CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION:

A survey of review of related literature was undertaken by the investigator to get an insight into the work that has already been done by different investigators in different locations and also to get suggestions regarding the methodology to collect data and their interpretation in a suitable way. Searched studies have been arranged in a chronological order from past to the present followed by chapter summary.

The studies reviewed were mainly on gender difference on academic achievement of secondary school students. The searched literature related to the present research work has been presented into three categories viz.

i) Studies abroad

ii) Studies in India, and

iii) Studies in Assam

Reviews searched related to this study are presented as follows-

2.2 STUDIES ABROAD:

Many studies have been made in the international arena regarding the gender difference on academic achievement among students. Some of them are stated below.

Doolittle, Allen E. (1989) in a study ‘Gender differences in performance on Mathematics Achievement Items’ investigated using data from students with three different course backgrounds. Eight randomly equivalent samples of high schools
seniors were given a unique form of act, Assessment Mathematics Usage Test. Only students with three specific profiles of high schools mathematics coursework were considered in the analysis.

The three background conditions ranged from little mathematics (Algebra I only) to a modest background (two Algebra courses and Geometry) to a full mathematics program including introductory calculus. For each background conditions, examinee performance was analyzed in a 2 (Gender) x 3 (Item Category) x 8 (Test Form) split plot factorial design. The results indicated that, at each of the studied background levels, females performed less well than males on geometry (strategic, geometric) and reasoning (strategic, nongeometric) items. On the other hand, females performed as well as males on alogarithmic operations oriented items.

Jovanovic, Jasna., & King, Sally Steinback (1998) in the study “Boys and Girls in the performance based science classroom” examined whether over the school years boys and girls equally share in performing the behaviours required of hands on activities in the performance based science classroom. The study also examined whether this performance behaviours accounted for changes in boys and girls science attitudes at the end of the school year. The results indicated that being actively involved in the performance based science classroom predicted students end of the year science attitudes. However boys and girls didn’t participate equally in these classrooms. Moreover it was found that for girls but not for boys, there was a decrease in science ability perception over the school year. Boys and girls experienced these classrooms differently.
Ai, Xiaoxia (1999) in a study “Creativity and academic achievement: An investigation of gender differences” investigated the possible relation between creativity and academic achievement, in particular, to see if this relation might be different for boys and girls. 2264 students from 68 schools selected randomly from the Basque county, Spain. It was found that academic achievement was operationalised by students self report of their achievement in 6 subject areas; Spanish, Basque, English, Natural Science, Social Science, Mathematics. By canonical correlation analysis, it was found that if operationalised by the teachers’ ratings, creativity was related with academic achievement for both boys and girls. For boys, flexibility was the predominant factor that related to all six academic subject areas. For girls, elaboration related to four of the academic subject areas, and fluency related to natural science and mathematics. If operationalised by the other three measures however, creativity was barely related to academic achievement.

Valas, Herald (2001) conducted a study “Learned helplessness and psychological adjustment: effects of age, gender and academic achievement” to test the direction of the relationship between learned helplessness, assessed by the teacher and own expectations about academic achievement. It was found that the relation between these two variables was reciprocal, with the strongest effect between helplessness and expectations. The analysis of structural equations models showed that the academic achievement was directly and indirectly related to the pattern of attributes expectations, helplessness and psychological adjustment. Moreover, helplessness and academic expectations were significantly related to psychological adjustment. The results also clearly indicated that boys showed more helplessness
behaviour, as assessed by the teacher, than did girls, while on the other hand, girls reported more psychological maladjustment.

When studied the “Adolescents’ goal orientations and academic achievement: long term relations and gender differences”, Giota, Joanna (2002) had highlighted the predictability of 8 (eight) different types of goal orientation as motives for academic achievement. The findings of the study suggested that students at the age of thirteen pursue a variety of academic and non-academic goals and those different types of goal orientations were differently related to achievement.

Linver, Miriam R., Davis-Kean, Pamela E., & Eccles, Jacquelynne S. (April, 2002) in the study “Influences of gender on academic achievement” found that overall, young women have slightly higher grades than young men. For both young men and women in the honors/college track group, math grades started out fairly high and then decline throughout high school, ending up at about A, B- or C+. The result of the study also suggested that for boys and girls, math grade fall over the course of junior high and high school. Young women achieved at comparable or higher levels in math as males, but their interest especially for the high achieving females, were the same or lower than males. The results also suggested that for young male in higher level math tracks, math interest was much more strongly related to math school grades than for young women in the same math courses. Indeed, interest in math courses or math related activities remain flat across the junior high and high school years for women who were in the higher level math courses. The study suggested that in order to encourage more women in math, science and information technology fields, interventions need to be designed that focus not on the academic performance of women but on how to make math and science related occupations more interesting for
young high achieving women. This type of intervention should start early in the academic careers for these adolescents and young women.

Dayioglu, Meltem., & Serap, Turut-Asik (2004) in the study “Gender differences in academic performance in a large public university in Turkey” found that there was gender gap in favour of male students in terms of university entrance scores. The cumulative distribution of female scores lies above the distribution for males indicating the existence of a gender gap in favour of the male. An imbalance was also observed in the gender compositions of the preparatory schools. The difference of enrolment in preparatory schools by male and female was statistically significant. It also indicated that female student’s language ability was higher than the male students, though differences in motivation could also be a factor. Considering the academic performances of male and female students in terms of CGPA, it was found that female students, on average outperformed their male counterparts. The study has established that despite their lower university entrance scores and under representation in most departments, female undergraduate students outperformed their male counterparts during their college years. It is true that higher grades in the faculty of education and the greater concentration of female students in education department helps to explain the higher CGPA for the females student population; it was also the case that female students outperformed their male counterparts in all other four schools considered. The multivariate analysis has further shown that, controlling for all other relevant factors, belonging to a certain school doesn’t bring about an advantage to female students. While controlling for students ability and other relevant individual attributes, the results indicated that female students were able to make
better use of their individual endowments and the opportunities offered at METU in achieving higher grades.

In an investigation “Gender differences in adolescents’ academic achievement, interests, values and life-role expectations”, Lupart, Judy L. and Others (2004) found that younger students were generally more positive about school and future adult life roles than older students. Major gender differences were found favouring females in English language, arts and males in science. Gender typical preferences were found for future career aspirations with males selecting science and information technology related careers, and girls selecting artistic and health professions as top choices. The findings were congruent with Eccles Model and supported the notion that gender and age influence adolescent student choices.

Chee, Kyong Hee and Others (2005) when investigated “Gender differences in the academic ethic and academic achievement” among college students, found that women were more likely to possess an academic ethic than men that women also tend to have higher GPAs. The result of regression analysis with GPA as the dependent variable revealed differences between men and women in terms of significant predictors. The results also indicated that active participation in student clubs or groups was positively associated with GPA in case of females, but for men, employment was negatively related with GPA.

In a longitudinal study made by Herbert, Jennifer., & Stipek, Deborah (2005) assessed “The emergence of gender differences of children’s academic competency” from Kindergarten through fifth grade. Children, their parents and teachers rated the children’s competencies in math and literacy and their math and literacy skills were
also assessed directly. Beginning in third grade, girls rated their math competencies lower than did boys, even though there was no gender difference in math achievement or in teachers’ ratings of children’s math ability. Parents also rated boys’ math competencies higher than girls in both third and fifth grades. Although girls outperformed boys on the literacy achievement measure in third and fifth grade, and teachers’ ratings of children’s literacy ability reflected this gender difference in performance, gender differences were not found in either parents’ or children’s ratings of literacy ability. Results of regression analyses indicated that actual achievement and teachers’ ratings predicted children’s judgments of their literacy skills. Parent ratings of children’s competence were particularly strong predictor of children’s judgments of their math skills.

Pekkarinen, T. (2005) in the study “Gender differences in educational attainment: Evidence on the role of tracking age from a Finish quasi-experiment” found that the postponement of the tracking age increased gender differences in the probability of finishing general secondary education and the years of completed education, in favour of girls. It was also found that the reform increased the gender difference in the probability of choosing the general secondary school in favour of girls. The reform also had a positive effect on the completed years of schooling for both boys and girls but it’s effect on the gender difference in the completed years of schooling was not significant.

Serin, S. (2005) in a study ‘Socio-economic Status and Academic Achievement: A Meta-Analytic review of Research,’ found a medium to strong SES-achievement relation. This relation, however, was moderated by the unit, the source, the range of SES variable, and the type of SES-achievement measure. The relation
was also contingent upon school level, minority status, and school location. The author conducted a replica of White’s (1982) meta-analysis to see whether the SES–achievement correlation had changed since White’s initial review was published. The result showed a slight decrease in the average correlation.

Ajiboye, J. O., & Tella, Adeyinka (2006) in the study “Class attendance and gender effects on under graduate students” found that although the difference in the mean scores of male and female students serve marginal, however their difference was found to be statistically significant at 5% level of significance. It indicated a significant gender effect in social studies academic performance. It also observed that male students performed better than the female counterparts. It was further reported that students’ gender has effect on performance in social studies. Being verbal based subject social studies predisposes gender interest. It was however striking to note that males rather than females preformed better in the course. The major explanation for this was that looking closely at the attendance rates; male students have better attendance records than their female counterparts in this course, hence, their show of better performance.

Barry, Jennifer (2006) in a study “The effect of socio-economic status on academic achievement” addresses the increasing importance of student test scores by examining the different factors that influence test scores. Composite test scores of tenth grade students from the Educational Longitudinal Study of 2002 were examined using a four part model which included student role performance, school, family and peer factors. Ordinary least Squares analysis indicated that the strongest predictor of student test scores was socio-economic status, resulting in a statistically significant increase in the standardized co-efficient of .224 points.
Castagnetti, Carolina., & Rosti, Luisa (2007) in their study “Effort allocation in tournaments: the effect of gender on academic performance in Italian Universities” found that female students outperformed male students in academia but were overcome in the labour market. By decomposing the gender difference in educational performance between observed and unobserved factors, it was found that about 56% of it due to unobserved inputs. Assuming the academic competition was fair and that individual talent was equally distributed by gender, the study suggested that gender gap evident in degree scores was due to greater individual effort endogenously exerted by female students. Gender difference in educational performance vanished when time constrained part time students were considered. It was also found that females’ wage incremental expected value related to academic performance was higher. When investigated about the higher return on education for females was found on signaling values.

Studying on “Parental education, peer and gender effects on academic achievement of 500 senior secondary school students in Gaborone, Botswana”, Tella., & Toyobo, F. A. (2007) indicated that parental education; peer and gender have joint effect and contribute significantly to academic achievement of the participants. Findings of the study revealed gender difference in the academic achievement of the secondary school students. Based on the findings it was recommended that parents should use their education experience to give all the needed support to enhance academic achievement of their children and the issue of gender bias associated with the educational system should be removed without any further delay.
When investigated on the “Longitudinal analysis of gender differences in academic self concept and language achievement: a multivariate multilevel latent growth approach” from grade 7 to grade 12, De Fraine, Bieke and Others (2007) found that both girls and boys experienced a declining academic self concept during the period of secondary education and that girls declined at a faster rate. Furthermore, girls were shown to have an increase in Dutch language achievement over time, whereas boys showed a decrease in middle years, followed by an increase from grade 9 on. The multivariate multilevel growth curve model suggested the evolution of academic self concept was not related to the evolution in achievement, neither at the individual level, nor at the school level. There was, however, a positive relation between students’ academic self concept and their achievement, the magnitude of which decreased throughout secondary school. At the school level, the correlation was small, but also positive, except for the girls from grade 10 on.

Buchmann, Claudia., DiPrete A. Thomas., & McDaniel, Anne (2008) in their article “Gender inequalities in education” based on empirical research and theoretical perspectives focused that much of the literature on children and adolescents attends to perform differences between boys and girls. Achievement in elementary and secondary school was linked to the level of education, college completion, and graduate and professional schools experiences. The study recommended three directions for future research i.e. interdisciplinary efforts to understand gender differences in cognitive development and non-cognitive abilities in early childhood, research on structure and practices of schooling and analyses of how gender differences might amplify other kinds of inequalities, such as racial, ethnic, class, or nativity inequalities.
Chang, Yuwen (2008) in a study “Gender differences in science achievement, science self concept and science values” found that at lower level, girls average performance were better than boys and had smaller score variation. At upper level, boys outperformed girls and had larger variance. In addition, boys outnumbered girls in the top 25% in science performance. No matter the direction of gender differences at each quarter, boys always had higher self-concept of ability and subjective science values. It evidenced that gender differences in self-concept and science values did not parallel diminishing differences in actual achievement. When students’ achievement levels were controlled, science self-concept and values were more highly related to science achievement for high achievers.

Naderi, Habibollah and Others (2008) in their study “Intelligence and gender as predictors of academic achievement among undergraduate students” failed to support intelligence and gender as predictors of student’s academic performance (CGPA). Partial correlations between academic performances and IQ scores and gender were non-significant at .05 level of significant. Coefficient also showed no significant relation between academic performance and IQ and gender at .05% level. This study did not give much support for intelligence and gender as predictors of academic performance. Regarding Cumulative Grade Point Average (CGPA), two limitations were kept in mind when interpreting the results of the study. This was the first study which investigated a wide range, by examining intelligence test as a determinant of academic performance among Iranian students. The age difference of students in the study might elucidate why intelligence and gender didn’t predict academic performance, as in the case of other studies. The study didn’t support intelligence and gender as predictors of academic performance of Iranian students.
overseas. The result of the analysis was discussed in terms of the implications for the identifications of students’ for placement on academic performance.

Erten,²¹ Ismail Hakki (2009) conducted a study on “Gender differences in academic achievement among Turkish prospective teachers of English as foreign language” among third year students enrolled in a pre-service ELT (English Language Teaching) teacher training department. Both quantitative and qualitative data were collected in the study through semi structured interviews from a sample of 38 students. A content analysis of the data indicated that male and female trainee teachers had differentiating perceptions of social roles and as an artifact of these roles. They differed in the quality and quantity of time and effort allocated for their academic studies. Girls reported both longer periods of time and more efficient metacognitive disposition than their male peers. Another important factor for the observed differences appeared to be the perception of teaching as profession. Female trainee teachers reported more intrinsic orientations towards the profession where as male trainee teachers mentioned more extrinsic orientations, which seemed to directly influence the participants’ engagement with their academic endeavour.

Orson,²² Pamela G. and Others (2006) in their study “Gender differences in academic and social behaviour of elementary school transfer students” found gender differences in several measures, although gender did not substantially interact with the intervention. As expected, female transfer students reported lower self concepts than males; teachers reported that boys were more popular; peers also rated boys as more aggressive and girls as more likable. Findings of the study suggested that preventive interventions for transfer students need to account for effects of gender.
Cennet, 23 Engin-Demir (2009), conducted a study “Factors influencing the academic achievement of the Turkish urban poor” estimated the individual and combine effects of selected family, student and school characteristics on the academic achievement of poor, urban primary school students. The findings indicated that the set of variables comprising student characteristics, including well being at school, scholastic activities and support, explained the largest amount of variance of academic achievement among the urban poor. Although the effect sizes were small, family background characteristics and school quality indicators were also found to be significantly related to academic achievement.

As a new medium of learning readily connected with outside world, the internet has brought unprecedented opportunities to students on the one hand, while becoming a major concern for parents on the other. Chen, 24 Su-Yen., & Fu, Yang-Chih (2009) when studied on “Internet use and academic achievement: gender differences in early adolescence” found that online searching for information helps boost exam scores, while using the Internet for socializing and gaming, as well as going to Internet cafes, contributes to poorer examination performance. Male and female students differ not only in their patterns of Internet use, but in how these patterns affect their academic performance. While information searching helps both boys and girls, online socializing makes girls particularly vulnerable, and online gaming and Internet cafes hurt only boys’ academic achievement.

Studying on “Early gender differences in self regulation and academic achievement” by using objective direct measure and classroom self regulatory behaviour, Matthews, 25 J. S. and Others (2009) have found that girls outperformed boys in both assessments. Although gender differences in self regulation were clear,
no significant gender differences were found on the five academic achievement outcomes, as measured by the Woodcock-Johnson III Tests of achievement. Self-regulation consistently predicted math and sound awareness, although links were stronger with the direct measure as compared with teacher reports.

Caro, Daniel H., McDonald, James Ted., & Willms. (2009) in their study “Socio-economic Status and Academic Achievement Trajectories from Childhood to Adolescence” found a positive relationship between socio-economic status and academic achievement. This article used four data points from Canada’s National Longitudinal Study of Children and Youth (NLSCY) to examine how the academic achievement gap attributed to SES changes from childhood to adolescence (ages 7 to 15). Estimates of panel data and hierarchical linear models indicate that the gap remains fairly stable from the age of 7 to 11 years and widens at an increasing rate from the age of 11 to the age of 15 years.

Stasiewicz, Teri Michele (2009) in a study “Social desirability and perceived competence related to academic achievement: gender and ethnicity differences” examined the relationships between social desirability, perceived competence, academic achievement, English proficiency, ethnicity, and gender in 3rd grade children. The result of the study demonstrated that there were no significant ethnicity or gender differences in social desirability among the children. Also, there were no significant ethnicity differences in perceived competence. In addition, regression analyses revealed that English proficiency was the only variable to significantly account for differences in the children’s academic performances.

Social skills include different behaviours which help an individual enter and interact in interpersonal relations and they are considered as important factor of
students’ acceptance and popularity among peers and also a factor of their academic achievement. Studying on “Students’ social behaviour in relation to their academic achievement in primary and secondary schools: teachers’ perspective”, Pecjak, Sonja (2009) explored gender differences in evaluated social skills and investigated relations between social skills and students’ academic achievement. Results of the study showed that teachers assessed girls as socially more competent on all subscales regardless of their school level. Academic behaviour was the only subscale on which there were significant differences between primary and secondary school students, although girls scored higher again at both levels. Correlations between students’ social behaviours and their academic achievement were higher in boys and higher between socially desired behaviour and academic achievement compared to socially undesired behaviour. In the category of desired behaviour, self management/compliance and academic behaviour were significant predictors of male and female students’ academic achievement. The strongest predictor of students’ academic achievement was their academic behaviour.

While investigating on “The role of parental support, parental monitoring, and time spent with parents in adolescence academic achievement in Iceland: a structural model of gender differences”, Kristjansson, Alfgeir Logi., & Sigfusdottir, Inga Dora (2009) found that parental factors were all associated with academic achievement among both boys and girls. However, for both genders, these associations were mostly indirect, through school effort. The relationship between the parental factors and academic achievement was similar in strength for boys and girls. Boys however received less parental support and were less monitored than girls.
Parekh, Charles (2010) in the study “Three essays on grade configuration, academic achievement, and gender gap” explores differences in the performance trajectories of boys and girls – and different racial and ethnic subgroups within the genders- as they progress through elementary and middle schools in New York City by addressing differences in the pace of learning between boys and girls. If boys and girls mature, in an academic sense, at different points in their childhood, then blanket policies of school configuration could affect boys differently than they affect girls.

When examined the relationships between components of emotional intelligence and academic performance in english, maths and science among the students of 11-12 years of age during the primary-secondary transition period, Jordan, Julie-Ann and Others (2010) indicated that for both males and females, interpersonal ability had little relationship with academic achievement, while adaptability had the strongest relationship in achievement in all subjects. Gender differences were particularly pronounced for science, for which stronger relationship were observed with all EI (interpersonal ability, intrapersonal ability, adaptability and stress management) components for males. In addition, apparent only for males was a negative relationship between stress management and science. These findings supported for the current inclusion of a personal and emotional element in the primary school curriculum, and indicated that such training would help males more than females to make a successful transition from primary to secondary school.

Young and Others (2010) in their study “Gender differences and similarities in a screening process for emotional and behavioral risks in secondary schools” found notable gender differences when the Systematic Screening for Behaviour Disorders (SSBD), Stage 1 and Stage 2 were adapted and used for screening in secondary
schools. More male students were nominated at Stage 1, and female students received higher scores on the Adaptive scale at Stage 2. However, the strongest effects were found when they considered the internalizing and externalizing nominations at Stage 1 as predictors of Critical Events, Maladaptive, and Adaptive scores at Stage 2. These findings can be interpreted to mean that while gender differences are salient concern, a consideration of the specific needs of students with internalizing or externalizing behaviours may be a more pressing concern when one is planning interventions for secondary school students who are identified by means of the SSBD.

Examining the evolution of the gender achievement gap in middle school students in Beijing, China, Lai, Fang and Others (2010) have found a more significant female dominance than in U.S. studies: even though boys gradually caught up during middle school, specially in math and science and the gender achievement gap decreased over the distribution of test scores, girls outperformed boys throughout primary and middle school and in each quartile of the performance distribution. As well girls had a more positive school experience than boys, and boys had a higher dropout rate by the end of middle school. Despite significant gender differences in various important characteristics that have explained the gender achievement gap in U.S., primary school test scores seemed to be the only significant source of the gender achievement gap at the end of middle school, indicating the importance of early intervention.

D, Lisle (2010) in the study “Evaluating the geography and gendered achievement using large scale assessment data from primary school system of the Republic of Trinidad and Tobago” analyzed the spatial distribution of gender differentials in mathematics and language arts on national assessments of educational
achievement in the primary school system of the Republic of Trinidad and Tobago. The findings indicated statistically significant medium-size differences favouring females on language arts primarily in the rural regions of East Trinidad and in the island of Tobago and statistically significant, negligible to small differences on mathematics nationwide. Individual schools reporting medium seized gender differences were more common in rural, low performing education districts, where reported poverty was also higher. This pattern of early gendered achievement in language within low-achieving, poor and rural geographic locations points towards the need for placed based education policies and focused interventions.

Momanyi, J., Ogoma, S. O., & Misigo, B. L. (2010) in a study “Gender differences in self-efficacy and achievement performance in science subjects among secondary school students in Lugari district, Kenya” found no significant difference between boys and girls in self efficacy. However, they found significant difference between boys and girls in academic performance in the sciences. The study also found significant relationship between students’ self efficacy and academic performance in the science subjects. The study recommended that strategies should be put in place by the educators to boost self efficacy of students to enable them approach tasks with confidence.

Zembar, M. J., & Blume, L. B. (Dec, 2011) in the topic “Gender and academic achievement” argued that most studies show that, on average, girls do better in school than boys. Girls get higher grades and complete high school at a higher rate compared to boys. Standardized achievement tests also show that females are better at spelling and perform better on tests of literacy, writing and general knowledge. An international aptitude test administered to fourth graders in 35 countries, for example,
showed that females outscored males on reading literacy in every country. Though there were no differences between boys and girls in fourth grade in mathematics, boys began to perform better than girls on science tests in fourth grade. Girls continue to exhibit higher verbal ability throughout high school, but they begin to lose ground to boys after fourth grades on tests of both mathematical and science ability. These gender differences in math and science achievement have implications for girls’ future careers and have been a source of concern for educators everywhere.

In an investigation on the shortage of women in science, arts, engineering and technical fields, the explanation can be traced back to gender differences in the cognitive abilities at middle school students. In late elementary school, females outperformed males on several verbal skills tasks: verbal reasoning, verbal fluency, comprehension and understanding logical relations. Males on the other hand, outperformed females on spatial skills tasks such as mental rotation, spatial perception and spatial visualization. Males also performed better on mathematical skills. Males and females did equally well in basic math knowledge, and girls actually have better computational skills. Performance in mathematical reasoning and geometry showed the greatest gender difference.

Some researchers on the other hand, argued that the gender gap in mathematics is biologically driven. Selected research showed that parental hormones circulating in the brain encourage differential development in the hemispheres of male and female fetuses. Others believed intelligence had its roots in genetics. There was evidence however, that socio-cultural factors may influence girls’ attitudes towards mathematics and science. The views of parents on mathematics were more important for sons and language, arts and social studies as more important for daughters. Parents
were more likely to encourage sons to take advanced high school courses in chemistry, mathematics and physics and have higher expectations for their success.

A very few research focuses on student time allocation and its effects on their performance; however, these are available on the influence of institutional characteristics on student academic achievement. Highlighting “The effect of student time allocation on academic achievement” on undergraduate students, Grave, Barbara S. (2011) suggested that the time spent on attending courses was positively associated with grades for females, high ability students, and students of Social sciences and Sciences/Engineering. Spending time on self study, on other study related activities, or on working as a student assistant or tutor was positively correlated with grades for almost all students. Devoting time for attending tutorials or students work groups was negatively correlated with grades if the ability of the students belongs below average or if they study Sciences/Engineering. The results of translog production function indicated that spending time on courses, on self study, and on other study-related activities were substitutes. However, time spent on courses and time spent of working as a student assistant or tutor was complemented.

Raheem, B. O. Abdu. (2012) in a study “Gender differences and students’ academic achievement and retention in social studies among junior secondary schools in Ekiti state” Nigeria found no significant difference achievement mean scores and retention mean score between male and female students in the experimental and control groups. The study concluded by saying that gender has no significant role to play on students’ achievement and retention in social studies. The study recommended that female students should be more encouraged by parents, teachers
and the society in order to develop their untapped intellectual resources and erase the old gender stereotype against them.

2.3 STUDIES IN INDIA:

Literature was reviewed relating to gender difference on academic achievement in and around Indian circumstances. Some of them are as follows-

Dixit, Mithilesh Kumari (1985) conducted “A comparative study of intelligence and academic achievement of adolescent boys and girls studying in class IX and XI” and found that among class XI students there was no difference in the academic performance of intellectually superior and intellectually very superior boys and girls. But on all other intellectual levels the academic performance of girls was superior to that of the boys. Among class IX students there was no difference in the academic performance of intellectually very superior and intellectually superior boys and girls. But on other intellectual levels the academic performances of girls was superior to that of boys. In general, the intelligence test scores of the boys were higher than those for the girls. In case of boys there was very high correlation between intelligence test scores and academic performance. On the other hand, in case of girls, there was an average correlation between intelligence test scores and academic performance.

Samal, N. (1990) in the study “Relationship between planning and academic achievement of boys and girls: effects of home environment variables” found that the academic performances of high planners were better than that of low planners and there was no significant difference between boys and girls with regard to academic achievement. The children belonging to high planning ability enjoyed a more
cognitively stimulating home environment than the children from high socio-economic status had a better planning ability than that of children from low socio-economic status. It was also found that planning ability had no relationship with family size.

Chand, S. K. (1992) conducted “A study of personal values of adolescent boys and girls in relation to socio-economic status and academic achievement” and found that there was no significant correlation between socio-economic status and religious, democratic, economic, knowledge, hedonistic, power and family prestige values, but there was significant relationship between socio-economic status and social, aesthetic and health values. The correlations found to be positive but low for social and aesthetic values. It was also found that there was no significant correlation between academic achievement and social, democratic, aesthetic, economic and family prestige and health values. The correlation values were found to be significant but low for religious knowledge and hedonistic values but it was found to be negative and low for power values. This study also found that boys and girls did not differ in religious, social, democratic, knowledge, hedonistic, family prestige and health values; but differed in economic and power values significantly. Moreover, boys were found to have scored significantly higher in economic and power values than girls. Further it was found that government and private schools did not differ in social, democratic, aesthetic, knowledge, hedonistic, family prestige; but differed in economic, religious, power and health values. Moreover government college students were found to have scored significantly higher in power and economic values than their private college counterparts. But private college students scored significantly higher in health and religious values than the government college students.
Harikrishnan, M. (1992) in “A study of academic achievement of the students of the higher secondary stage in relation to achievement motivation, and socio-economic status” found that girls obtained a higher mean in achievement than boys. It was also found that socio-economic status was significantly related to academic achievement, but not achievement motivation.

Muthumanickam, R. (1992) conducted “A study of academic achievement of students of higher secondary commerce group in relation to their reasoning ability, socio-economic status, and interest in commerce” and found that boys and girls did not differ in relation to their achievement in commerce. Sex was not found to be an influencing factor of achievement in commerce. There was a positive and significant correlation between achievement in commerce and reasoning ability, socio-economic status and interest in commerce.

Mahapatra, M., & Mishra, J. (2000) in the study “Gender effect on achievement in science with a special reference to mechanics from primary to secondary school years – a study in Indian condition” found that there existed large difference in performance in mechanics between boys and girls. In class X, the ‘t’ value was found .09 and D value was .02 which showed almost negligible difference in performance in mechanics by boys and girls. It found drastic change in performance in mechanics that occur for girls but such remarkable change existed for boys.

Suneetha, B., & Mayuri, K. (2001) conducted “A study on age and gender differences on the factors affecting high academic achievement” and found that the dimensions of IQ like verbal, performance and total were not found different among
the boys and girls. Gender was found to be the more important variable than IQ in deciding high academic performance as more girls were found among top ranking students. In the study girls were found better in interaction and concentration while boys were found better than girls in language, interaction and drilling dimensions. Both boys and girls exhibited very high significant differences in almost all dimensions of MAP (Multidimensional Assessment of Personality) series except in self control and tension. Girls were significantly superior to boys in almost all except in morality and self sufficiency.

Kumar, Neelaam (2001) in the study “Gender and stratification in science – an empirical study in the Indian setting” found the existence of difference in women and men in terms of academic rank as the higher the rank the lower the percentage of women scientists. Men and women were also found significantly different in terms of rural-urban origin and socio-economic background. The socio-economic background and educational level of parents of women scientists were significantly higher than those of their men counterparts. Though men were higher in their research performances as compared to their women counterparts but this difference was not statistically significant.

Mathur, Gul., & Sharma, Prachi (2001) in “A study of career maturity among adolescents” with an object to find out gender differences in career maturity and found that boys were significantly different in their attitude towards career choice than girls as boys had more favourable attitude towards career choices as compared to girls. There was no significant difference found between boys and girls in career maturity. It was also found that most of the adolescents had average career maturity.
Alam, M. M. (2001) in the study “Academic achievement in relation to socio-economic status, anxiety level and achievement motivation: a comparative study of Muslim and non-Muslim school children of Uttar Pradesh” witnessed significant positive relationship between socio-economic status and academic achievement, negative relationship between anxiety and academic achievement, positive relationship between achievement motivation and academic achievement of Muslim and non-Muslim children. Both Muslim and non-Muslim children have significant inverse relationship between socio-economic status and anxiety. Socio-economic status goes along with higher achievement motivation. The academic achievement of non-Muslim children has been found superior in comparison to Muslim children. On the measure of achievement motivation, non-Muslim children were found to be superior to Muslim children.

Pandey, S. N., & Ahmed, Md. Faiz (2008) in the study “Significance of difference between male and female adolescents on academic performance, achievement motivation, intelligence and socio-economic status” found that between male and female adolescents there was no significant difference on the measures of academic performance. Similarly no significant difference has been found between male and female adolescents on the measures of performance motivation. It has also been found that no significant difference between male and female adolescents existed on the measure of intelligence and socio economic status.

Gohil, Jayandrasingh P. (2008) in the study “Sex difference in verbal creativity” found significant difference between male and female social science teachers with regard to their level of creativity, including its three factors- fluency, flexibility and originality. It means that women social science teachers don’t differ
significantly with regard to their creative thinking. This may also be due to the reason that creativity, by its very nature, requires both sensitivity or openness and independence in thinking and judgment. Sensitivity is a feminine virtue while independence is a masculine value. Thus, it is only a divergent personality that maintains both the sensitivity and the independence of mind necessary for a high level creative thinking. This study found that male and female social science teachers of Gujarat state not significantly different either in their creativity or its factors of fluency, flexibility and originality.

Sharma, B. M., & Sharma, A. S. (2008) in the study “Gender differences in first grade mathematics strategy use” found the existence of gender differences in first grade children correct and attempted strategy use. Boys developed a preference for retrieval during the fall of school year even though they were initially less able to use retrieval correctly and consistently. In contrast, girls appeared to develop into what Siegler called perfectionists in that they were much less likely to raise retrieval. Instead, by spring girls preferred to use the backup strategies of counting on counters and counting on fingers significantly more often than boys. These gender differences were exhibited in group as well as individual work.

Regarding metacognition, boys had no better knowledge than girls. Boys differed from girls in that their metacognitive awareness of strategy characteristics appeared to suppress the use of retrieval in the group session and that it promoted the use of overt strategies at the end of school years as opposed to the beginning of the year. Metacognition therefore, didn’t affect the development of boys’ preferences for retrieval, but possibly mediated the effects of peers in the group setting.
Girls who had specific strategy knowledge about mathematics strategies were more likely to use overt strategies to resolve problems. Boys preferred strategy retrieval appeared to dominate the group work, with even girls using more retrieval in the group session that in the individual session. Boys have been found to dominate in mix sex play situations and in small group situations.

It should be made clear that no gender differences in total correct responses emerged. Girls and boys were equally able to solve basic mathematics problems but exhibited different strategies of problem solving. There is evidence that girls and boys have different approaches to problem solving and develop strategies at the different pace. Insight into how girls and boys approached mathematics and the factors affected these different approaches might increase the understanding of the causes of later developing gender differences in mathematics.

Hemant., & Singh, S. (2008) in the study “Gender differences in neuroticism, extraversion and self-esteem amongst adolescents” found significant differences between boys and girls on neuroticism, extraversion and self esteem. In case of neuroticism girls scored higher mean and standard deviation than boys followed by significant ‘t’ value at 0.01 level of significance. Again on the measure of extraversion, boys scored higher mean and standard deviation than girls followed by significant ‘t’ value at 0.05 level of confidence. Similarly on the measure of self esteem, girls scored higher than boys followed by significant ‘t’ value at 0.01 level.

The study explained the gender differences in the light of biological and social psychological theories. The results of the study cautioned against haphazardly pooling
boys and girls and suggested the potential benefits of developing gender specific models when testing various personality traits.

Godiyal, S., & Padiyar, G. (2008) in “Sex differences in adolescents’ adjustment” focused that boys and girls differed significantly in their adjustments where as girls were more superior to boys in their educational and emotional adjustment. On the other hand, both girls and boys were poorly adjusted to their social lives as the scores on social adjustment remarkably high. Scores on socio-economic status established superiority of girls over boys and significant difference found between these two groups. Regarding the psychological indicators of socio-economic status, girls showed superiority over boys in their economic and cultural indicators of socio-economic status. Girls of average socio-economic status were superior to the boys of some status in their adjustment but it was not seen in case of below average socio-economic status.

Kaur, Tejinder., & Kumar, Prerna (2008) in a study “Gender differences in adolescents’ mental stress” conducted on college going girls and boys and found that mental stress level of girls to be much higher than the stress level of boys. The mean and standard deviation of boys were found 28.38 and 11.57 respectively which were 40.87 and 13.78 in case of girls. The obtained ‘t’ value was highly significant at 0.01 level of significance. The study concluded by saying that the females stress level was found higher than the male counterparts.

The results of a study “Influence of gender on self-esteem and academic achievement among adolescence students” conducted by Armin, Mahmoudi., & Ataolah, Eftekari (2010) revealed that only home self-esteem had significant
influence over academic achievement. General self-esteem, social self-esteem, life self-esteem scale and school academic self-esteem, did not have significant influence over academic achievement of the sample studied.

Agnihotri, Kalpana (2011) when investigated on “To study the effect of sex and faculty on aptitude and achievement in mathematics” found that effect of gender on achievement varies from faculty to faculty. Maximum average achievement was in the group of girls of science and minimum average achievement was that boys of arts.

In “A comparative study of creativity among boys and girls of class VII” conducted in Aligarh City among the students of class VII, Siddiqi, Saima (2011) found that there was no significant difference between boys and girls on the measure of fluency, flexibility and total creativity. Boys and girls were similar on fluency, flexibility and total creativity. But significant difference has been observed between boys and girls on originality, as boys with their significantly higher mean score possessed significantly greater originality than girls.

Ahmed, S. Faheem., & Parveen, Nishat (2012) in the study “Influence of socio-economic status on achievement in science of secondary school students” found that science achievement of boys and girls was the same with girls not being inferior to boys. But there was a significant difference in science achievement scores of upper and lower SES class students. It was also found that there was much difference in achievement of students belonging to upper and middle class SES.
2.4 STUDIES IN ASSAM:

Literature was also reviewed relating to the main theme of the present study in Assam and few evidences have been found. They are-

Baruah, Awanti (1975) in the dissertation “A study of students’ academic achievement at lower secondary stage in boys and girls in high schools located in and around Jorhat town” found that performance of girls was significantly better than that of boys at lower secondary stage as a whole. The study failed to give causes of these differences as more investigation yet to require about this.

Girls as they grow in age become more stable, more responsible and more serious as compared to boys. They got much less scope to become delinquent as compared to boys. They have to live and move under much more restricted circumstances. Boys on the other hand were much more free and dynamic and got ample scope to be distracted by outside attractions. This study found that girls were home bound and more concerned with activities within the four walls but boys were more in outside work. In spite of more heterogeneity among girls the performance of girls comes out better. It might be the cause that girls assimilate better than boys as whatever taught in the class by female teacher was better than male teachers. Above all girls’ performance always found better than those of boys and that too significantly in each case.

Das, Harinarayan (1992) conducted “A comparative study of academic achievement of students of some secondary schools located in and around Nalbari town on the basis of physical facilities, sex and location” and found boys were better achievers than girls from the academic point of view. Academic performance was
positively related to urbanization. Boys from urban areas tend to achieve higher than girls from rural areas. But urban girls and rural girls were equal achievers. Location had nothing to do with female sex in academic performance. It has also been found that boys were better achievers than girls. Sex is an important factor in academic performance with better academic performance in favour of male sex. This study revealed that urban girls were worse achievers than rural boys and urban boys were significantly better academic achievers than rural girls. Rural boys were academically better than that of rural girls and urban boys were significantly better achievers than rural boys and rural and urban girls were almost similar in academic performance.

Šharma, J. K. (2000) conducted “A study on the learning achievement with special focus on pupils’ evaluation at grade IV in mathematics in Jorhat district of Assam (A case study)” using a stratified random sampling technique to learn gender and regional disparities in respect of achievement as one the objectives and found that there was no significant difference in mean scores obtained by boys and girls of all schools of rural, urban and tea garden areas.

Bailung, Mouchumi (2002) in the dissertation “Achievement value among adolescents in relation to age and sex” found that females in mid adolescence posses high achievement related values in comparison to males. The males in early adolescence performed more task related activities in comparison to males in mid adolescence. Females in early adolescence performed more task related activities than females in mid adolescence. Male adolescents scored higher on task related activities than in comparison to female adolescents. No significant difference found among males and females regarding achievement related activities.
Dutta, D. K. (2002-03) conducted an “Achievement survey at the end of class - V” in Kamrup, Nalbari, Dibrugarh and Karbi-Anglong districts of Assam. The achievement of rural boys was higher than girls and the difference was significant. In urban areas, there was no significant difference in achievement between boys and girls. In rural areas, the performance of boys was better than girls and the difference in achievement was significant. The overall performance of boys was better than the girls. Among rural and urban areas, the achievement of boys was significantly higher than girls and the difference was significant.

Das, Bhupen (2004) conducted “A study of learners academic achievement in primary schools of char area under selected District Primary Education Programme (DPEP) Barpeta” found that percentage of girls was less than the boys in primary education sector in the char areas of Barpeta district. Significant difference in pupils’ performance was found irrespective of class, sex, school categories. It was also found that language performance was higher than the math in all classes. This study also revealed that high quality infrastructure facilities influence pupils’ academic performance irrespective of class. Girls’ enrolment percentage was found lower than that of boys’ counterpart irrespective class and school categories. The study suggested to organizing awareness campaign to bridge the gap of gender disparity.

Bora, Ashim (2010) in the investigation ‘A study on gender differences and achievements in mathematics among the secondary school students in Karbi Anglong district of Assam’ found significant difference in pass percentage between male and female students. The investigator also found that the socio-economic conditions of parents affect the gender difference in the achievements in mathematics in HSLC
examination. It was also found that school proprietorship was responsible for gender differences regarding mathematics achievements. The study suggested some points to bridge the gender gap in mathematics achievement among the students of HSLC examinees in Karbi Anglong district of Assam.

2.5 CHAPTER SUMMARY:

A review of the literature on gender differences on different dimensions in general and academic aspect in particular has given the theoretical framework of the present study. From the literature and research reviews it has been revealed that gender differences exist in different aspects with particular reference to academic achievement across the globe. Researchers have applied different research designs in completing their work including selection of different sample size from large to small by adopting different sampling technique from random to purposive. Data analysis techniques were also varied from researcher to researcher. Some studies revealed that girls outperformed their male counterparts in some academic aspects where as some other studies exposed boys better academic show than girls in other subjects. If a particular study found girl’s better academic performance in language, another study in reading; similarly if a study found boys better academic performance in mathematics another study argued in dynamics. The above studies generally concentrate on specific issues and they do not have Gestalitic coverage. Since differences have been seen in the findings of the studies and therefore no conclusions can be drawn about the dominance of either girls or boys in certain subject areas. Thus a perusal and scrutiny of the literature and research review unravels that though many studies have been done in many countries abroad, the position in Assam is not at all satisfactory. The frustrating situation of Assam in this area strongly reveals the
ardent need for a study about the gender difference on academic achievement in secondary schools. This re-enforces the investigator to select the topic for the present study.

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