A literature of review is an account of what has been published on a topic by accredited scholars and researchers. It is a way of joining the professional conversation by analyzing the conversation that has already been taking place in the professional literature.

In the literature review, we report what others are saying related to our work.

Every research is conceptualized and will be carried out within some contextual frame work. This contextual framework is in part conceptual, in part valuational, and in part practical (operational), and all of these factors must typically be considered. Certain of the contextual factors may be thought of as facilitating and others as constraining.

The most obvious facilitating element is the accumulated scientific and general literature that relates to the problem. Other directly related or analogous studies are likely to have been carried out which will afford substantive or methodological insights. Past and current literature and studies make it possible to assess the most sensible next point of departure in the programmatic development of an area and the most heuristic way to go ahead in that exploration.

Another useful facilitating element is the practical knowledge that has accumulated in a field. Although such practical wisdom is not likely to have been systematically codified in the literature, it is nevertheless of great potential utility.

The present chapter attempts at reviewing the related literature in the domain of mathematical achievement, with special reference to caste (race), gender and habitat (urban, suburban and rural).

Prediction of mathematical achievement has been occupying central
position in the educational sphere. Prediction of mathematics achievement of different caste groups, gender and habitats have been studied under the dynamic structure through some biographical characteristics such as: parents education, occupation, income, size of the family, birth order, language used at home, discussion about school work, help in home work etc.

In this chapter, an attempt has been made to review the literature under the following heads:

A. Caste groups (races) associated with achievement in general and mathematics achievement in particular.

B. Gender groups (boys and girls) associated with achievement in general and mathematics achievement in particular.

C. Habitat groups (urban, sub-urban and rural students) associated with achievement in general and mathematics achievement in particular.

D. Other biographical characteristics associated with achievement in general and mathematics achievement in particular.

A. CASTE GROUPS (RACES) ASSOCIATED WITH ACHIEVEMENT IN GENERAL AND MATHEMATICS ACHIEVEMENT IN PARTICULAR.

Osborne (1960) has investigated from a longitudinal study of 815 white and 446 Negro students whose reading skills (vocabulary and comprehensive), arithmetic skills (reasoning and fundamentals) and mental maturity – assessed through the California Achievement and Mental Maturity Tests have been compared in 1954, 1956 and 1958, when the children were in grades VI, VIII and X respectively. Osborne’s findings of the discrepancy of Negroes compared to whites increased progressively from grade six to ten not only on vocabulary reading comprehensive and arithmetic reasoning but also on arithmetical fundamentals.

Lesser et al. (1965) designed a project to analyse the relative impact of social class and ethnicity on intellectual functioning. Using tests and testing
conditions devised to minimize bias, they examined four mental abilities (verbal ability, reasoning, number ability, space conceptualization) of 320 first grade children from four ethnic groups (Chinese, Jewish, Negro, and Peurto Rican) with each ethnic group divided into middle and lower class. The major findings of the study were that both social class and ethnic group membership have strong but different effects upon performance on the tests covering the four mental abilities. Ethnicity affects the pattern or profile of performance, social class affects the level of achievement. Among the four ethnic groups, the ranking on the four test areas were as follows: - Jews, Negroes, Chinese, Puerto Rican; Reasoning: Chinese, Jews, Negroes; Puerto Ricans; Numerical Ability: Jews, Chinese, Puerto Rican, Negroes, Space: Chinese, Jews, Puerto Rican, Negroes. Lesser et al. (1965) conducted in other studies ethnic comparisons were made between Negro and White children. Intelligence test scores of Negro children were typically lower on average than those of white children.

In a study of fifth and sixth grades Gordon (1976) found that among children of similar IQs, there was under and over achievement associated with their race and social class.

Anick et al. (1981) analysed the data of the second mathematical assessment of the National Assessment of Educational Progress (NAEP) by ethnic group for students of aged 9, 13 and 17. They found that the mean percentage of correct exercises of the Black students was lower than the national average at each age level and the achievement was lower than those of the white students in the NAEP assessment.

Marrett and Gate (1983) concluded that the race was an important variable for mathematics learning. They compared the mathematics achievement of men and women aged between 15 and 12 respectively, who varied in ethnic background and found that the male performed better than girls.
Myers and Milne (1983) studied the achievement in mathematics of seniors from various ethnic groups. They considered the relationship between the use of language at home and achievement in mathematics, male tended to outperform females, and home language was related to achievement in mathematics independently of all other variables. Students who had some exposure to a non-English language but who spoke only English at home scored on average between 0.24 and 0.30 standard deviation below their monolingual English-speaking Peers. Bilingual students who spoke Chinese, Italian, French or German at home achieved on average between 0.16 and 0.78 standard deviations higher than their monolingual English-speaking Peers. In contrast, bilingual students who spoke English and Spanish at home scored more than 0.20 standard deviation below their mono-lingual English speaking Peers. Students from homes where Spanish was the only language spoken scored between 0.40 and 0.45 standard deviation below the same reference group.

In a study, Stevenson et al. (1985) studied on the disappointing performance of the average American student in mathematics and science that American children scored poorly on standardized tests when compared with children from most other nations especially Japan.

A study was conducted by Valenda and Joice (1985) on various ethnic minority groups students attending high school level, show that black students having the lowest socio-economic status scored the lowest achievement scores 14.5, 6.5 and 6.4 in language, mathematics and science respectively. Non-Hispanic whites are highest on nearly all of these measures 27.8, 15.5 and 11.2. They also found that the higher the socio-economic status score, the higher the achievement score. Black, Hispanic and Native American students are much lower in SES than non-Hispanic White and Asian Pacific students and have much lower academic achievement scores.

Lakheba (1986) attempted to identify the structural variables which
impede the spread of formal education of the scheduled tribes and educational problems of tribes children. He found that tribe girls faced more difficulties than boys in doing their homework. The low achievement of tribe children was attributed to factors like educational backwardness, unfavourable attitudes of parents towards education and lack of motivation. Murthy (1987) has investigated the intelligence, socio-economic status and birth-order among children belonging to scheduled caste (SC.), scheduled tribe (ST.) and non-scheduled tribe groups. He found that the three groups differed significantly on intelligence. The scheduled caste group was found to differ from the non-scheduled caste/non-scheduled tribe group in favour of the non SC-ST group on intelligence and the ST group did not differ from the non SC-ST group on intelligence. Socio-economic status and intelligence were found to be related irrespective of communal groups, viz. SC-ST and non-SC-ST.

Bhusari (1988) has investigated the intelligence of Scheduled Castes (SCs) and Scheduled Tribes (STs) students and its correlation with their scholastic achievement in Vidarbha. The objectives of this study were: (i) to find the level of achievement of Scheduled Caste and Scheduled Tribe students in class vii, viii and ix, (ii) to measure the intelligence of these students, and (iii) to calculate the correlations between intelligence and achievement of SC, ST and general category students. The sample comprised 4050 students belonging to SC/ST and other categories from 78 schools, which were selected on random sampling basis. The findings indicated that there was positive correlation between intelligence and scholastic achievement of ST students in almost all the subjects. The results also showed that the correlation between intelligence and mathematics and science were at a higher level than the correlation between intelligence and language and between intelligence and social sciences.

Gupta (1988) has conducted a study of educational achievement of Scheduled Castes and Scheduled Tribes students of class X of Uttar Pradesh.
The objectives of this study were: (i) to study the educational achievement of Scheduled Castes and non-Scheduled Castes students of class X, (ii) to study the subjective-wise achievement of Scheduled-Castes and non-Scheduled Castes students of class X, and (iii) to compare the educational achievement of SC/ST students. The results showed that —

(1) The literacy rate of scheduled castes in seven out of ten sample districts was found to be lower than the average Scheduled Castes literacy rate for Uttar Pradesh. (ii) In six of the ten sample districts, the pass percentage was also lower than the Scheduled Castes average pass percentage. (iii) In each sample district, the female pass percentage was higher than the male pass percentage in the case of Scheduled Castes candidates.

Tripathy (1990) studied the academic performance of tribal and non-tribal high school students in relation to their self-concept and academic motivation. The objective of this study was to study differentials between tribal and non-tribal high school students on the academic performance and academic motivation. The findings showed that academic performance was found to be significantly and positively related to the self concept and academic motivation of tribal higher achievers.

Indra (1991) studied the relation of social class, religion, family size and birth order to academic achievement of high school students. The study investigated the relationship of socio-economic status and certain demographic factors and religion with the academic achievement. The sample consisted of 700 male and female students studying in class XI of different schools of Agra city. For the selection of the sample stratified random sampling procedure was used. Mean, SD and 't' test were used to study group differences. The findings showed that students belonging to different social classes differed in their academic achievement and Hindu, Muslim and Christian students differed in their academic achievement scores.
In a study, Prabha (1992) concluded that caste affects significantly the learning of mathematics. Secada (1992) analysed the data obtained from National Assessment of Educational Progress (NAEP) (1978, 1982, 1986) and reported that White performed much better in mathematics than Hispanic who in turn, achieve slightly better than African – Americans. She further provided information about achievement in mathematics as a function of four levels of parental education: less than high school, graduation from school, some education beyond high school and graduation from college.

A study conducted by Caprato (2000), exploring the effects of attitude toward mathematics, gender and ethnicity on the acquisition of geometry content knowledge and geometric spatial visualization. The purpose of this was to explore the effects of attitude towards mathematics, gender and ethnicity on geometry achievement in sixth grade classrooms. Data were collected for six weeks through the administration of tests, conducting observations, and interviews. Multiple regression analysis was used to evaluate the quantitative data and constant comparison was the method used for reducing and interpreting the qualitative data. The research study explores geometry content knowledge, spatial visualization, gender, ethnicity and mathematical attitude. Geometry has received greater attention as a result of the National Council of Teachers of Mathematics Standard. This research presents the apparent differences in mathematics attitude, gender, and ethnicity on the learning of geometry content knowledge and geometric spatial visualization. The qualitative components of the research consider important issues such as student’s understanding and parent’s role in geometry achievement. This study pinpoints some critical problem that arises. Gender equity, geometric content knowledge and spatial visualization continue to be a timely topic and an issue in education. A survey of the results indicated that (i) confidence and usefulness were important to both geometry content knowledge and spatial visualization, (ii) ethnic differences existed on geometry content knowledge,
whereas no ethnic differences were found statistically significant on geometry spatial visualization, (iii) parent child interactions were related to performance in geometry, (iv) factors related to gender were identified as enabling skills for achievement in geometric spatial visualization, (v) play factors were identified that accounted for geometric spatial visualization skills.

Neupane (2001) studied the mathematics achievement of primary school children of various ethnic groups in Nepal. The samples of this study consisted of 500 class five children and their parents. Sampling was also taken by selecting children from ethnic groups (e.g. Magar, Gurung, Newar, Tharu and Kumal) from 27 Schools of five selected districts namely Palpa, Tanahun, Lamjung, Nawalparasi and Gorkha of Western Development Region in Nepal. A Multistage stratified random sampling procedure was followed in the selection of region, districts, schools and children. Mathematics Achievement Test was administered at the end of the academic year and just before the annual examination. The findings indicated that ethnic groups children differ significantly from each other, with respect to mathematics achievement. The results also showed that:

(i) The Newer children found to be significantly better achievers in the area of mathematics than the Magar, Gurung, Tharu and Kumal children.

(ii) The Gurung children were found to be significantly better achievers in the area of mathematics than the Magar, Tharu and Kumal children.

(iii) Children from Magar and Kumal community performed better than Tharu children though the difference was not significant in the area of mathematics achievement.

(iv) No significant difference was found in mathematics achievement between Tharu and Kumal children.

Toole (2001) has investigated on explaining math’s achievement by examining its relationship to ethnic background, gender and level of formal reasoning. The findings indicated that there was a moderate correlation
between formal reasoning level and achievement, and also a moderate correlation between ethnic background and achievement. There was a very low correlation between gender and achievement. The study also concluded that reasoning level and ethnic background have an impact on achievement in mathematics. Gender does not have an impact on achievement in mathematics.

B. GENDER GROUPS (BOYS AND GIRLS) ASSOCIATED WITH ACHIEVEMENT IN GENERAL AND MATHEMATICS ACHIEVEMENT IN PARTICULAR.

Stroud and Lindquest (1942), sex comparison was made on the basis of the scores received on the Iowa every Pupil Basic skill Test on reading, comprehension, vocabulary, word study skills, basic language skills and arithmetic skills. It was found that girls maintained a consistent, and on the whole, significant superiority over boys in the subject test, in arithmetic, where small, insignificant gains favour the boys.

A study conducted by Nayar (1971) attempted to predict the achievements. The variables studied were sex, age and location of residence and school. He found that the boys were superior to girls in numerical ability. There was, however, no significant difference between the mean achievement of rural and urban students.

Abraham and Bashin (1974) reported that girls were better than boys on the test of mathematics achievement. But Fennema and Sherman (1977) studied a study using large data in order to study its relationship with mathematics achievement in grades sixth to eighth. They concluded that when relevant factors are controlled, sex related differences favour males but they do not appear often.

Benbow and Stanley (1980) reported substantial sex difference in mathematical reasoning ability score on the mathematics test of the scholastic aptitude test in favour of boys was found in a study of 9927 intellectually gifted junior high school and these differences are somewhat increased by
environmental influences.

A study conducted by the Centre for Educational Research, Innovation and Development (CERID, 1980) on achievement study of primary school children and found great differences between the achievement of boys and girls.

Lalithamma (1980) conducted a study on 732 grade IX students selected on a stratified random basis. The main objective was to ascertain differences in mathematics achievement based on sex and locality. The study revealed that the boys performed better than girls and the urban students were superior to rural students in mathematics. In a study, Swafford (1980) reported that females achieved as well as and in some instances better than males standardized first year algebra test.

Rao (1983) found in his study that there were no sex differences in the learning gains of the programmed learning groups separated on the basis of sex.

Ethington and Wolfe (1984) reported that women score some what lower than men on a combined test of mathematics.

Mundkar (1984) found in case of test in number system, boys showed higher performance than girls.

Patel (1984) reported that there was no significant sex differences with regard to mathematical ability of pupils of class IX and X.

Chitkara (1985) in his study, a sample of 300 students was randomly selected from grade IX students of four schools of Chandigarh. In the study a pretest / post-test experimental design was followed. A four-way factorial design (3×2×2×3) analysis of variance was employed. The independent variable in the study included strategies of teaching, sex, personality and intelligence and criterion variable was achievement in mathematics. The findings were: (a) Boys and girls of superior ability did not show any significant difference between their mean scores on achievement in
mathematics. (b) Girls of average ability scored significantly higher in mathematics than boys of average ability.

Hanna (1986) conducted study on sex differences in mathematics achievement of Canadian eighth grade students. Data from the Second International Mathematics Study were used. Five areas were surveyed: arithmetic, algebra, probability and statistics, geometry and measurement. No significant differences were reported in the performance of boys and girls on the first three subjects. For geometry and measurement, the boy's mean was somewhat higher than that of girls. These differences, though, not large, were statistically significant at 0.01 level. In contrast, Moore and Smith (1987) compared the mathematics achievement of young men and women, aged between 15 and 22 years. They reported that males generally outperformed their female counterparts on arithmetic reasoning and mathematics knowledge test. Husen (1987) has summarized the first International Association for the Evaluation of Educational Achievement (IEA) Mathematics study. He reported that sex was related to mathematics achievement in almost all countries, the boys scoring higher than the girls at all levels but achievement differences between males and females have narrowed significantly in many countries over the last 20 years.

Kimball (1989) reported that female students generally receive higher grades in mathematics class, but their scores on standardized tests are often lower than those of male students.

Rajyaguru's (1991) investigation was on comparative study of over-and underachievers in mathematics. This study tends to compare the achievement in mathematics, personal characteristics and environmental characteristics of overachievers and underachievers in mathematics. Stratified, proportionate, cluster sampling method was employed. The sample consisted of a total number of 1,093 subjects out of which 706 were boys and 387 were girls. The subjects were selected from six urban, six semi-urban and thirteen rural
schools. The findings indicated that: (i) there was positive and significant correlation between intelligence test and achievement in mathematics. (ii) overachievers, and underachievers did not differ in intelligence. (iii) there was no association between achievement in mathematics and sex and student’s achievement in mathematics.

Obiedat (1992) has investigated the study of mathematics achievement of grade XII students on GCSE in Irbid, Jordan in relation to their gender, intelligence, mathematical thinking and socio-economic status. The study focussed on achievement in mathematics in relation to certain selected variables. The sample consisted of 671 (364 males, 307 females) students from XII Graders. The study concluded that as regards the main effects, there was no significant mean difference between male and female students in mathematics achievement, there was significant difference between high-IQ and low-IQ Grade XII students in mathematics achievement.

A study was conducted by Harikrishnan (1992) on academic achievement of the students of the higher secondary stage in relation to achievement-motivation and socio-economic status. The study examined academic achievement in relation to achievement-motivation and socio-economic status of students. A sample of 300 students was selected at random. The tools used in the study were school marks. For data analysis ‘t’ tests and correlation coefficients were used. The findings showed that girls obtained a higher mean in achievement than boys and socio-economic status was significantly related to academic achievement.

Cherian (1993) revealed that girls from low socio-economic status performed better than boys belonging to their economic class, whereas boys belonging to middle or high socio-economic status performed better than girls.

Patel (1997) reported that boys did better than girls on achievement in mathematics.

CERID (1998) also found that the achievement of Tharu students was
lower than the students of non-Tharu communities and the achievement of Tharu girls was found higher than that of Tharu boys. In another study conducted by Ganawali (1999) on Tharu community, it was observed that there was gender discrimination in educational opportunities and girls were still neglected in such ethnic groups.

Toole (2001) reported that gender does not have an impact on achievement in mathematics.

Ramona et al: (2002) in his study explored mathematics performance between boys and girls in term of attitude toward mathematics and the average standardized scores in reading and mathematics between the 30th and 85th percentile. Participants were 7th grade students from a private school in an urban area who registered in a course intended for students of average ability. The reading and mathematics subtest of the Iowa Test of Basic skills (ITBS) were used to determine relationships between the scores and confidence to predict achievement in this course. The result showed that the boy’s standardized test scores were higher than the girls scores and that achievement in this group could not be predicted by standardized scores in reading and mathematics. Both of these reports are in contrast to reports by many previous research findings.

Banaji, Greenwald and Nosek (2002) found that across all domains that require mathematical expertise, women participate less than man do. As level of education increases, the ratio of females to males participation in math related sciences declines and at the college level women are poorly represented in math and math intensive fields such as Physical Sciences (34%), Computer Sciences (35%) and Engineering (16%).

Saeed, Bashir, Gondal and Bushra (2005) showed that in Grade 5, the achievement was lowest in mathematics (mean 10.8) and the highest in life skills (31.63). The very study was carried out on a sample of 1,080 students of grade 3 and 5 drawn from randomly selected 36 primary / elementary schools.
from nine-districts of the Punjab Province. The instruments were achievement tests in three subjects. The study further revealed that overall the performance of the female students was relatively better than their male partners in subjects taught at 1st level.

Mead (2006) analysed the data of the National Assessment of Educational Progress (NAEP) commonly known as “The National Report Card” is a widely respected test conducted by U.S. Department of Education using a large national sample of American students to measure national trends in boys’ and girls’ academic achievements over long period of time. The findings were that in math boys outperform girls at all grade levels, but only by a small amount.

C. HABITAT GROUPS (URBAN, SUB-URBAN AND RURAL STUDENTS) ASSOCIATED WITH ACHIEVEMENT IN GENERAL AND MATHEMATICS ACHIEVEMENT IN PARTICULAR.

Nayar (1971) attempted to predict the achievements. The variables were sex, age and location of residence and school. He found that the boys were superior to girls in numerical ability. There was, however, no significant difference between the mean achievement of rural and urban students.

Lalithamma (1980) conducted a study on 732 grade IX students selected on a stratified random basis. The main objective was to ascertain differences in mathematics achievement based on sex and locality. The study revealed that the boys performed better than girls and the urban students were superior to rural students in mathematics.

Rao (1983) revealed that performance of urban students was superior to the performance of the rural subjects under the programmed learning method.

Patel (1984) reported that there is no significant difference between mean scores of pupils of urban and rural areas hence norms for these two areas were established separately. In contrast, Shukla (1984) conducted a study on
200 rural and 500 urban students of Primary Schools and found there is no significant difference in academic achievement.

Kolhe (1985) compared boys and girls and urban and rural population on attitude towards mathematics and indicated significant difference between the attitude of urban and rural students towards mathematics irrespective of sex.

Ganguly (1989) found that parental care about child’s education, emotional climate at home and socio-economic status of family had a positive correlation and crowded living condition at home had a negative correlation with the scholastic achievement of students of both urban and rural areas.

Baskaran (1991) conducted a study on achievement in mathematics of standard X students. The study aimed at finding out the relationship among achievement-motivation and achievement in mathematics. The findings indicated that there was a significant relationship between achievement-motivation and achievement in mathematics, urban and rural students did not differ in their achievement-motivation and attitude towards mathematics. He also found that there was a significant difference between boys and girls in their achievement in mathematics.

Garg (1992) has conducted a study of family relations, socio-economic status, intelligence and adjustment of failed high school students. The study attempted to investigate certain attributes of failed students. The sample consisted of 200 failed and 200 passed students randomly selected from 27 randomly selected schools of the five districts of the Garhwal region. The findings indicated that the passed students were more intelligent, accepted better by parents, better adjusted socially and economically, more advanced than the failed students. He also indicated that the rural passed students were more intelligent than the rural failed students.

Morgan and Sorensen (1999) examined Coleman’s findings through an analysis of gains in mathematics achievement between the tenth and twelfth
grades for respondents to the National Education Longitudinal Study of 1988. They reported that for public schools, social closure among parents is negatively associated with achievement gains in mathematics. This lead to support alternative hypothesis that horizon expanding schools foster more learning than do norm-enforcing schools. Moreover, this result renders social closure incapable of explaining any portion of Catholic school effect on learning, even though with in Catholic School sector there is some evidence that social closure is positively associated with learning.

Saeed, Bashir, Gondal and Bushra (2005) carried out a study on a sample of 1, 080 students of grade 3 and 5 drawn from randomly selected 36 primary / elementary schools from nine districts of the Punjab Province. He found that location wise the rural students performed better than the urban students.

Dodendorf (2006) did an observational study of 34 children in a Midwest rural two-room school yielded several insights into a unique school environment. Teacher strategies are described, as well as child behaviour, as they differed from urban school. Five environmental characteristics were striking: (a) school routines, (b) group learning, (c) interdependence, (d) independence, and (e) community involvement. Comparison of the Metropolitan Achievement Tests and the Science Research Associates (SRA) scores yielded little or no difference in performance between urban and rural children. The only significant difference was on the social science subtest. Positive aspects of a rural school environment were highlighted by this study’s observational and test data.

Pallavi (2006) found that urban students and girls were better in educational achievement than rural students and boys respectively.
D. OTHER BIOGRAPHICAL CHARACTERISTICS ASSOCIATED WITH ACHIEVEMENT IN GENERAL AND MATHEMATICS ACHIEVEMENT IN PARTICULAR.

Stone (1908) conducted a comprehensive study in the area of achievement in mathematics. He surveyed the arithmetic achievement of 3000 six grade students from 26 school systems and found some evidence that help in homework and discussion about school work help in student’s achievement.

Harrel and Harrel (1945) state that children differ culturally because of home environment, language background and a moment of cultural enrichment. Children who lived in on urban environment have assimilated cultural elements different from those children who live in rural areas. Those differences affect the behaviour of children.

Segal (1949) conducted a study on backward families. He remarked that the children’s achievement is influenced by the numerous factors such as the health of mother, the wages of the father, the conditions of house, socio-economics status, condition and size of the family etc. He reported high correlation between academic achievement and family status.

Inherent in the attempt to identify specific effects of social class experience and differences in the environment is the problems of interaction between social class and other mediating variables which may interact with Social class and Ethnical influences upon Socialization (SES) position. Perhaps the most troublesome issue is the relationship between social class and performance on intelligence tests.

Garrett and Segel (1949) concluded that size of the family is a vital factor affecting the academic achievement of school children. Several researchers (eg. Phearman, 1949; Shaw and Brown, 1957) remarked that academic achievement of children is inversely related to size of the family.

In a study, Rosen (1959) hypothesized that dissimilarities in social mobility rates would be attributable to different emphases placed by each group
upon independent training given to the child, different value orientation regarding achievement, and different vocational and occupational aspirations of his parents for him. Data collected from 427 pairs of mother and their sons, aged eight to fourteen, drawn from ‘new immigration’ groups of French-Canadians, Southern Italians, Greeks, East European Jews, and from groups of North-eastern U.S. Negroes and of native-born White Protestants, supported Rosen’s hypothesis. Mothers of each ethnic group placed different emphases upon independent training, with Jewish mothers expecting earlier evidence of self-reliance from their children (mean age 6.83 years) followed by the Protestants (6.87), Negroes (7.23), Greeks (7.67) French-Canadian (7.99) and Italians (8.03). Concomitantly, the groups of Greek, Jewish and White protestant boys gave evidence of higher achievement motivation than the Italian, French-Canadian, and Negro boys.

Sharma (1959) conducted a study on parental occupation and school achievement. He concluded that occupations of parents are positively related to school achievement of children. Children belonging to high middle social classes scored higher than those belonging to low social class, and middle significantly differ from each other.

Roberts (1962) did not find significant difference between high achieving and low achieving groups of high school students in respect of family size.

In a study, Nichols and Davis (1964) found that high achievers were from small sized families. Another study conducted by Srivastava (1967) investigated into the factors related to educational under achievement of the students at school level and observed that the cause of under achievement of the students was related to size of family.

Kulkarni (1970) conducted a study at three levels of education: at the end of Primary, middle and secondary stage and reported that boys achieved higher than girls.
Myers (1985) has investigated the relationship between poverty and student's achievement in mathematics using path analytic methods. He concluded that poverty was related to student's achievement even after statistically adjusting student's level variables such as sex, ethnic background, family structure and number of siblings.

Pande (1985) conducted a factorial study of cognitive factors associated with the achievement in social sciences and commerce at a high school level. This study aimed at investigating the cognitive factors that contribute to achievement in social sciences and commerce subjects at high school level. In the study, descriptive co-relational methodology was employed. The sample consisted of 500 students of class IX belonging to Kumaun and Gurhwal regions of Uttar Pradesh. A battery of seventeen tests was developed. All these tests had multiple-choice items. The findings of this study indicated that general mathematical factor had high loading on all the three tests of mathematics. It also showed that general reasoning factor had high loading on arithmetic test, algebra test and principles of economics test.

Agarwal (1986) made district-wise comparisons amongst the different educational groups of secondary school and it was noticed that the high achieving group was found as getting a higher amount of parental encouragement in all the groups based on gender, urban-rural location, demonstrating thereby parents' involvement as a positive correlate of academic achievement.

Singh's (1988) investigation was on the relationship between achievement of certain concepts in Physical Chemistry and certain selected intellectual abilities exemplified in the SI model of Guilford. He found a significant relationship between achievement factors had high loading of reasoning-ability variables. Persons with high academic achievement are also be expected to have creative personality characteristics. The characteristics of high achievers were responsible and planful (Singh, 1988). High achievers
were more confident about their ability than the low achievers.

Satyawati (1988) conducted a study on 50 students belonging to the age-group of eleven to fourteen in non-metric geometry. The evidence showed that students were familiar with the terminology, assumptions and figural and concrete representation related to the non-metric geometrical concepts, but they failed to use these concepts at the ‘understanding’ and ‘application’ level and the students did not use precise language to express their thinking related to the non-metric geometrical concepts.

A study conducted by Doshi (1989) on Achievement and Cognitive preference styles in mathematics of class X students. This study aimed to find out the cognitive preference in mathematics among class X (arts, science and commerce) students, cognitive preference style of high and low achievers in mathematics to study the relationship between student's achievement in mathematics and their cognitive preference styles. The study comprised of 1,200 students made up of an equal number of rural and urban students. The design used was a factorial design. The researcher developed and used an Elementary Mathematics Achievement Test as well as a Mathematics Cognitive Preference Test. The collected data were treated using analysis of variance. The findings indicated that the majority of arts and commerce students manifested the R-P-A-Q order of cognitive preference styles, there was no significant relationship between cognitive preference styles and achievement in mathematics and knowledge scores were positively correlated with questioning at the low level.

In a study, Burkheimer et al. (1989) reported that instruction in native language improves mathematical achievement. They also discovered that students who received instruction in their ethnic heritage had positive mathematical achievement; the students who did not receive instruction in their mother tongue had negative mathematical achievement.

In a study, Chadha et al. (1990) conducted on creativity, intelligence and
scholastic achievement. The objective of this study was to find out partial correlation between creativity, intelligence and scholastic achievement. The sample of this study consisted of 79 students (42 boys and 37 girls) of grade XI under the 10+2+3 system from a reputed Delhi Administration school. The findings indicated that: (i) correlations were positive and significant, between creativity and intelligence and scholastic achievement. (ii) Intelligence Quotient correlated with creativity and scholastic achievement.

Deb and Grewal (1990) in his study on relationship between study habits and academic achievement of undergraduate home science final year students and found out that home environment of the students and planning of schedule significantly related to their academic achievement. The study also showed that student's habits and interests influenced their academic achievement. In a study, Devanesan (1990) reported that there was significant and positive relationship between the achievement motivation and scholastic achievement of higher secondary mathematics group students. He also indicated that there existed a significant relationship between socio-economic status and scholastic achievement.

Leder (1992) sketched the broader educational environment over the past two centuries for male and female in the three different western countries, the United States, England and Australia. There were contradictory ideas about the educational needs of girls. Parents realized that education could give independence to a daughter who remained single. There were fears that too much education might spoil her changes of marriage. Germans were also less favourable towards education of women.

Hadi (1995) revealed that the variation within the school is higher than the variation between schools, which means that the student level variables are more important than school-level variables.

Campbell and Storo (1996) found that certain myths have become widely accepted as truths. One such a myth is that "women are qualitative; men
are quantitative.” The result of this belief? Girls are much less apt than equally
talented boys to go into math-related careers including Engineering and the
Physical Sciences. Another such myth uncovered is “there is a sex-linked math
gene” The result? Parents and teachers alike hold lower expectations for girls in
math and science than they do for boys. It is these gender stereotypical attitudes
over the years, held by teachers and absorbed by students, that play a major
role in the future mathematical performance of females.

Streitmatter (1997) found that girls tend to be praised simply for trying,
where as teachers tend to withhold praise for boys until they produce a correct
answer. This fosters an atmosphere favourable to male learning while
overlooking the needs of female students.

Frost, Hyde and Fennema (cited in Odell and Schumacher, 1998) found
males to be more confident in their ability to perform mathematical tasks more
expectant of mathematical success and more positive in their attitudes about
maths.

Li. (1999) found that “teachers have different beliefs about male and
female students: they tend to stereotype mathematics as a male domain.”

Al-rwaied (2000) conducted a study on the relation among eighth grade
student’s creativity, attitudes, school grade and their achievement in
mathematics in Saudi Arabia. This study aimed at examining the relationship
among the factors like student’s attitude toward learning mathematics, student’s
mathematical creativity and school grade had on achievement in mathematics
in eighth grade in boy’s public schools in the Riyadh district in Saudi Arabia.
The study also sought to order these three factors regarding to their levels as to
predict the achievement in mathematics. Three instruments were distributed to
300 students in Riyadh district. 254 students completed the three instruments
and their record was available for their grade in mathematics in the first
semester of school year 1999-2000. Descriptive statistics was used to identify
the most independent characteristics of both dependent and independent
variables. The findings indicated that the combination between these three independent variables could explain approximately 58% of the mathematics achievement. It also showed that the best predictor was the student's attitude towards learning mathematics; the second predictor was student's mathematics creativity and finally the least predictor was student's school grades. Besides the main result of this study was that the mean of the student's achievement in mathematics on standardized test was very low i.e., 37%.

Tapia and Marsh (2000) found that the true barrier standing between girls and reaching their full potential in mathematics is lack of confidence.

Angelo and Branch (2002), found that teachers tend to call upon boys more in class, partially because time is tight and the teachers need to move the lesson along: Thus the classroom may be moving along at a pace that is satisfactory to the teachers, but once again, it is at the expense of the female students.

Norman (2005) found that boys held more positive attitudes towards science and mathematics than do girls.

Singh and Singh (2007) found that classroom behaviour of urban teachers were more pronounced than rural teachers in grade VIII. This study was conducted on 100 upper primary school teachers of Govt. Schools in Balrampur (U.P.).

General conclusion

In most of the studies reviewed, Blacks have been compared with whites in Western countries and scheduled caste / scheduled tribe in India.

Osborne (1960), Lesser et al. (1965), Anick, et al. (1981), Velenda and Joice (1985), Lakhheba (1986), Murthy (1987), Gupta (1988), etc. reported that the established high class groups were significantly superior to minority ethnic groups. In contrast, Rath and Saxena (1995) found no significant difference in mathematics achievement.

To study the effect of sex on achievement in general and mathematics
achievement in particular many studies have been done. Nayar (1971), Benbow and Stanley (1980), Lalithamma (1980), Ethington and Wolfe (1984), Hanna (1986), Moore and Smith (1987), Husen (1987), Patel (1987), Romana et al. (2002), and Mead (2006) found that boys were superior to girls. On the contrary Stroud and Lindquist (1942), Abraham and Bhasin (1974), Gupta (1988), Kimball (1989), Harikrishnan (1992), and Saeed, Bashir, Gondal and Bushra (2005) found that girls were superior to boys. However, Rao (1983), Patel (1984), Chitkara (1985), Rajyaguru (1991), Obeidat (1992) and Toole (2001) revealed that there were no association between sex differences and achievement.

As concerning with habitat, most of the researchers like Nayar (1971), Patel (1984), Shukla (1984), Kolhe (1985), Baskaran (1991) and Dodendorf (2006) reported that there was no difference between achievement level of urban and rural students or urban and rural differences were irrespective of gender. On the other hand Lalithamma (1980), Rao (1983), and Pallavi (2006) found that achievement level of urban students were higher than rural students. However, Saeed, Bashir, Gondal and Bushra (2005) revealed that achievement of rural students is higher than urban students.

Thus several studies have been conducted to establish the relationship between caste, sex and habitat on achievement but conflicting results were obtained. Thus the review of research literature reveals significant points.

1. Comparison of mathematics achievement among social caste groups of eighth grade students has not been studied systematically and do not provide a clear cut picture about Indian regions.

2. Comparison of mathematics achievement among different sexes of these caste groups has not been studied systematically.

3. Comparison of mathematics achievement among the caste group viz. urban, suburban and rural has not been studied systematically.
PRESENT STUDY

The present study differs from the previous investigations on the following aspects:

(i) In the present study a comparison of the achievement in mathematics of different social castes of Devipatan Division viz: General, OBC (Other background castes) and SC (Scheduled castes) have been done.

(ii) This study also differs from other studies in achievement of these castes groups in two aspects of their sexes i.e. boys and girls.

(iii) This study aims at the study of achievement in mathematics of different social castes in three areas of their habitat i.e. urban, sub-urban and rural areas.

Thus to the best of knowledge of researcher no such study has been conducted in India or abroad.