Benjamin Mckune and Hoffmann (2009) indicate that the association between adolescents, religiosity and academic achievement is largely due to family, social capital, but the association between academic achievement and religious homogamy between parents and adolescents is largely independent of family and community social capital. In particular the highest achievement is predicted when parents and adolescents report similar levels of religiosity. The lowest achievement is predicted when parents report high religiosity and adolescents report low religiosity.

Rohani & Ahmad Tormizi (2010): Studied that illustrated and identified significant relationship between students beliefs about importance of mathematics and beliefs on one's ability in mathematics with mathematics achievement.

Form the above shown studies, it is clear that there were limited studies showing the relationship between achievement and Religion. Hence Religion is included as one of the variables in the present study.

2.5.13. Achievement and Caste

In Indian societies caste system is special social evil. There are reservations in the name of the caste in educational institutions for making admissions and in the recruitment to the various posts in the government service. There are many associations in our societies in the name of the castes, for their upliftment.

Hence the investigator is interested in knowing the effect of caste on the achievement of marks in various subjects and particularly in physical sciences at secondary level. Hence caste is included, as one of the variables in the present study.

Some of the earlier studies made in this direction are presented here under.

Dubey and Mishra (1977) have reported that the school environment was significant predictor of academic achievement among upper caste, backward caste, the S.C and Muslim girls.

Jagannadhan (1983) observed that the academic achievement of forward caste pupils of V, VI and VII classes is significantly better than that of backward caste pupils.
Gopalacharyulu (1984) found that different castes of student teachers of TTls had same achievement of three variables: Theory, Practical and total achievement.

Kumaraswamy (1992) found that caste of the adult learners did not have any influence on their academic achievement in the case of reading, writing, arithmetic (3Rs) as well as total achievement.

Lidhoo and Khan (1990) Mehata (1992) and Sing (1993), have found that the academic performance of upper castes was significantly higher than that of scheduled castes, scheduled Tribes and Back ward castes.

Jayachandrama Naidu (1998) observed that the influence of caste is not significant on the academic achievement of learners (N=300) of formal education; where as caste has significant influence on the academic achievement of learners (N=300) of non-formal education and the total sample (N=600).

Dubey and Mishra (1999) made a study to find the determinants of academic success of scheduled caste (SC), Backward castes (BC), Muslims (MS) and upper castes (UC) of rural high school boys (N=400). Results suggest that there was no consistency in the prediction of academic success across the four groups.

Dash (2002) reported that ST students had the lowest percentage of passes in Higher Secondary Certificate (HSC) examinations in the state of Orrissa. A considerable number of X class students of high schools, managed by Tribal welfare Department, Govt of Orissa were detained and were not allowed to take H.S.C. examination.

Govinda Reddy (2002) found that caste does not have significant influence on the achievement in Theory and total (Theory and practical) achievement of DIET students (N=600)

Manjula (2002) revealed that the achievement of Tribal students was low, except in language and mathematics, which was only on border line of average performance.

Manchala(2007) found that caste has significant influence on the scholastic achievement of B.Ed students.
Krishna Reddy (2008) found that caste has significant influence on the scholastic achievement of 10th class students in mathematics.

2.5.14. Achievement and Nativity/Locality

This variable is a neglected one in educational research, particularly the influence of nativity on achievement in physical sciences. As the investigator is interested in physical sciences, nativity is included as one of the variables in the present study to examine its impact on the achievement in physical sciences. Some of the earlier studies in this direction are presented below.

Pavithan and Feroze (1965) observed that the scholastic achievement of urban students of X class is significantly better than rural students in all the subjects.

Jagannadhan (1983) concluded that the pupils of V, VI and VII classes from urban areas had better achievements than rural pupils.

Narayana Koteswara and Ramachandra Reddy (1998) showed that there is significant influence of locality on the reading achievement of high school pupils. Pupils in residential schools performed better than pupils in rural and urban. Among the three groups, pupils from rural areas were the lowest in their achievement.

Salim Kumar (1998) reported that locality has significant influence on the achievement in biology of secondary schools pupils (N=700) at 0.01 level.

Krishna Moorthy (1999) found that locality has caused no significant difference in respect of academic achievement in History.

Prakash (2000) in his study concluded that urban students were better in their mathematical achievement when compared to the rural students.

Naresh Kumar Gupta (2002) reported that the achievement of majority of V class pupils (N=946) in slum area schools has been observed to be unsatisfactory, not only in mathematics but also in all other subjects.

Ponda (2002) revealed that V class rural students had shown better performance in all the school subjects, when compared to their urban and tribal classmates (N=887)
Anice James and Marice (2004) studied the academic achievement in science among XI standard students (N=470). Students hailing from rural (N=199) and urban (N=271) areas have the same type of academic achievement in Science.

Gakhar and Assema (2004) found that X class rural students significantly achieved better in their annual previous examination (IX class), than the urban students.

Panchalingappa (2004) concluded that there is no significant difference between rural and urban high school pupils of Devadasis in respect of their academic achievement.

Manchala (2007) found that nativity has significant influence on the scholastic achievement of B.Ed students.

Krishna Reddy (2008) found that nativity has significant influence on the scholastic achievement of X class students in mathematics.

Prabhu Swamy (2010) revealed that Govt.D.Ed College trainees have scored that better marks in fill up the blanks type, classification type and true / false type. Also they have scored better in total performance. Rural area D.Ed trainees scored better marks in multiple choice type, Match the following type and over performance. Urban area students have scored better marks in classification type and true/False. So Locality has significant influence on the marks scored.

2.5.15. Achievement and Economic position

Economic position of a family plays an important role in different aspects of an individual's life. There may be some significant relationship between the economic position and academic achievement of an individual. Some of the earlier studies made, on the relationship between Economic position and academic achievement of the students are presented here with

Thorndike (1952), Cattell et al (1966), Meller (1970), Ahuwalia and Deo (1978), and Venkaiah (1980) found either negative or very low correlation between academic achievement and SES.

Pavithran and Feroze (1965) found that the relationship between economic status of the family and scholastic achievement of X class students is extremely low and almost negligible. There is no any conclusive evidence of either favourable or unfavourable influence of economic status of the family on the academic achievement.

Rao (1965) Srivastava (1967), Bernstein (1968), Sudamma (1973), Ahuliwalia and Shyam (1975) and Sharma and Bhargava (1980) found very little and negligible impact of SES on the academic achievement.

Gupta (1968) revealed that the students of IX class with higher economic status and mental ability were better in their scholastic achievement, compared to those with lower SES.

Anand (1973) observed the relationship of SES and academic achievement. He found that the relationship between the two existed even when the influence of intelligence of non-verbal as well as verbal types were partilled out. He revealed that there was some impact of socio-economic status of family on the mental abilities as well as academic achievement of students of classes VIII, IX and X.

Mennon (1973) in his study revealed that overachievement and under achievement were influenced by socio-economic and demographic variables.

Rangaswamy and Visvesvara (1977) claimed that no definite pattern of correlation could be found between socio-economic status and academic achievement.

Asud Ullakhan et al. (1982) showed that SES of pre-university students (XII class) was found to be not effective in bringing about any variation in the scholastic achievement.

Shakiba –Nejad et al. (1983) observed a strong positive correlation between SES and academic achievement of the students.
Lal Singh (1984) found that there is no effect of socio-economic status on the academic achievements of XIth class students (N =200), when the students have intellectual ability.

Jagannadhan (1986) conducted a study on V, VI and VII class students and found that SES had got much impact on the academic performance.

Quaraishi and Bhat (1986) conducted a study on 200 undergraduate students of M.S University, Baroda and found that socio-economic status has a significant effect on academic achievement.

Ramana Sood (1990) found that there is no significant effect on academic achievement of Pre-Engineering students (N = 120) and their socio economic status.

Vijayalakshmi and Hemalatha Natesan (1992) found a positive relationship (r =0.46) between academic achievement and SES of IX class students (N =100) which is significant at 0.01 level.

Marcon and Rebecca (1999) observed that SES was found to be an important factor in the academic performance, with poorer performance noted for lower income students.

Young and Deindra (1999) revealed that SES had certainly some impact on the overall performance of students. They found the effect of other variables like self-concept, class –room environment also, when they conducted a survey on 3397 covering 28 rural and urban schools in Australia.

Alam (2001) found that there is significant positive relationship between socio – economic status and academic achievement.

Saxena (2001) revealed that the students who secured first division in High school examination, belong to the middle socio-economic status, indicating that the SES had only a little effect on the academic achievement.

Karla and Pyari (2004) investigated into the relationship between family climate and income and academic achievement. The study finds in congruence with many research findings (Hari Krishnan 1992; Garg. 1992) that student achievement is found to be affected by the income status of the family.
Khan (2005) conducted a performance study on 400 students comprising 200 boys and 200 girls selected from the senior secondary school of Aligarh Muslim University, Aligarh, India. It was found that girls with high socio-economic status had relatively higher academic achievement in science stream and boys with low economic status had relatively higher academic achievement in general.

Manchala (2007) found that economic position has significant influence on the scholastic achievement of B.Ed students.

Krishna Reddy (2008) found that economic position has significant influence on the scholastic achievement of X class students in mathematics.

2.5.16. Achievement and Separate room for study

Scholastic achievement of the students may vary according to the separate room for study. Some of the studies reviewed are presented here under

Krishna Reddy (2008) found that separate room for study has significant influence on the scholastic achievement of X class students in mathematics.

2.5.17. Achievement and Study hours at home

Scholastic achievement of the students may vary according to the study hours at home. Some of the studies reviewed are presented here under

Krishna Reddy (2008) found that study hours at home has significant influence on the scholastic achievement of X class students in mathematics.

Muola (2010) found significant relationship \( r = 0.23 \) between learning facilities at home and academic achievement motivation of standard eight pupils.

2.5.18. Achievement and Works at home

Scholastic achievement of the students may vary according to the works at home. Some of the studies reviewed are presented here under.

Krishna Reddy (2008) found that works at home has significant influence on the scholastic achievement of X class students in mathematics.
Meena Siwath (2008) revealed that boys of high home environment group achieved significantly greater mean score than the boys falling in the group of low home environment. The impact of home environment has also been observed in the mean value of scholastic achievement of girls belonging to high, medium and low home environment groups. Good quality of home environment had significant positive correlation with 'high' level of scholastic achievement.

2.5.19. Achievement and Study Habits

Individual study habits play an important role in determining the academic achievement of pupils in different subjects. The students performance in the class room depends upon several factors namely, the interest in the subject, study facilities, own study habits etc.

Most of the previous investigators pointed out that there is much impact of study habits on the academic achievement.

In this connection, it is worth mentioning the former president A.P. J. Abdul Kalam’s views, on inculcating good reading habits in children and youth of the country. He inaugurated a book fair held in Delhi and told the people to encourage their children and students with the advice that if they give one hour a day exclusively to book reading, they will become a knowledge centre in a few years. To acquire the habit of reading is to construct for yourself a refuge from almost all of the miseries of life. Reading is certainly one of the best experiences, a child can have and habits developed at a young age stay with a person for the rest of his life. What a gift for a child! There is more treasure in books than in all the pirated loot of Treasure Island. The more that you read, the more things you will know. The more that you learn, the more places you’ll go. Students who score higher on tests, tend to come from schools which have more library resources, staff and more books, periodicals and videos.

A wonderful thing about a book, in contrast to a computer screen, is that you can take it to bed with you. Reading is to the mind, what exercise is to the body. The brains of the next generation need to be sharpened so that we can make our dream to be one of the best in world come true.
Some of the studies already made previously on the relation between the academic achievement and study habits of the individuals are presented here under.

Woodruff (1940) found that study habits failed to show some definite relationship with academic achievement.

Gordon (1941) found that the coefficient of correlation between scores on study habits and course grades was higher when students were tested late in the semester than when tested at its beginning.

Wrenn and Humber (1941) found that there existed relationship between the study habits and academic achievement in general.

Mary Esther (1945) found that there existed statistically significant differences in the achievement of most successful students with good study habits and least successful students with poor study habits.

Burnett (1951) reported that the student who has taken the course "How to study" increased their scores, as compared with those who had not taken the course.

Corter (1955) found a moderate positive linear relationship between the study habits and academic achievement.

Brown and Holtman (1955), Patel (1981), and Chauhan and Singh (1982) found that there exists significant relationship between study habits and academic scores among school going children.

Noltan (1959) conducted an investigation into the relationship between study habits and achievement in general science and found that there existed no relationship between them.

Diener (1960) obtained the similarities and differences between over achieving and underachieving students and observed that the two groups differed significantly in their study habits, indicating a positive relationship between them.

Sinha (1960) found significant relationship between study habits and scholastic achievement.
Brown and Dubois (1964) revealed that there existed a moderate positive relationship between the study habits and academic scores.

Richard and Virginia (1967) found a positive relationship between good study habits and achievement.

Samuel and Rao (1967) conducted a study on a sample of 500 pre-university course (P.U.C) students and showed that there is a significant positive relationship between the study habits and academic achievement.

Agarwal and Saini (1969) found that the coefficient of correlation between the study habits score and scores on achievement in mathematics of VIII and IX class students came to be +0.014. Although this index seems to be quite poor, it was found significant at 0.05 level of confidence.

Krishna Murthy and Rao (1969) conducted a study on 300 students. They observed that there existed significant correlation between study habits and academic achievement of urban students.

Sinha (1972) found that there is significant relationship between study habits and scholastic achievement.

Marentic-Pozaranik (1974) found positive relationship between study habits and scholastic achievement of IX Class pupils.

Girija, Bhadra and Ameen Jan (1975) made a study on the relationship between the study habits and academic achievement of first and final year students of undergraduate students of university of Agricultural sciences, Bangalore. They found the two groups differed significantly with regard to their study skills and achievement.

Asha Bhatnagar (1980) made a study on 600 students of X class of Delhi and found that there existed a positive relationship between the study habits and academic achievement.

Tuli (1980), Patel (1981), Chopra (1982) found that there was a positive relationship between study habits and academic achievement.
Primalatha Sharma (1986) reported that the underachieving rural girls significantly differ in their study habits from high achieving rural girls of IX and X class students.

Harbans Singh (1989) showed no significant differences in the study habits at different levels of achievement of X class scheduled caste pupils (N= 300). But boys were found to have significantly better study habits than girls.

Deb and Gravel (1990) reported that the study habits and the academic achievement of B.Sc., final year students are positively related.

Ruth Leef (1992) revealed that the development of study skills in IX and X class students resulted in improvement of grades.

Stella and Purushothaman (1993) showed that there is no significant difference between study habits of under achieving boys and Girls.

Chitra, Thiagarajan and Santhana Krishnan (1993) found that the academic habits and achievement were positively related to intelligence of higher secondary students.

Ramamurthi (1993) found that despite the students possessing good intelligence, their academic achievement hampers due to the absence of good study skills.

Aruna (1994) found that study habits of X class Pupils have significant influence on their scholastic achievement in all the subjects.

OnTseka and Watkins (1994) found that the study habits are significantly correlated with school grades of first year school students in Hong Kong.

Rawat and Leela (1995) found that there was no significant difference between the study habits of boys and girls and their academic achievement.

Patel (1996) revealed that : 1. The achievement scores of the pupils having high and low general ability were significantly different. 2. Those pupils who had good study habits did get significantly more achievement scores than those who had poor study habits. 3. It was found that sex and study habits interacted significantly in explaining achievement scores.
Varma (1996) found that the academic achievement in mathematics and general science is more or less same in the case of students with good study habits and students with poor study habits.

Kumar (1998) reported that there existed a significant positive correlation between academic achievement and study habits.

Gordan Darlene (1998) found that the students having good study habits possessed good achievement. Venden Hurl et al., (1998) showed that the study habits of medical students were correlated with their academic achievement.

Verma and Kumar (1999) found that:
1. The achievement in mathematics was positively and significantly correlated with the study habits of the Students.
2. Overall achievements were significantly and positively related to the study habits of students.

Sam Sanada Raj and Sreethi (2000) found that study habits and academic achievement of students are positively and significantly related.

Nagaraju (2001) concluded that the academic achievement in all the school subjects has positive significant influence at 0.01 levels on the Study habits of the pupils (N=1800).

Govinda Reddy (2002) found that study habits of a DIET students have significant influence on achievement.

Vamadevappa (2002) found that there existed positive and significant relationship between study habits and achievement of pre University students in Biology subject.

Archana and Mona Sharma (2002) conducted a study on 26 Grade-1 children in Indoor. The results found that the instructional material could positively influence the achievement of students.

Naveen Kumar Reddy (2003) reported that study habits and academic achievement are positively and significantly related.
Guravaiah (2004) investigated into the academic achievement of X class students in all the school subjects and found that study habits of pupils do not have any significant influence on the scoring.

Rajani (2004) observed that the academic achievement of Intermediate students (N=1200) in all the subjects including group subjects is positively related to their study habits.

Lakshmi (2004) identified positive relationship between study habits and achievements of DIET students.

Bhaskara Rao, Somasurya Prakash Rao and Bhuvaneswara Lakshmi (2004) have identified a positive relationship between study habits and academic achievement.

Ramana sood and Dalcinder kumar (2007) found that learners having good study habits have better academic achievement.

Manchala (2007) showed that all the ten areas of study habits inventory have significant influence on scholastic achievement of B.Ed students. Better study habits is associated with better scholastic achievement.

Krishna Reddy (2008) showed that all the seven areas of the study habits inventory have significant influence on the scholastic achievement of X class students in Mathematics. Better study habits is associated with better scholastic achievement.

Nalini and Ganesh Bhatta (2009) found significant relationship between study habits and academic achievement.

2.5.20 Achievement and self-concepts

Self-concepts play an important role in the life of pupils. Muktha Rani Rasthogi's (1974) self-concept scale is adopted in this study to examine the impact of self-concepts on the achievement of IX class students in physical sciences. Some of the earlier studies showing the relationship between scholastic achievement and self-concepts are presented hereunder.
Manger and Eikeland (2006) studied that the effect of mathematics self concept on girls and boys mathematical achievement found that Norwegian elementary school boys showed significantly higher mathematics, self concept than girls. Boys also had a significantly higher mathematical achievement score than girls.

Thomas and Robert (2006) found that self concept of academic ability and to lessor extent, students study activity were positively associated with student achievement. Students self concept of academic ability ratings were also linked to students engagement in generative, proactive study activities.

Krishna Reddy (2008) found that self concepts have significant influence on the scholastic achievement of X class students in Mathematics.


Philius Qulatunde (2010) showed that students of secondary schools have good self-concept of themselves in performing well in mathematics.

2.5.2.1. Achievement and personality

Personality of a student plays an important role in his/her scholastic achievement. Some Indian researchers have attempted to isolate the personality structure of good and poor students. A few studies are comprehensive, while a few others, have concentrated on specific aspects and dimensions of personality assessment. Some of the studies showing the relationship between personality and scholastic achievement are given below.

Cattell, Sealey and Sweeney (1966) claimed that High School Personality Questionnaire (HSPQ) was predicting the school achievement of the students.

Vyasa (1982) observed that personality adjustment was significantly related to university practical marks.
Anuradha Joshi (1990) reported that the personality of class IX students, affected the academic achievement. The extroverts were found to benefit significantly more through the developed instructional strategy, as compared to the intraverts.

Vijaya kumar Sethi (1990) studied the personality patterns of high achieving and low achieving students in professional courses (Engineering, Medicine and Teaching)

The major findings are:

1. High and low achieving students taken together differed significantly from each other on personality factors of Lower -higher scholastic mental capacity (Factor-B); emotional instability (Factor-C); experience conscientiousness (factor G); shyness – venture some ness (H); placidity apprehensiveness (factor O) and Low- High ergictension (Factor-Q1).

2. High achieving students were found to differ significantly from each other, on personality factors of Lower-higher scholastic mental capacity (Factor-B); desurgency-surgancy (Factor-F) and tough mindedness-tender mindedness (Facto-I).

3. Low achieving students were found to differ significantly from each other on factors of reservedness-out goingness (Factor-A), Low –Higher scholastic mental capacity (Factor-B),tough mindedness- tender mindedness (Factor-I); trust placement suspiciousness (Factor-L) and Lower-higher ergictension (Factor Q4).

Mavi and Iswarpatel (1997) explored the relationship between academic achievement and selected personality variables of IX grade students. The personality variables are Personality adjustment, intelligence, self-Concept and level of aspiration. It was found that there was a weak relationship between the personality variable and academic achievement, in the case of tribal students. The non-tribal students, scored higher than the tribal.
Koteswara and Ramachandra Reddy (1998) reported that:

1) All the 14 factors of HSPQ have significant influence on reading achievement of high school students in Telugu Language.

2) Students whose personality characteristics were observed as out-going, more intelligent, emotionally stable, excitable, assertive, happy-go lucky, superego strength, venturesome, tense minded, doubting, apprehensive, self-sufficiency, controlled and tense, performed significantly better on reading achievement in Telugu language, than the students, whose personality characteristics were observed as less intelligent, emotionally less stable, phlegmatic, obedient, sober, moral standards, shy, tough minded, vigourous, placid, group dependent, undisciplined and relaxed.

Panchanadhan (1999) found that maintaining emotional balance, among students, through a psychologist by using auto counselling increased their academic performance.

Nateson and Susila (2000) indicated that the choosen personality factors (cattell’s children personality questionnaire) are not significantly influencing the achievement of V standard boys \((N = 300)\) and girls \((N =300)\) in the age group of 9 to 10 years studying in the schools.

Govinda Reddy (2002) investigated that, factors B, E,F,M,Q2 and Q4 of 16 PF have significant influence on the total scholastic achievement of DIET students.

Kagade (2002) observed that 1) There was no significant relationship between educational adjustment, home adjustment and educational achievement of pupils \((N=1941)\) studying classes VIII and IX. 2) There was a significant relationship between social adjustment and educational achievement.

Ayodya (2007) while studying the emotional problems of school children and their relation to life events and school achievement found that:

1. Boys out numbered girls in decreased scholastic achievement
2. Emotional problems did not have influence on scholastic achievement in the present study.

3. Life events too did not have influence on scholastic achievement.

4. No difference was found with regard to socio-demo-graphic factors and emotional disorders, scholastic achievement.

5. No association was found between scholastic achievement and intelligence.

Subramanyam and Sreenivasa Rao (2008) while studying to assess the impact of gender on emotional intelligence and academic achievement of secondary school pupils, concluded that:

1. There is no significant difference between boys and girls with regard to their academic achievement.

2. There is no relation between academic achievement and emotional intelligence.

Martinsen & Swanberg (2010) showed that conscientiousness and openness were mediated by the strategic and an indirect effect on achievement through the surface approach.

Anca Munteanu and Iuliana Costea (2010) showed that psychological personality type does not significantly influence school performance, meaning that students, even if have or not these personality features can have similar school achievements. Energetic pattern of personality and emotional pattern are not conditions for school performance in adolescents.

It is observed that few studies are found establishing the relationship between, scholastic achievement and personality of the students. Hence personality is taken as one of the variables in the present study.
2.5.22. Miscellaneous Studies and Achievement

Misra et al (1960) found that children coming from high home environment achieve better in schools than their counterparts coming from low family environment.

Morrow and Williamson (1961) while analyzing the background of the family factors responsible for higher achievement of physically challenged group children, concluded that more congenial home environment, less parental domination and sympathetic parental encouragement, have been found to be responsible for achievement of children.

Husen (1967) in his study "International study of achievement in mathematics; A comparison of twelve countries" found that boys were on the whole superior to girls in mathematics.

Husten (1967); Dave and Dave (1971) found that poor academic achievement was due the low educational standards of their parents.

Lalithamma (1975) conducted a study on "some factors affecting achievement of secondary school pupils in mathematics". It revealed that

1. The average performance of pupils in mathematics was 23.14 with S.D of 8.20 and the distribution was negatively skewed

2. There was significant difference in the performance of boys and girls in mathematics, the difference being in favour of boys.

3. The urban pupils were superior to rural pupils in mathematics.

4. Intelligence and interest in mathematics were higher in boys and urban pupils than in their respective counterparts.

5. The achievement in mathematics is positively related to intelligence, interest in mathematics, study habits and socio-economic status.

6. Studying lessons daily, studying mathematics by writing, repetition in learning spaced learning, over learning etc. influenced the achievement in mathematics positively.
7. Private tuition, electric light facilities, radio equipment for study etc influenced the achievement in mathematics.

8. Achievement of the first born was better than that of the last born, and

9. Achievement of the students of scheduled castes and tribals was lower than that of the total sample

Sharma (1977) made an attempt to examine the achievement of children in relation to the school system. He found that children of the recognized private schools achieved higher scores in Arithmetic than those of the corporation schools.

Desai (1979) found that low achievers of high school had high ability in mathematics and less favourable attitude to the subject; they came from families with very strict standards or discipline, they were kept very busy in domestic work and did not receive any outside help for the study.

Sudha R Sinha (1980) in the study “Effect of school system on the competence of secondary school students”, investigated into the difference between the system of private and government schools and how it influenced the competence of its students. Three aspects of the system were examined - the material, organizational and human relations. The findings revealed that despite less physical facilities and higher workload, the private schools had better organizational structure and more competent students than the government schools.

Head (1981) found that extraverted boys and introverted girls did well within their own sex group, when they were given mathematics activities.

Gakhar (1982) in his article “A study of acquisition of mathematical concepts among VIII graders of different types of schools”, clearly demonstrates the differential effects of the type of the school on the acquisition of the mathematical concepts by the students on the whole. He found that the students studying in private schools better achievement than those studying in government schools.

This achievement was due to the strict supervision by the principal and managements of private schools, better teacher-pupil interaction, good educational environment, teachers special care of the weak students, teachers interest in the study of the children and sense of security and guidance and counseling in private schools.
Chopra (1982) found that students' achievement was not significantly different in different organizational climate of schools even at 0.05 level. There was no significant relationship between students' achievement and teachers' job satisfaction.

Lalithanhawla (1983) studied the causes of failures in science and mathematics among high school students of the Mizoram state and found that general standard of achievement in science was 33.24% as compared to 27.86% in mathematics. Students from urban areas and from privately managed schools and older schools did better than those in rural areas and government schools and newly established schools. The provision of good library, laboratory and special coaching classes are not related to the students' achievement in these subjects.

Pattison and Grive (1984) studied whether sex differences contribute to special skills to tackle different types of mathematical problems. They found that boys excelled in problems related to measurement and proportion and in special problems, whereas girls performed better in more abstract and deductive problems.

Davidson (1985) reviewed studies that compared students' achievement in small group settings with traditional whole class instruction. He found that using small groups of students to work on activities, problems and assignments can increase student's mathematics achievement.

Chada and Sunanda Chandna (1990) observed that:
1. There is a positive and significant correlation at 0.01 level between creativity and intelligence of XI grade students', when the effect of scholastic achievement is partialed out.
2. There is a positive and significant correlation at 0.01 level between intelligence and scholastic achievement when the effect of creativity is partialed out.
3. There is negative and significant correlation at 0.01 between creativity and scholastic achievement when intelligence is partialed out.

Venkataiah and Jayachandrarama Naidu (1990) reported that there is significant difference between academic achievement of dropouts (N=39) and Non-Starters (N=261) at Non Formal Education Centres (NFE). The dropouts from formal primary schools are superior to non starters in their academic achievement at NFE centres.
Mac Aculay (1990) reported that there is a positive significant relation between academic achievement and home environment.

Yeh- Hsiang-Yeng (1991) reported that weak but positive correlation existed between achievement motivation and academic achievement.

Sundararajan and Dhandapani (1991) conducted a study on the achievement in mathematics of higher secondary students of Pondicherry. The important findings of the study reveal the following:

- There is no significant difference in the achievement of boys and girls in the case of Govt and private schools.

- Urban students are better than rural students in respect of their achievement in mathematics.

Cobb (1991) and his colleagues found that students number sense was improved by a problem centered curriculum that emphasized students interaction and self generated solution methods. Students also demonstrated increased persistence in solving problems.

Kumar Swamy (1992) investigated that variations in the amount of General Ability possessed by the adult learners significantly effects their achievement.

Vyas (1993) found that academic failure was associated with lower affiliation, teacher control, rule clarity and teacher support variables.

Nwankwo and kemjika (2003) found that the relationship between test anxiety and academic achievement were inversely proportional at secondary levels.

Varghese (1995) found that the achievement scores showed a systematic improvement with improvement in facilities of school and that the difference in the mean achievement scores between the learners in the last facility schools and the best facility schools was very large in both in Hindi and Mathematics.

Martin (1995) concluded that there was a significant relationship between academic achievement and home environment.
Slemmer (1997) found that required tutoring seemed to be an effective way of improving the academic achievement of marginal students of X, XI and XII grades.


Khalid (1997) focused his research on factors affecting mathematics achievement and found that confidence, socio-economic status, gender, location of the school and school environment contributed significantly for the achievement in mathematics.

Shui Feng (1997) conducted a study on family influences and disadvantaged children's academic achievement. The study revealed that the academic achievement has been shown to be influenced by many family factors. It indicates that the authoritative parenting and children's academic achievement were significantly correlated.

Sumangala (1998) in her article "Effect of tutoring on achievement in mathematics of Secondary School Pupils", found that home-tutoring in Mathematics, whether by parents or by sibling has significant positive effect on achievement in mathematics.

Wood (1999) found that discussion following individual and group work improves students achievement.

Molia (1999) showed that the use of inductive thinking models improved the achievement of the students in mathematics.

Panda (2000) found that

1. Rural students exhibited better performance in all the school subjects as compared to their urban and tribal class mates

2. Boys and girls studying in different areas did not differ in their performance in all the school subjects.
3. Non-SC/ST students performed better in mathematics as compared to their counterparts in rural areas.

4. Children of college educated father had shown better achievement in mathematics, general science and language subjects in rural areas, where as children of middle income group had shown better performance in science achievement in urban areas.

5. Father’s occupation and tuition did not have any significant impact on the learning achievement in all the three areas.

6. Students studying in urban schools had shown better performance in mathematics where P.G. trained mathematics teachers taught the subject.

7. Rural students performed better in all the school subjects where infrastructure facilities were available in the schools compared to the schools with less facility.

Dhall, Gautam, Autar, Ram and Sankar (2000) revealed that the teaching of students with low achievement with remedial materials prepared after diagnostic test increased their achievement.

Alam (2001) showed that:

1. The academic achievement of normal children was found to be significantly higher than that of learning impaired children in both boys and girls when taken together and when taken separately.

2. The normal students were found to be higher in academic achievement.

Basantia and Mukhopadyaya (2001) indicated that academic achievement of secondary school rural students (N=320) was significantly related to their home environment, but the school environment was not significantly related to academic achievement, where as both school environment and home environment were significantly correlated to each other.

Christman etal (2001) reported that a cost effective analysis was performed to determine the relationship between district expenditure and XI grade mathematics and reading achievement during 4- year period from 1995 to 1999. The study
indicates that the increases on expenditures were accompanied by decreases in academic achievement.

Elegbelye and Akoda (2001) investigated that there existed a significant difference between the academic performance of pupils (N=150) of secondary schools from single and double parenting background. A significant difference was observed between the performances of father present, absent children in mathematics. Academic performance of children of mother present was significantly better than children of mother absent.

Rose and Elizebath (2001) examined the patterns of academic progress and outcome in different inner city school settings for African American and White, lower, middle and upper socio-economic strata students. They revealed that the overall academic outcomes were higher for gifted students enrolled in the programme sometime during their school career than for general education students.

Soundaravalli (2001) found that the academic achievement of standard XII students (N=300) had significant relationship with physical problems and family problems scores.

Anuradha and Bharati (2002) found that a trend of negative association was observed between III, IV and V classes children (N=300) academic achievement and their amount of T.V watching. Watching only a selected programmes improved children’s academic achievement significantly rather than watching all the programmes.

Basantia, Jaga Mohan and Mukhopadyaya Dulal (2002) revealed that psycho-social constraints and academic achievement of high school students are negatively correlated with each other.

Panda (2002) observed that V class pupils (N=882), who were taking midday meal, free uniform, scholarships and free textbooks as incentives performed well when compared to that of not receiving any incentives.

Chakraborthi, Bhupal Prasad (2002) found that the urban and semi-urban students performed better when they were provided with multiple choice items and
that the urban students performed better both in multiple choice items and non
multiple choice items than semi urban students in mathematics.

Agrawal, Archana (2002) found that:

1. Significant positive relationship was found between academic achievement
and intelligence.

2. Academic achievement was found to be positively related with their socio-
economic status.

3. There was significant negative relationship between the academic
achievement and size of the family.

4. Significant negative relationship was found between academic achievement
and birth order.

Goel Swami Pyari (2002) in their study on the relationship of achievement
and feeling of security, family attachment found that

1. Low achievement had a positive relationship with the feelings of security,
where as the average and high achievement had a negative relationship with
the feeling of security.

2. Family attachment and achievement scores were negatively related. A related
factor responsible for higher educational achievement was parental attitude.

3. Feelings of security- insecurity were significantly and positively related to
the family attachment.

4. Theoretical, aesthetic and religious values were positively related with
achievement score, but economic and political values were negatively related
with achievement score. Social value had a positive relationship with the
average achievements but the low and high achievements were negatively
correlated.
5. There was no difference in value pattern of low and average achievers where as high achievers gave the first preference to theoretical, value, than to social, political, economic, aesthetic and religious value.

Sharmaj Nidhi (2002) in their study examined the effect of parental involvement and aspirations on academic achievement of +2 students found that:

1. Parents of high and low achieving students exhibited differentiated behavioral profiles with regard to some dimensions of parental involvement. Parents of high achieving students often provided academic guidance to them and also planned various cultural activities such as arranging picnics, dance show and other festivals.

2. Achievement scores of children belonging to high, average and low groups of parental educational aspirations were not equal.

3. The academic achievement scores were different for children belonging to different parental involvement groups.

4. High parental involvement group, scores higher on educational aspirations as compared to their counter parts in the low parental involvement group.

5. Higher parental involvement resulted in higher occupational aspirations of students.

6. High, average and low parental occupational aspirations groups yielded unequal levels of learning styles.

Mohanty (2002) conducted a survey to see whether components of family environment bear any relationship with academic achievement of gifted, underachievers and his findings were:

1. The mean score of boys was higher than that of girls.

2. The boys scored higher on cohesion, intellectual cultural organization, Moral and Religious emphasis, while the girls scored higher on conflict, achievement orientation and organization of components of family environment scale (FES).
3. Underachievers' academic achievement was significantly related with all components of FES except active recreational organization.

4. For underachieving boys no correlation between a component of FES and academic achievement was found to be significant. However in the case of underachieving girl's cohesion, independence and control components of FES were found to be correlated significantly with academic achievement.

Devi and Mayuri (2003) revealed that:

1. Family factors were not found to be critically important for the achievement of residential school children.

2. School factors like, qualified teachers, good physical facilities and classroom organization, checking of the curriculum and subject matter, time maintenance, impressive method of teaching and teacher student interaction contributed significantly to the academic achievement.

Rahman (2003) in his comparison of achievement in mathematics of eighth grade students of different ethnic groups of Nepal found that

1. There was significant difference among the four ethnic groups with regard to the overall achievement in mathematics.

2. Tamang students were found to be the best among the four groups in overall achievement in mathematics.

3. The four ethnic groups differed significantly from each other with respect to the achievement, on knowledge in arithmetic.

4. Ethnic groups significantly differed from each other with respect to the achievement on knowledge, skill, comprehension and application levels.

5. No significant difference was found between Tamang and Magar groups in knowledge.
6. Sarkari children were found to be the lowest achievers on knowledge among all ethnic groups. Prakash (2003) found that:

1. The ascendance, vigorous and persistent temperaments were significantly related with mathematics achievement in girls and total sample.

2. Among boys, the ascendance, accepting, vigorous, cooperative and tough-minded temperaments were significantly and positively correlated with mathematics achievement.

3. The memory of the subjects was significantly and positively correlated to their mathematics achievement.

4. Girls with low sociability appeared significantly higher in mathematics achievement than girls with higher sociability at high memory level only.

Suneel Kumar Singh, Saheen Malik and Singh (2003) in the article “Achievement difference of class II students in mathematics with regard to the area, Gender and social groups, reveal that locality affects the achievement in mathematics. Urban students were found better than rural students where as sex would not affect the achievement in mathematics.

Newankwo and Kemjika (2003) found that the relationship between test anxiety and academic achievement were inversely proportional at secondary levels.


1. It is generally seen that less importance has been paid to students attitude by the classroom teachers or researchers in comparison with considerable amount of attention, given to the cognitive achievement.
2. Mathematics, specially, can be quoted as an example in which very few attempts at measuring attitudes towards its study have been made.

3. Mathematics is generally regarded as a difficult subject for study.

4. It is not so popular even at the college level where less number of students offer it for their studies. Even now models of teaching, innovations and modern techniques of teaching the subject, have not changed the situation.

Shahpur Nagappa and Panchalingappa (2004) while investigating the influence of the study habits, family climate adjustment and academic achievement of Devadasi, children of Karnataka state, found that:

1. There is no significant difference between boys and girls children of Devadasi in respect of their academic achievement.

2. There is no significant difference between rural and urban children of Devadasi in respect of their academic achievement.

3. There is no significant difference in interaction effects of sex and location in terms of academic achievement of Devadasi children.

Mehera (2004) found that:

1. Achievement in mathematics was significantly related to major learning environment, attitude towards the subject, mathematics.

2. Urban students showed significantly higher achievement in mathematics, better learning environment and better attitude towards mathematics than their rural counter parts.

3. No sex-wise difference was found in achievement of students in mathematics.

Senarma (2004) while attempting to determine the relationship between class-room interaction variables of different branches of mathematics and
mathematics achievement and attempting to predict the achievement from interaction variables concluded that:

1. Higher values of Praise, acceptance of pupil’s ideas, asking questions by teacher, pupil’s response and the rate of class-room transaction are associated with higher pupil’s achievements in mathematics.

2. Higher values of lecturing, criticizing and Justifying authority and silence and confusion are instrumental in lowering pupil’s achievement in mathematics.

3. Teacher’s tendency to react to the ideas and feelings of pupil’s is positively and significantly related to the better achievements in algebra, arithmetic, and geometry.

4. Velocity of class-room transition is positively and significantly related to the achievement in algebra, arithmetic and geometry separately.

5. The pupil’s initiation is negatively associated with mathematics achievement in all the branches, algebra, arithmetic and geometry.

Uma (2004) on studying the role of computers in the performance found that:

1. The achievement scores improved in the test conducted after the revision of the lesson by ‘teacher’.

2. Thoroughly revising the lesson through computers has increased their performance, the best scores are when the revision is by the Teacher and when computers are not used.

3. Some of the interesting points observed by her are:

   (i) Learning through computers was high with below average students than with good students.

   (ii) The attention span and interest duration of the slow learners is comparatively, less than that of very good students.

   (iii) Very good and good students have better reading and comprehension skills. Thus they were fast on the computers. The
below average students took time to read and comprehend. Thus they usually took more time to complete the work on computers.

Kumar and Anita (2004) from their findings revealed that:

1. Both the variables self-learning module and classroom environment can not be ignored in respect of their effect on achievement.

2. There was no interaction between mode of teaching and classroom environment.

Bose and Joshi (2004) studied the effect of parents involvement in the achievement of students and found that:

1. Children whose parents were involved in their education led a disciplined life at home and had better academic achievement at school.

2. Involvement of parents was also reflected in the activities that a child pursued in his leisure time.

3. It was found that parents could not reinforce the things, the children learnt at school and some children attended tutorials.

4. Tutorials did not help the children in performing better, rather the children who attended school regularly and received proper care at home, fare better.

5. The study also found that home environment that indoctrinates children into a disciplined life and healthy life style ensures better academic achievement.

Madankar (2004) observed that: 1. Residence, 2. Peer group, 3. Curriculum, 4. Classroom teaching and, 5. Evaluations have negative and significant relationship with academic achievement, where as ‘food’ and ‘co-curricular activities’ have negative and not significant relationship with academic achievement of school subjects.

Peria Swamy (2005) showed that the teaching and learning of addition and subtraction through activity based learning materials (TLM) improves academic achievement of IV standard pupils (N=30). 1. A significant relationship was found between student's perception of teacher's attitudes towards them and their academic
achievement. 2. A significant relationship was found between the academic achievement of students and their self-perception.

Vamadevappa (2005) conducted a study to find out the relationship between parental involvement and academic achievement. His findings were:

1. There was positive and significant relationship between parental involvement and academic achievement.

2. There was a significant difference in the achievement scores of boys and girls of high parental involvement group.

3. There was no significant difference in the achievements of boys and girls of high parental involvement group.

4. There was significant difference between high achievers and low achievers with respect to the parental involvement.

5. There was no significant difference between boys and girls in their academic achievement.

Satya Prakash and Patnaik (2005) made a study to find out the effect of cooperative learning and found the following:

1. There was positive effect of cooperative learning on achievement motivation.

2. Cooperative learning has a positive effect on achievement in biology in terms of understanding, Knowledge and application of objectives as well as total achievement.

Dwivedi (2005) conducted a study to compare the educational achievements of students belonging to different categories of schools, according to their environment and found the following:

1. The students from schools with enriched environment had significantly better academic achievement than students from poor school environment.

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2. The students who were high approval seekers had significantly greater achievement than the students who were low approval seekers.

3. Academic achievement of students of the urban schools was significantly higher than that of the schools of the rural schools.

Neetha George and Anitha Ravindan (2005) revealed that there is a linear relationship among accuracy in time perception, coping styles and level of academic achievement. In other words, time consciousness or punctuality is a quality that would enhance the academic achievement. They suggested that these results can be considered in helping low achievers.

Manas Ranjan Panigrahi (2005) while studying the influence of intelligence and socio-economic status on academic achievement of high school students concluded that:

1. There exists a significant and positive correlation between academic achievement and intelligence. It is also found that high intelligence leads to better academic success.

2. There exists a low positive correlation between academic achievement and socio-economic status. It is observed that high socio-economic background might not always facilitate high academic success.

3. It is found that there is no significant difference between boys and girls with respect to academic achievement.

4. The students having higher intelligence are high achievers in academic performance than students having low intelligence.

5. High socio-economic status has affected the girls greatly to be very conducive to high achievement and vice-versa is the case with boys.

6. The girls of high socio-economic status are high achievers in academic performance than boys of high socio-economic status, boys of low socio-economic status and girls of low economic status.
Manoranjan Panda (2005) in his study on correlation between academic achievement and intelligence of class IX students concluded that:

1. There is significant difference in academic achievement of students studying in different categories of schools.

2. There is no significant difference in intelligence of students studying in different categories of schools.

3. There is low relationship between academic achievement and intelligence in different categories of schools.

Arockiadoss (2005) studied the correlation between study habits and academic performance of college students (N=2025). He reported that the academic performance of college students is influenced by study habits.

Malvinder Ahuja (2006) studied the impact of parental involvement and socio-economic status of the family on academic achievement of IX class students. Their findings indicated that 1. Socio-economic status of the family and parental involvement were associated with each other 2. Socio-economic status and academic achievement of students were independent of each other 3. Academic achievement of high and low parental involvement group were not significantly different and 4. There was an interaction effect of socio-economic status and parental involvement on academic achievement of IX class students.

Annakkodi (2008) in her study entitled "study of scientific attitude of pupils of class XI and their achievement in Science", concluded that there was positive significant difference in the scientific attitude of students in relation to their achievement in Science.

The N.C.E.R.T. (2008): Conducted a mid-term national survey to gauge the learning achievement of class V children. The survey covered Eighty four thousand, three hundred and twenty two (84322) students, fourteen thousand, eight hundred and ten (14810) teachers and six thousand, eight hundred and twenty eight (6828) schools across two hundred and sixty six (266) districts, in the country. The survey tested the learning achievement of class V level students in mathematical,
environmental studies and languages. It concluded that 1. Mother’s education is important than father’s education. 2. The schools that enjoyed better infrastructure and facilities like T.V., computer, more number of teachers and community participation contributed ten percent (10%) more in (E.V.S) Environmental studies, eight point four (8.4%) percent better in mathematics and nineteen point six (19.6%) percent better in languages.

2.6 Appraisal

From the brief review presented in the foregoing pages it may be seen that a few studies have been carried on, in the area of academic achievement at secondary level and more particularly the achievement in physical sciences. Again by and large, except on a few variables the results obtained are not coinciding, which necessitates further exploration in this area. Further, studies on the relative impact of each of the several independent variables that effect academic achievement are rare to find.

Selection of some important demographic variables, sociological and psychological variables are supported by many other studies, even though, they are not exhaustive for obvious reasons.

It is an attempt to see the relationship between the academic achievement and various psycho-sociological variables. The area under investigation is novel and unexplored with respect to the IX class students and their achievement levels in physical sciences.

Further the study aims at providing some mathematical models with which it can be possible to estimate the academic achievement of IX class students in physical sciences. The need for research on the area of scholastic achievement in physical sciences of IX class students, is rather warranting.

The above crucial conditions lead the investigator to make an attempt in this area of scholastic achievement of IX class students in physical sciences in relation to certain psycho-sociological factors. Keeping all these observations in view the problem is stated clearly with its objectives and suitable hypotheses are formulated in the succeeding chapters.