CHAPTER - II

REVIEW OF RELATED LITERATURE

INTRODUCTION

Review of related literature presents the comprehensive development of the problem background. It indicates what has already been studied by other which has a bearing upon the present study. The review of related literature stress two aspects. The first is the consideration of the subject matter. The second is related to methodology and design. The review chapter is devoted to the development of the problem statement or the object of inquiry. The review is utilized to retain a direct relevancy to the study in hand.

According to John W. Best (1997) “the investigator is a specialist rather than a generalist”. If the researcher is to become a specialist in his area or research he needs to go through all the related literature and related studies.

To frame objectives and hypotheses the part knowledge or research studies is essential.

On the method that should be adopted, Agarwal (1996) writes that “the study of related literature implies locating, reading and evaluating report of research as well as reports of casual observation and opinion that are related to the individual’s planned research report”.

John W. Best is of the opinion that, “A brief summary of previous research and writings of recognized experts provide evidence that the researcher is familiar with what is already known and with what is still unknown this step helps to eliminate the duplication of what has been done and provides useful hypothesis and helpful suggestion for significant investigation.

VALUE OF THE REVIEW OF RELATED LITERATURE

It is a valuable guide to define the problem and recognize its significance. It helps in suggesting, promising date-gathering devices, appropriate study design and sources of data, it provides suggestions for possible modification in the research to
avoid unanticipated difficulties. It unfolds a backdrop of interpreting the results of the research study.

STUDIES REVIEWED

The investigator has reviewed a number of studies undertaken in India and abroad on study involvement and affect intensity. The studies reviewed are given below.

INDIAN STUDIES

(a) STUDIES RELATED TO ACHIEVEMENT IN MATHEMATICS

Petchiammal (2001) conducted a study on relationship of prior knowledge in Mathematics and achievement in Mathematics of IX standard students.

In this study the investigator examined the relationship between prior knowledge in achievement in Mathematics of IX standard. Survey method was adopted in this study. Sample consisted of 246 IX standard students. Prior knowledge test in Mathematics for IX standard and achievement test in Mathematics were the tools used in this study. Mean, S.D, Pearson product moment correlation were the statistical techniques used in this study.

Finding of the study showed that 24.45% of IX standard students had high level of prior knowledge in Mathematics and 20.65% of students had high level of achievement in Mathematics. This study also showed that there existed a significant relationship between student achievement in Mathematics and their prior knowledge in algebra, geometry, number system, business Mathematics, graph and Mathematics.

Sheeja (2002) conducted a study on influence of level of aspiration and study habits on achievement in Mathematics of higher secondary students.

In this study the investigator examined the influence of level of aspiration and study habits on achievement in Mathematics of higher secondary students. Survey method was adopted in this study. Sample consisted of 250 higher secondary students. Level of aspiration scale and study habits Inventory were the tools used in this study. Mean, SD, t-test, chi-square test, ANOVA Pearson product moment correlation multiple correlation were the statistical technique used to analyze the data.
Finding of the study revealed that 15% higher secondary students had high level of aspiration, 15% of them had high level of study habits and 16% of them had high level of achievement. Findings also indicated that a significant relationship existed between the level of aspiration and study habits except the dimensions of habits and attitude, significant relationship was found between the level of aspiration and achievement in Mathematics of higher secondary student and their study habits. Findings proved a significant influence of level of aspiration and study habits on achievement in Mathematics of higher secondary students.

Subratasaha (2007) conducted a study on academic achievement in Mathematics in relation to cognitive styles and attitude towards Mathematics.

To study significance of gender differences in mean score of academic achievement in Mathematics, mean towards Mathematics and to study the significance of difference in mean scores of academic achievement in Mathematics between boys having filed independent cognitive style and boys having field dependent cognitive style and to study the significance of difference in mean score of academic achievement in Mathematics between girls having field independent cognitive style and girls having field dependent cognitive style and to study the significance of difference in mean score of academic achievement in Mathematics between boys having favorable attitude towards Mathematics and boys having unfavorable attitude towards Mathematics and to study the significance of difference in mean score of academic achievement in Mathematics between boys and girls towards Mathematics.

A total of 200 students were taken randomly from 6 government aided Bengal medium primary schools selected from the district 24 pagans (North) of West Bengal. Subjects included boys and girls reading in class IV. Three instruments were used: Academic Achievement Test in Mathematics (AATM) the children’s Embedded Figures Test (EFT) and a Scale for Measuring Attitude toward Mathematics (SMAM) AATM measures achievement in Mathematics of primary schools students in the age group of 9 to 10 years. It was a paper and pencil test consisting of 55 multiple choice (with 5 alternatives) items. The total time allotted is 50 minutes for the whole test.
The boys and girls differed significantly on all the three measures under consideration. The field independent boys excelled over the field dependent boys significantly in their achievement in Mathematics. Similarly, field independent girls also excelled over the field dependent girls significantly.

Noorjehan Ganihar and Wajiha (2008) conducted a study on factors affecting academic achievement of IX standard students in Mathematics.

The objective of the study was: to find out the relationship between achievement in Mathematics and Mathematics creativity, test anxiety, attitude towards Mathematics and achievement motivation of IX standard students. The sample was comprised of 800 boys and girls, selected from 20 secondary schools giving due representation to sex, type of management and medium of instruction.

Achievement test in Mathematics constructed by the researchers and Mathematics creativity test (Singh 1988) were used as tools for the study.

The result of the study revealed that there was significant effect of gender on academic achievement and the study of schools in which the study has significant effect on achievement in Mathematics.

Wilfred Celestine (2008) conducted a study on effectiveness of teaching thinking skills on achievement in Mathematics of IX standard students.

In this study the investigator examined the effectiveness of teaching thinking skills on achievement in Mathematics of IX standard students. Experimental method was adopted in this study. Sample consisted of 60 ninth standard students. Achievement test in Mathematics and thinking skills scale were the tolls used in this study. Mean, SD, Percentage analysis, and t-test were the statistical techniques the data. Findings of the study revealed that there was a significant difference between pre-test and post – test and post-test scores of control group and experimental group students and significant difference was found between control and experimental group students in their gain scores. Correlation analysis showed no significant relationship was found between achievement in Mathematics and thinking skills of the experimental group students.
Agarwal Shivani, Dhillan Navpreet Mann Babbar Rashmi (2013) studied relationship between self-concept and Academic achievement in 17-19 years old students.

The finding of the study were the author found no statistically significant differences in the self-concept strongly influences subsequent academic achievement improves prior self-concept not failure determines prior self-concept.

Gurubasappa (2014) conducted on study of critical thinking, emotional intelligence and their effect on academic achievement in science of secondary school students.

The objectives are i) to study the relationship between critical thinking and academic achievement. ii) to study the relationship between emotional intelligence and academic achievement. iii) to study the interaction effect of critical thinking and emotional intelligence upon academic achievement. The result shows that there is a significant effect of critical thinking on the academic achievement in science of secondary school students. There is a significant effect of emotional intelligence on academic achievement in science of secondary school students. There is significant main and interactive effect of critical thinking and emotional intelligence in science of secondary school students.

(b) STUDIES RELATED TO ACADEMIC SELF-REGULATION

Glenda Rakes (2007) conducted a study on the impact of online graduate students’ motivation and self-regulation on academic procrastination.

The purpose of this study was to investigate the impact of effort relation, a self-regulatory skill and intrinsic motivation on online graduate students’ levels of academic procrastination. This research was guided by one primary question: Are online graduate students’ intrinsic motivation on use of effort regulation strategies predictive of procrastination?. The convenience sample fox this study consisted of 81 fully admitted graduate students enrolled in an online master’s program in education. Respondent’s ages ranged from 21 to 57 with a mean age of 33. Eighty five percent of the participants were female; 15% were male in order to measure self-regulated learning strategies, motivation and procrastination, participants completed the Motivated Strategies for Learning Questionnaire (MSLQ) and the Procrastination
Assessment Scale Student (PASS). The results indicated that as intrinsic motivation to learn and effort regulation decrease, procrastination increases. Specific strategies for encouraging effort regulation and intrinsic motivation in online graduate students are predicted. Both effort regulation and intrinsic motivation among online graduate students in this study had a significant unique influence on procrastination. Individually, both effort regulation and intrinsic motivation influence procrastination behavior are characteristics that can be influenced by online instructors in an effort to reduce procrastination. The results of this study indicate that together, these two factors powerfully influence procrastination.

Srilata Bhattacharayya (2007) conducted a study on cross-cultural motivation and self-regulation.

The purpose of the study was to find out whether motivational orientation and self-regulatory strategies to learn have a cross-cultural significance. This study used the MSLQ scale to investigate 143 per-service teachers from the US. It studied the relationship and difference between motivation and self-regulatory strategies in academic learning across countries and the contribution of each to the prediction of achievement. Regression indicated that intrinsic goal orientation, self-efficacy and rehearsal predicted academic achievement in the US, while self-efficacy and peer learning predicted academic achievement in India. This investigation extends the research to a different socio-cultural milieu, India, to compare the motivational orientation and strategic skills of college pre-service teachers in Mumbai, India, with their counterparts in the United States. The purpose of this study was to inquire into the relationship between motivational components and how. The Motivational Strategies for Learning Questionnaire (Pintrich, Smith, Gracia & McKeachie, 1991) MSLQ was used. Taking the course grades for three exams throughout the semester and then averaging them measured academic achievement as the outcome variable. Demographics investigated were age, gender, parental education, income and ethnicity/religion. The researcher personally administered the tests in the two countries. The results of this investigation point out that the predictive factors responsible for academic achievement of Indian students are self-efficacy and peer learning, while in the United States, the predictive factors responsible for academic achievement are intrinsic goal orientation, self-efficacy and rehearsal. Self-efficacy was, therefore, found to be an important
motivational variable in both countries, while demographic variables were not important.

**Narayan Prasad Sharma (2009)** studied the fulfillment of children’s autonomy need at school of Kathmandu Valley.

The researcher aimed to identify children’s motivational patterns on academic activities and level of their autonomy need fulfillment at school of Kathmandu valley. Patterns of academic self-regulation, achievement level, and anxiety were assessed to the students of grade nine. Selecting by quota sampling method, 488 students of grade nine were participated in research from randomly selected schools. The Academic Self-Regulation Questionnaire (SRQ-A) and Beck Anxiety Inventory (BAI) were used to collect the data. The result showed Relative Autonomy Index (RAI) in negative digit value, which indicated that autonomy need of the school children were not fulfilled. The patterns of Extrinsic Regulations found dominant. Findings supported the hypothesis that there was negative impact in psychological well-being of the students but could not support adverse effects in academic achievement. Within four types of academic self-regulation, external, introjected, identified and autonomous, amount of identified found more than had positive impact in psychological well-being and academic achievement both. The findings concluded that teachers need to apply appropriate handling techniques to adolescent students which support to form identified regulation in academic activities for optimum achievement and psychological well-beings.

**Priyadharshini (2011)** studied an academic self-regulation and perceptual learning style of the high school students.

The objectives of the study were i) to find out the level of academic self-regulation of high school students ii) to find out the level of learning style of high school students iii) to find out the significant factor positive loading namely extrinsic motivation, introjected regulation, identified regulation, intrinsic motivation, visual, tactile, kinesthetic, group and individual learning style. This study found that the factor analysis of correlation matrix yielded a single factor with very high factor loading the positive loading of academic self-regulation leads to better behaviour modification.
(c) STUDIES RELATED TO STUDY SKILLS

**Vaish (2004)** conducted a study on self-study skills in learning science at the middle school level.

The objectives of the study were (i) to expose children to select information processing skill and give them some practice for it: (ii) to provide opportunities for children to transfer information processing skills for independent learning: (iii) to find out the reaction of student to the new strategy; (iv) to institutionalize the new learning strategy through homework assignments: (v) to make the students feel that whatever they study or learn can easily be done by themselves: (vi) to stimulate their anxiety of ‘how to do’ for self-study: (vii) to shift from conventional method of learning to ‘innovative method’.

The study was planned for a period of 2 weeks with class VII students (both boys and girls). Eight experimental groups were formed of five students each, first, the students were introduced to information-processing skills using web charts, table charts, flow charts and crossword puzzles and they were then supplied with samples of the innovative proactive work. Sample demonstrations were also made with a detailed introductory know-how. Brainstorming sessions were as done which included mental preparation of the students motivating them arousing their interest. The innovative proactive was done with the help of four self-study materials i.e., web chart, table chart, flow chart and crossword puzzles and all the 8 experimental groups prepared four self-study materials based on the above.

An experimental analysis was compared on a ten point scale for all the experimental groups on the basis of liking of teaching method, adaptation of method, creative it, understanding and concept clarity, involvement in studies, innovation learner-material interaction, memory for the topic, interest in learning the topic and involvement of the students in doing. The post experimental analysis included a short and general analysis, made with the test and ideology of ‘From Laboratory to Land’. The idea behaving the post-experimental analysis was to find out whether there was
any acceptance and adoption of the experimental or innovative practice and whether the interaction of the pre active phase showed positive response. Pre and post experimental analysis was done on the ten-point scale mentioned before.

Followings were the findings (i) all the students reported that they liked the method and were of unanimous option that the methods, technique, process of the innovative project enable to increase their concept clarity, knowledge, confidence and text retention. (ii) pre-experimental analysis revealed that 85% of the students perceived the various aspects (the ten points mentioned before) of the conventional teaching as unfavorable and 15% perceived them to be favorable to some extent. The post-experimental analysis revealed that 83.75% of the students favored the innovative method and 16.25% favored it to some extent. None perceived it as unfavorable.

**Bhaskara Rao and Prakash Rao (2004)** conducted a study with the objectives of understanding the study habits of secondary school students and comparing the study habits of boys and girls, private, vs government school students and students of residential and non-residential schools.

A sample of 200 secondary school students was selected by way of stratified sampling techniques

The results were:

i) The secondary school students were possessing higher study habits.

ii) The girls possessed comparatively better study habits than boys.

iii) There was no significant difference between the students of government and private secondary schools regarding study habits.

iv) The students of residential and non-residential secondary schools possessed high study habits without any significant deference between them.

**Daisy Nambikkai (2001)** conducted a study to find the relationship between assertiveness and study skills of higher secondary girls in Tirunelveli District.

The investigator had the objectives of finding out the relationship between assertiveness and study skills of higher secondary girls, to carry out this study, survey
method was used. The study revealed that there was significant relationship between
assertiveness and study skills of higher recording that. Further, it was established
through correlations analysis that the assertiveness girls influenced their study skills
and its dimensions.

Rajendran et.al (2007) conducted a study on influence of parents’ education on the
study habits of high school students.

The objectives of the study were (i) to investigate the study habits of high
school students in Dindugal area in Tamil Nadu, with respect to home environment,
reading note taking, planning to subjects, habits of concentration general habit and
attitude preparation for examination and school environment. (ii) to investigate the
study habits of students were influenced by parents. A standardized tool developed by
Patel (1975) was used in this study, to investigate the study habits of students. The
study has led to the following conclusions: parents’ education have no significant
influence on the various dimensions of habits such as home environment and planning,
reading and note taking. Planning of subject is habits of concentration, general habits,
attitude and preparation for examination. Fathers’ educational level has significant
influence on the study habits of students with respect to school environment.

Uma Tandon (2008) conducted a comparative study of net qualified and net appeared
candidates, study habits, family environment and academic achievement.

The objectives of the study were: (i) to find out whether any difference exists
between the study habits of net qualified and net appeared candidates?, (ii) whether any
difference exists between the past academic achievement of net qualified and net
appeared candidates? The results of the statistical analysis were as follows:
significance of difference between means of two groups shoed that in case of test of
general intelligence mean of group1 (Net Qualified) was 122.33 and that of group 2
(Net Appeared) was 99.92. In case of PSSHI, i.e., study habits inventory, mean of
group 1 was 72.66 and that of group 2 were 58.52. Two groups was not found
significant as the ‘t’ value.

Krishna Reddy and Ramachandra Reddy (2009) conducted a study on factors
relating to the study habits and achievement in Mathematics of X class students.
The results of this investigation have far reaching implication. It is an investigation on a small sample and results cannot be applied to a larger population. The objectives of the study were: (i) to study the impact of total number of study hours at home on the achievement in Mathematics of X class students. (ii) to identify the impact of time spent for Mathematics daily on the achievement in Mathematics. (iii) to examine the impact of study habits of the students on the achievement in Mathematics with the help of study habits. The study was conducted in Chittoor district of Rayalseema region of Andra Pradesh. A sample of 475 secondary school students was selected by way of stratified random sampling techniques. The collected data was analyzed keeping in view of the objectives of the study. The data collected from the students relating to the study habits has been segregated in to 7 areas. Mean and SD were calculated for each area and as a whole. Further the mean scores of each area have been classified in to 3 groups as low, moderate and high based on quartiles. t and F test are used to find out the difference it any among them.

The findings of the study were presented in 3 sections: (i) Presents the influence of total number of study hours, availability of separate study room and time spent for Mathematics daily. (iii) Presents the prediction of scholastic achievement in Mathematics with the help of study habits by regression analysis.

Prakash Alex (2009) conducted a study on the study habits and academic achievement of children from broken families with special reference to higher secondary school students.

The objectives of the study were to analyze the academic achievement and study habits of children belonging to broken families. Normative method was used for this study. The sample comprised of 186 students studying in class XI and class, class XII, of which 106 students were belonging to the broken families the students were studying in different higher secondary schools located in Kollam district was taken as sample. The required sample for the study was drawn using clustered stratified sampling technique and for comparison purpose, the investigator selected 80 students from non-broken families by using random sampling technique. It revealed that there was significant difference between children from broken families and children from normal families with regard to their academic achievement.
**Sasai Rajendran et al (2009)** conducted a study on “Are study habits gender biased?”

The objectives of the study were (i) to investigate the study habits of high school students in Dindugul area in Tamil Nadu, with respect to home environment, reading note taking, planning the subjects, habit of concentration, general habit and attitude, preparation for examination and school environment, (ii) to compare the study habits boys and girls. And (iii) to compare the study habits of students of nuclear family and joint family. The study was conducted in Dindugul area in Tamilnadu. A standardized tool developed by Patel (1975) was used in this study to investigate the study habits of students. The findings for the study was used in this study to investigate the study habits of students. The findings for the study was that both boys and girls did not differ significantly in their study habits of students. The findings for the study was that boys and girls did not differ significantly in their study habits with respect to home environment, reading, note taking, concentration and preparation for examination. In general, boys had better study habits than girls.

**Neeru Mohini Aggarwal and Vinay Kumar (2010)** conducted a study on study habits of secondary level arts and science students.

The following objectives were: (i) to study the comparison in study habits of secondary level student belonging to arts and science streams and (ii) to study the comparison in study habits of secondary level male and female students belonging to arts and science streams. This study was conducted on a sample of 144 secondary school student of class XI through random sampling technique, Mean, SD and S.ED were calculated for the scores obtained. The ‘t’ test was used to determine the significance of difference between mean scores of total study habits in respect of secondary level arts and science students. Students of arts stream showed poor study habits in comparison to students of science stream.

**Amuthasree and Krishnamurthy (2010)** conducted a study on academic achievement of commerce students in relation to their study habits.

Higher secondary is a stage of transition in a student’s life, both academically and psychologically. Globalization is sweeping the doors with opportunities for commerce students at the higher secondary level. Everyone looks for academic achievements.
proficiency to combat the challenging and competitive business world. In order to succeed in this world, systematic study habits are indispensable. Hence the investigation was mainly focused on comparing the higher secondary students’ achievement in commerce and their study habits for the present study, the investigators randomly selected 500 higher secondary school students from ten schools in Cuddalore district. After framing necessary objectives the study was carried out and the collected data were analyzed. It was found that the higher secondary school students had high achievement and average study habits. There was significant relationship between achievement in commerce and the study habits of higher secondary school students.

Vembudurai and Annaraja (2011) conducted a study on academic achievement of high school students in relation to their study skill and adjustment.

The objectives of the study were: (i) to find out the level of study skills of high school students and (ii) to find out the relationship among academic achievement, study skills and adjustment of high school student. Regarding study skills. Adjustment and academic achievement of high school students, the investigator used survey method. The population for the study consisted of IX and X standard students of high schools in Tirunelveli district. The investigator has used simple random sampling technique for selecting the sample from the population. The investigator has used the following standardized tools. They are adapted study skills checklist developed by Patel (1986) adapted adjustment inventory developed by Manju Rani Agarwal (1978). The result showed that there was no significant relationship between study skills and adjustment of the students and there was significant influence between study skills and adjustment on academic achievement of male students.

Sutherman and Vasanthi (2011) conducted a study on study on habits and academic achievement of XI standard students in Palani educational district.

The objective of the study was to study the study habits of higher secondary students in terms of gender. Medium of instruction, locality, residence, father’s qualification, mother’s qualification and type of management of school. Simple survey method was used in this study. Study habits scale developed and standardized by Mukopadhyaya (1982). Finally it concluded that there exist significant difference in the mean score of boys and girls with respect to their study habits. From the study it was
observed that the means scores of girls study habits and their academic achievement are more than boys and this is due to the hard work and sincerity of girls when compared to boys.

**Sukhjiwaj Jaur** and **Sarbjeet Kaur (2011)** conducted a study on improving study skills among trainee teachers.

The study examined with the dynamic nature of learning and teaching generates demand for paradigm shift in teacher education programs. Learning without study skills can never be relevant, efficient, productive and developmental. There should be separate classes of specific time period like other class in teacher training programs. Finally the study concluded that if the students have a basic understanding of how they learn, they are better able to develop strategies that help to be successful learners, students and successful teachers.

**Vanita N. Kale (2011)** conducted a study on the study habits of the secondary and higher secondary school students.

The study examined that habits and practices are relevant factors in determining the achievement of an individual. It was observed that even a good student who has the potentiality to achieve as per expectations without good study habits. The general purpose of the study was selected randomly from secondary and higher secondary schools of Amarava this district. Study habits inventory developed by Palsane and Sharma Anuradha was used as a tool for the data collection. The study concluded that students from secondary school have more favorable study habits than higher secondary school students.

**Chidambaram** and **Malathi (2011)** conducted a study on self-confidence, exam anxiety, study habits and Mathematics achievement of underachievers at secondary school level.

The objectives of the study was to study self-confidence, general anxiety, exam anxiety, study habits in relation to under achievement in Mathematics at the secondary school level. The study involved a sample of 135 students were identified as normal achievers and 41 students were identified as under achievers. The following tools were used in the study are Self Confidence Scale, General Anxiety Scale, Examination
Anxiety Scale. Study Habits Inventory, and Achievement test in Mathematics. It was concluded that there is significant difference between normal and underachievers in respect of their exam anxiety in Mathematics, there was significant difference between normal and underachievers in respect of their study habits and there was significant difference between students of normal and underachievers in respect of their Mathematics achievement.

**Jeffrey K. Smith; Lisa F. Smith; Alison Gilmore and Madgerie Jameson (2012)**

Students' self-perception of Reading Ability, Enjoyment of Reading and Reading Achievement

Using data from New Zealand's National Education Monitoring Project, a light sampling, low stakes performance based national school assessment program, reading self-efficacy, reading enjoyment, and reading achievement were examined in samples of 8 and 12 year old children. Sample sizes were n = 480 for each group. While reading achievement increased substantially in going from age 8 to age 12, reading enjoyment and reading self-efficacy declined. Girls outperformed boys in reading achievement.

**Paul Devenesan and Selvam (2013)** conducted a study on language laboratories and development of reading skills.

In this studies the result shows that the language laboratories are supplementary tools to language education that could undoubtedly and positively contribute to effective development of reading skills. Language laboratories need to conceptualized as effective tool for developing reading, writing and speaking skill among the students.

**Syiem and Roa (2014)** conducted a study on a short course to improve the English writing skills of Higher Secondary school students. The research was done in Megalaya state among higher secondary school students to develop their competence and confidence in English writing skills. A three weeks assessment showed significant improvements compared to a matched control group of students.
(a) STUDIES RELATED TO ACHIEVEMENT IN MATHEMATICS

Johnson and James Kenneth (2008) conducted a study on Correlates of Mathemathic achievement among Generation X African-American high school seniors.

Over the past three decades, the academic achievement of African-American students in Mathematics has been of concern. During the 1980’s African-American students had been performing below their national and international counterparts in Mathematics. Research has shown that factors such as perceptions of their abilities, instructional strategies and the inadequate preparation at the elementary, middle and high school level, may be some of the reasons why African-American student fell behind other groups during those time. Thus, the purpose of this study was to examine whether student behaviors, student preceptors and student self-perceptions are significant predictors of Mathematics achievement among Generation X African-American high School Seniors. The study also examined whether African-American males are more likely to have attempted higher levels of Mathematics courses than African-American females.

The study utilized a longitudinal survey design. Participants were comprised of 830 African-American seniors who were in the twelfth grade during the 1992 school year. The study yielded significant findings which indicated that student behaviors may influence Mathematics achievement more specify the number of hours spent watching television per dag, the number of hours spent on a job per week significantly predicted the Mathematics performance of Generation X African-American high school seniors. Also, student perceptions and student self-perceptions were significant predictors of Mathematics performance of Generation X African-American high school seniors. The results also revealed that African-American males were more likely to attempts higher levels of Mathematics courses than African-American females. Finding of this study can extend the literature on the correlates of Mathematics achievement among Generation X African-American high school students. Adding to the literature can facilitate ways of identifying present African-American student behaviors and perception that may inhibit improved performance Mathematics. Findings of this study can also provide implications for program pertaining to improving the Mathematics
performance of African-American students, to add to the empirical literature pertaining to factors which may influence the Mathematics performance of African-American students and to guide educational psychologist and other educational or state holders to assist parents and teachers in effectively educating their children and students in Mathematics.

Coraisco and Janet (2008) conducted a study on a comparison of the Mathematics achievement, attributes, and attitudes of fourth, sixth and eighth-grade students.

The purpose of this researcher was a comparison of the mathematics achievement, attributes, and attitudes of fourth-, sixth and eighth-grade students (gifted and non-gifted). Specifically, this researcher investigated the relationships among attributes relating to Mathematics (effort attribution, ability attribution), parental influence (perceived pressure, perceived support, and family communication), attitudes relating to Mathematics (perceived usefulness of Mathematics, motivation towards Mathematics, math self-concept) and Mathematics achievement. A focus of this researcher was an analysis of different relationship outcomes between gifted and non-gifted boys and girls (n=172). The research design of this study was non-experimental and ex-post facto.

The results of this study should be that there were significant differences in the math attributes, mathematics attitudes, mathematics attribution, and mathematics achievement between the gifted and the non-gifted, significant differences in mathematics attributes, mathematics attitudes, math attribution, and mathematics achievement between boys and girls; significant differences in mathematics attributes, mathematics attitudes, mathematics attribution and mathematics achievement between elementary and middle school levels; significant differences in mathematics attributes, mathematics attitudes, mathematics attribution, and mathematics achievement between family structures; significant direct and indirect effects of exogenous and endogenous variables for the mathematics achievement of the full sample, the gifted, the non-gifted, the elementary and the middle school students.

The result of this study will contribute to the domain of education by providing additional insight into the relationships among students’ mathematics achievement, attributes, and attitudes, including the differences in these variables between boys and
girls. The results of the research on the significant direct and indirect efforts of exogenous and endogenous variables for the children’s mathematics achievement will permit teachers and administrators to create Mathematics curriculum that is best matched to individual student achievement. The results of this study will also help teacher’s better understand the variability in their students when using data to improve student learning. Administrators may find the results of this research useful in narrowing the gap between the results their students are achieving and the results they strive for.

De Smedt and Bert (2009) conducted a study on the predictive value of numerical magnitude comparison for individual differences in Mathematics achievement.

Although it has been proposed that the ability to compare numerical magnitudes is related to Mathematics achievement, it is not clear whether this ability "predicts" individual differences in later Mathematics achievement. The current study addressed this question in typically developing children by means of a longitudinal design that examined the relationship between a number comparison task assessed at the start of formal schooling (mean age=6 years 4 months) and a general Mathematics achievement test administered 1 year later. Our findings provide longitudinal evidence that the size of the individual's distance effect, calculated on the basis of reaction times, was "predicatively" related to Mathematics achievement. Regression analyses showed that this association was independent of age, intellectual ability, and speed of number identification.

Olatoye and Olajumoke (2009) conducted a study on parental involvement as a correlate of pupils' achievement in Mathematics and science in Ogun state, Nigeria

This study investigated the achievement of pupils in the public and private primary schools in Mathematics and science. The descriptive survey research design was employed to carry out this study. Four hundred and eighty (480) pupils from thirty primary schools in Ogun State, Nigeria were randomly selected for this study. From the results of this study, parental involvement accounts for 16.1% of the total variance in Mathematics achievement of primary school pupils (R[squared] = 0.161, p less than 0.05) and 13.5% of the total variance in pupils' achievement in science (R[squared] = 0.057, p less than 0.05). These percentages were significant at 0.05 level of confidence.
It shows that parental involvement is an important predictor of Mathematics and science achievement. There exists a significant difference in the parental involvement of public and private primary school pupils ($t = -9.68$, $p$ less than 0.05). Private school pupils enjoy more parental involvement than their counterparts in the public schools. Teachers and Counselors need to enlighten parents on the need to personally get involved in the academic activities of their children.


This study addressed the inherent and age-old quandary of learning mathematical proof. The aim of the study was to explore the nature of the learning of mathematical proof by undergraduate Mathematics majors through the lens of discourse. Additionally, the study investigated Mathematics majors' sense of a learning community in relation to their participation in a seminar on learning mathematical proof utilizing small group discourse. A communicational approach to cognition–provided the theoretical and research perspective for the study.

The setting of the study was a zero-credit seminar focusing on mathematical proof for freshman and sophomore Mathematics majors. The primarily qualitative study had nine participants. A multiple methods strategy of data collection was employed. First, audio recordings of small-group discourse on mathematical proof were collected along with participant-related work. Participants additionally completed the classroom community scale survey. Finally, interviews were conducted. Focal and preoccupational analyses were performed on the audio data to determine the object-level and meta-level features of the mathematical discourse/learning. Descriptive statistics and typological analysis were used respectively to summarize the survey and interview data. A synthesis of these analyses revealed the complexity of learning mathematical proof; that is, of becoming a more expert participant in the discourse of mathematical proof. Moreover, there may exist in discourse between novice interlocutors natural opportunities called discursive entry points in which experts could intervene to steer the discourse towards increasing sophistication. Additionally, the study revealed several complex and interrelated factors related to learners thinking of mathematical proof. The factors include: discursive contributions role of interlocutors discursive foci of
interlocutors, difficulty, familiarity of mathematical content negotiating effective communication, cognitive conflict and power. Finally, interlocutors had a sense of community in the seminar on mathematical proof utilizing small-group discourse. The discourse may also have contributed to the connectedness that participants felt with their fellow math majors both inside and beyond the seminar walls. Moreover, the participants viewed being able to communicate about mathematical proof as the conduit to a universal math community.

**Magpuri-lavell and Theresa (2009)** conducted a study on the efficacy of evidence-based literacy to improve the reading and Mathematics achievement of economically disadvantaged urban middle school students.

Achievement in Mathematics and reading has become a major focus of both state and federal education initiatives in the United States because of its effects on society and individuals. The purpose of this study was to explore the efficacy of using evidence-based literacy strategies to improve the reading and Mathematics achievement of economically disadvantaged students in urban middle school students, struggling urban middle school readers and struggling Mathematics students with the goal of improving reading and Mathematics achievement. Three middle school Mathematics teachers who participated in the professional development project were interviewed regarding their experiences implementing evidence-based literacy strategies to improve the reading and Mathematics achievements of their students. Finding from the study revealed the integration of evidence based literacy strategies was viewed by the Mathematics teachers as being beneficial and thought to enhance vocabulary learning and the reading and understanding word problems. Based on the results of this study the integration of evidence based literacy strategies and content area classrooms did not significantly impact the reading and Mathematics achievement level of students receiving the instruction when compared to students who did not receive instruction using evidence based literacy strategies.

**Hung and Man (2009)** conducted a study on achieving science, mathematics and reading literacy for all: the role of inquiry-based science instruction.

With the enactment of the No Child Behind Act of 2011, educators and policy makers have been seeking effective strategies to improve students science,
Mathematics and reading achievement. One of the primary teaching strategies recommended by reform-oriented organizations, such as the National Research Council (1996), is to utilize inquiry-based science instruction. In this study, it was examined that the effects of inquiry-based science instruction and traditional science instruction on student achievement across science, Mathematics and reading. It was compared the effects of inquiry-based science instruction and traditional science instruction on student achievement. Using data from the Early Childhood Longitudinal study, kindergarten class of 1998-1999 a large, national data simple - a series of structural equation modeling analyses were performed.

Results indicated that inquiry based science instruction was associated with significant, positive gains not only in science achievement, but also in Mathematics and reading achievement. The positive relation between inquiry instruction and student achievement was found above and beyond the contributions of traditional science instruction, which generally showed no significant relationship to student achievement. Findings support the theoretical position that inquiry based science instruction can have robust benefits across the curriculum. This study contributes to the dialogue on effective instructional methods to achieve science, Mathematics and reading literacy for all. This study provides cautious support for the idea that student achievement can be promoted by supporting and encouraging teachers to implement inquiry-based science instruction.

King and Nancy (2009) conducted a study on of the relationship between CBT developers multiple intelligences dispositions and the design of computer-based training.

This study assessed the relationship between CBT developers Multiple Intelligences (MI) dispositions and their designs for Computer-Based Training programs (CBTs). This study was based on the theoretical framework of the theory of Multiple Intelligences (MI) and theories about instructional design. Student developers in a class were surveyed using Shearer’s Multiple Intelligences Development assessment Scales, a screening instrument that is designed to determine the student MIDAS profiles or their intelligences. The students received instruction in using MI in their CBT design and after they had designed their CBTs four professionals assessed their CBTs for inclusion of MI.
Both quantitative and qualitative data analyses were performed on the association between students MIDAS profiles and the CBT reviewer ratings. The finding of the correlation and regression analyses of the observations of the qualitative data showed of the CBT design was influenced by the student CBT designers MI as indicated by the MIDAS profiles. Positive significant outcomes were reported for the linguistics spatial, intrapersonal, and kinesthetic intelligences. These findings show that knowledge of MI was influential on a few of the design variables as the students were successful in designing CBTs that reflected inclusion of MI for tailoring to learners needs rather than to designers preferences. The information gathered in this study will make a significant contribution to the e-learning field because it sheds light on the association of MI with the development of CBTs.

**Mcconney and Perry (2010)** conducted a study on socioeconomic status, self-efficacy, and Mathematics achievement in Australia:

Previous studies showed that both student and School Socioeconomic Status (SES) were strongly associated with student outcomes, but less is known about how these relationships may vary for different students, schools and nations. In this study we use a large international dataset to examine how student SES, school SES and self-efficacy were associated with Mathematics performance among 15-year-old students in Australia. It was found that increases in school SES were consistently associated with substantial increases in achievement in Mathematics and this phenomenon holds for all groups, regardless of their individual SES. Furthermore, the findings showed that the association of school SES with Mathematics achievement persisted even when subject-specific self-efficacy was taken into account. However, the findings also suggested modest differences among student groups disaggregated by these factors. In particular, the association between Mathematics achievement and school SES appeared moderately stronger for students with higher levels of self-efficacy compared with their peers with lower self-efficacy. Furthermore, among students with similar levels of self-efficacy, the association between Mathematics achievement and school SES tend need to be stronger for lower SES students than for their more privileged peers. From these findings, it is highlighted that the importance of the Australian case for comparable systems of education, and provide a discussion of
policy implications and strategies for mitigating the influence of school socioeconomic composition on academic achievement more generally.

**Bodovski** and **Katerina (2011)** conducted a study on the long term effects of early acquired skills and behaviors on young children's achievement in literacy and Mathematics.

Using the recently available wave of a large nationally representative sample of American elementary school children (ECLS-K data), this study examined the relationship between 6-7 year old students' behaviors exhibited in the 1st grade (approaches to learning, interpersonal skills, externalizing and internalizing behavior) and their reading and Mathematics achievement at the end of the 5th grade (pupils aged 10-11 years), controlling for their achievement in the 1st grade. Findings included the single dimension that has a substantial association with later achievement is students' approaches to learning. The analysis of the interaction effects showed that students from families of low socioeconomic status, girls (in case of mathematics) and minority students were more likely to have higher test scores given their improved approaches to learning. Further, the results demonstrated that basic skills (math and reading in the 1st grade) are substantial predictors of the 5th-grade approaches to learning. The findings revealed that the complexity of the intertwined relationship between cognitive and behavior outcomes among young students and the long-term effects of early acquired skills and behaviors.

**Harwell et.al. (2012)** conducted a study on preparation of students completing a core-plus or commercially developed high school Mathematics curriculum for intense college Mathematics coursework

The purpose of this study was to examine the college Mathematics achievement and course-taking of students at a large public research university who completed a commercially developed or standards-based (Core-Plus) high school Mathematics curriculum, and who subsequently completed at least 2 college Mathematics courses of difficulty level at or beyond pre calculus Mathematics. Mathematics course-taking and achievement data across 8 college semesters were analyzed for a sample of 1,588 students. Findings indicated that students (including science, technology, engineering, and Mathematics majors) were equally prepared for intense college Mathematics course
work regardless of which high school Mathematics curriculum they completed. These findings inform high school Mathematics curriculum adoption decisions for college-bound students, and college policies and practices for advising students enrolling in Mathematics courses.

McDonnall et.al., (2012) conducted a study on the relationship between parental involvement and Mathematics achievement for students with visual impairments.

The effect of parental involvement on achievement had received a significant amount of research attention in the general student population, but surprisingly very little research had been conducted in this area for students with disabilities. This study investigated the association between parental involvement (both at home and at school) and Mathematics achievement for students with visual impairments. The sample used for the study (N = 341 and N = 324) was taken from the nationally representative Special Education Elementary Longitudinal Study. Multilevel modeling for longitudinal data was used to investigate the research questions. Parental involvement at school was positively associated with Mathematics achievement for students who began the study in elementary school, and parental involvement at home was negatively associated with Mathematics achievement for students without a cognitive disability. However, there was a strong positive association between Mathematics achievement and parental involvement at home for students who also had a cognitive disability.

Bakri Yusuf, Dramanu, Musa Balarable (2013) conducted a study on the relationship between academic self-concept and academic performance of Junior High School Studies in Ghana. The result showed positive relationship between academic self-concept and academic performance of students. A significant difference of students in Urban and Rural Junior School with students in Urban schools recording higher score.

Josep Catherine (2014) made a study on the management and academic achievement among Higher Secondary School Students.

The study examined the difference in Gender, Region, Medium of instruction, types of school. A representative sample of 460 students in XI and XII standard were selected from schools in an around Chennai of whom 250 were boys and 210 were
girls. The study also reveals that girls are better than boys in academic achievement. Female student show higher academic achievement perhaps because they are more adaptable, hardworking and are more achievement oriented. The study also shows that there is a low positive correlation between time management and academic achievement.

(b) STUDIES RELATED TO ACADEMIC SELF-REGULATION

Yohanan Eshel; Revital Kohavi (2003) conducted a study on perceived classroom control, self-regulated learning strategies, and academic achievement.

In this study the investigator examined the balance between teacher and student control over learning. Finding of the study showed that student Mathematics achievement would be contingent on the combined effects of teacher and student control. It would be highest when both teacher and student control is high, and would be lowest when both of them are low.

The results showed that student adoption of self-regulated learning strategies would be linked to the net effect of student control: they would be highest when student control is high and teacher control is low, and would be lowest when teacher control is high and student control is low. The data tended to support these hypotheses, indicating that both achievement and self-regulation strategies were contingent on classroom processes.

Masui Chris; De Corte Erik (2005) conducted a study on academic self-concept, implicit theories of ability, and self-regulation strategies.

The purpose of the study was to explore how academic self-concept and implicit theories of ability are related to four self-regulation strategies motivation/diligence, concentration, information processing, and self-handicapping. Sample consisted of 168 teacher students and 60 sport students (a total of 178 females and 50 males) were scored on academic self-concept, incremental and fixed theories of ability and the four self-regulation strategies. Multiple regression analysis was used for each self-regulation strategy as dependent variable, and with academic self-concept and the ability theories as independent variables.
Results revealed that an incremental theory had, as predicted, a positive relation with motivation/diligence and concentration, but had only trivial relations with information processing and self-handicapping, whereas a fixed theory had only the predicted relation with self-handicapping. As hypothesis, a high academic self-concept was positively related to motivation/diligence, conception, and information processing and negatively to self-handicapping.

Helena Thuneberg (2007) conducted a study on is a majority enough psychological well-being and its relation to academic and pro-social motivation, self-regulation and achievement at school.

This cross-sectional study analyzed psychological well-being at school using the Self Determination theory as a theoretical frame-work. The aim of the model was to shift a motivation or external motivation in amore intrinsic direction. The study explored Basic Psychological Needs Fulfillment (BPNS) Academic (SRQ-A), Pro-social Self-Regulation (SRQ-P) motivation, and their relationship with achievement in general, special and selective education (N=786,444 boys, 345 girls, mean age 12 year. In addition to traditional methods, Self-Organizing Map (SOM) was used in order to cluster the students according to their well-being, self-regulation, motivation and achievement scores. The main impacts of this research were a presentation of the theory based alternative of studying psychological well-being at school and usage of both the variables and person-oriented approach. The results showed that the majority of students felt well, but the well-being varied by group. Age and educational group were the most effective factors; gender was important in relation to pro-social identified behavior. Although the person-oriented SOM- approach, was in a large extent confirming what was noticed by using comparison of the variables: the SEN groups had lower levels of basic needs fulfillment and less autonomous self-regulation, interesting deviations of that rule appeared.


The study examined the composite and relative contributions of perceived self-efficacy, academic self-regulation and emotional intelligence to the prediction of
academic performance among junior secondary schools students. The sample consisted of 500 male and female junior secondary school students from ten public co-educational secondary schools in Abeokuta South Local Government of Ogun State, Nigeria. Four research instruments: General perceived Self-Efficacy scale (GSE); Academic Self-regulation Scale (SRI), Emotional Intelligence Scale (EIS) and Academic performance Test (APT) were used to collect data. The stepwise multiple regression analysis was used for data analysis. Result indicated that academic self-regulation, emotional intelligence and perceived self-efficacy together significantly predicted student’ academic performance. Out of the three however, self-efficacy was the most potent predictor of the students’ academic performance, emotional intelligence was the next while academic self-regulation and emotional intelligence should be organized for students from time to time and government should equip school counselors and teachers to be able to handle this.

**Carlo Magno (2009)** conducted a study on self-regulation and approaches to learning.

It is hypothesized in the present study that when learners are asked to write a composition in a second language (such as English language for Filipinos), they use specific approaches to learning and eventually undergo self-regulatory processes. The present study tested a model showing the shift from process to outcome in writing (Zimmerman & Kitsantas, 1999) by assessing the path from Approaches to learning to Self-Regulated Learning Scale (A-SRL-S) and the Revised-Learning Process Questionnaire (R-LPQ-2F) were administered to 394 college students major in English, communication arts. Literature, mass communications, and journalism from different universities in Manila, Philippines, the results showed that: (i) deep approach significantly correlated with the factors of self-regulation except for environmental structuring and seeking assistance while surface approach did not, (ii) deep approach and surface approach was also significantly correlated, and (iii) deep approach significantly increased the variance in all self-regulation components while surface approach only increased the variance in memory strategy.

**Christopher Wolters and Paul Pintrich (2009)** studied on contextual differences in student motivation and self-regulated learning in Mathematics, English and Social studies classrooms.
Recent research on self-regulated learning has stressed the importance of both motivational and cognitive components of classroom learning. Much of this research has examined these components without consideration of potential contextual differences. Using a within-subject correlation design, the present study assessed mean level differences in students’ task value, self-efficacy, test anxiety, cognitive strategy use, regulatory strategy use and classroom academic performance by gender and across the subject areas of Mathematics, social studies and English. In addition, the relation among the motivational, strategy use and performance measures were assessed using motivational regressions. The participants were 545 seventh and eighth grade students (51% female) who responded to a self-report questionnaire. Results revealed that mean level differences by subject area and gender in the motivation and cognitive strategy, but not in regulatory strategy use or academic performance. In contrast, results indicated that the relations among these constructs were very similar across the three subject areas examined. Findings are discussed in terms of their importance for understanding the contextual nature of students’ self-regulated learning.

Julia Matuga (2009) studied on the self-regulation, goal orientation, and academic achievement of secondary students in online university courses.

This study investigated the self-regulation, goal orientation, and academic achievement of 40 secondary students who completed online university courses in the sciences. Students were enrolled in one of three online university science courses. Each course was taught by a two-person team, made up of one university science professor and one secondary classroom science teacher, over a 6-week period. This study explored changes in self-regulation and goal orientation of students enrolled in the online course and the relationship between these factors and student achievement. Student data collected to investigate study questions included and abbreviated version (30-items) of the Motivation Strategies for Learning Questionnaire (MSLQ), collected before and after students completed the online course, and achievement measures (i.e., final grades). Data from application essays and focus interviews, conducted with all participation group members (secondary students, University science professors and the secondary high school teachers), are used to illustrate key findings and probe remaining questions. A description of this program and research resolution from the
investigation of online secondary students’ motivation, self-regulation and achievement in online university courses is also presented and discussed.

**Toral Sangavi (2010)** conducted a study on the factors influencing Asian, Indian, and American Academic performance.

This study examined the influence of parental factors and moderating effects or parents’ ethnic identification and children’s self-regulation on the academic performance of Asian Indian American children in the United States. A total of 101 immigrant Asian Indian fathers and mothers completed a questionnaire on their involvement in children’s education (specifically on parental academic socialization at home and parent school engagement) and an adapted version of the Suinn-Lew instrument that measures immigrant Asian Indian parents’ ethnic identity. Children’s (mean age = 7.4 years) academic performance was assessed using the Mini Battery of Achievement test. Children also completed the Academic self-Regulatory Behavior questionnaire. Results showed that Asian Indian American children were in the superior range in their overall academic performance. Both fathers and mothers engaged in high levels of educational activities with children at home and ethnic identification as Indian were linked to better academic skills. Children who were internally regulated performed better academically than children who were internally regulated. Differential influences of fathers’ and mothers’ involvement on children’s academic skills were also evident. Data are interpreted with respect academic socialization at home and cultural identity in shaping Asian Indian immigrant children’s early academic skills.

**Laura A. Rabin, Joshua Fogel; Katherine E. Nutter-upham (2011)** conducted a study on Academic Procrastination in College Students: The Role of Self-reported Executive Function.

Procrastination, or the intentional delay of due tasks, is a widespread phenomenon in college settings. Because procrastination can negatively impact learning, achievement, academic self-efficacy, and quality of life, research has sought to understand the factors that produce and maintain this troublesome behavior. Procrastination is increasingly viewed as involving failures in self-regulation and
volition, processes commonly regarded as executive functions. The present study was the first to investigate subcomponents of self-reported executive functioning associated with academic procrastination in a demographically diverse sample of college students aged 30 years and below (n = 212). We included each of nine aspects of executive functioning in multiple regression models that also included various demographic and medical/psychiatric characteristics, estimated IQ, depression, anxiety, neuroticism, and conscientiousness. The executive function domains of initiation, plan/organize, inhibit, self-monitor, working memory, task monitor, and organization of materials were significant predictors of academic procrastination in addition to increased age and lower conscientiousness. Results enhance understanding of the neuropsychological correlates of procrastination and may lead to practical suggestions or interventions to reduce its harmful effects on students' academic performance and well-being.

**Hoi Kwanning; Kevindowning (2012)** conducted a study on influence of student learning experience on academic performance: The mediator and moderator effects of self-regulation and motivation.

This study examined the mediator and moderator roles of self-regulation and motivation constructs in the relationship between learning experience and academic success. Self-reported measures of learning experience, self-regulation and motivation were obtained from 384 undergraduate students from a university in Hong Kong. Structural equation modelling indicated that self-regulation and motivation fully mediated the learning experience-academic performance relation. In addition, hierarchical regression analysis also showed that both self-regulation and motivation had small moderating effects on the link between learning experience and academic performance. That is, the association between learning experience and cumulative GPA was stronger for students with lower levels of self-regulation and motivation. The implications of fostering motivation and enhancing university learning experience are discussed.

**(c) STUDIES RELATED TO STUDY SKILLS**

**Higgins (2000)** made an analysis of the effects of integrated instruction of meta-cognitive and study skills upon the self-efficacy and achievement of male and female students.
The objective was to study the impact of using meta-cognitive instruction on high school students, achievement, self-efficacy and test anxiety. The sample was a group of 42 students of advanced geography classes. It was hypothesized that treatment group would have higher achievement, higher self-efficacy and test anxiety scores. The level of meta-cognitive strategies students used at the beginning of the semester was assessed and compared to that of the end of the semester and these levels were compared to those of control group.

The findings proved the hypotheses true but there were no significant differences between two groups. Males had higher achievement scores. Females reported higher levels of meta-cognitive strategy use and higher levels of test anxiety.

Bender David (2001) conducted a study on effects of study skills programs on the academic behaviors of college students.

It reveals that students in a comprehensive development studies program (study skills course and required attendance of tutoring sessions) exceeded their predicted grade point average significantly more than the comparison groups and those instructors reported a greater number of positive behaviors on the part of these students in their classes. Offers date supporting the validity of this type of achievement.

Cox and Frances Wynne (2001) conducted a study on relationship of study skills and Mathematics anxiety to success in Mathematics among community college students in University of Delhi state.

The objectives this quasi – experimental study was to develop and incorporate a Mathematics study skill program into intermediate algebra classes taught in a community college and determine if this program improved the success, reduced the math’s anxiety level and improved the math’s study orientation of the students.

The 88 students of current intermediate algebra classes were given two self-reporting survey instruments, namely the Mathematics anxiety Rating Scale (MARS) and the Survey of Study Habits and Attitudes (SSHA) as pretests and post-tests.
The study showed that there was a relationship between in MARS score and SSHA scores. An increase in the students’ overall study orientation was significant: however, the study habits, that were part of the study orientation, improved only slightly and did not have significant change.

Rybicki Amenda (2002) conducted a study on developing effective study skills while studying a foreign language.

This research describes strategies used to improve student achievement in a foreign language class through the use of effective study skills. The targeted population included high school students in a first year foreign language class. Evidence for the problem of low achievement came from teacher observation, student surveys and low assessment scores. Analysis of probable cause data revealed that students were not successful in their classes due in large part to their lack of effective study skills. Students also did not know what learning strategies confirmed that students needed to receive instruction on effective language learning strategies during regular class instruction with the teacher best suited to providing this instruction. Strategies included ones that addressed all areas of language learning (vocabulary, reading, writing, listening and speaking). Results showed that students were able to use the language learning strategies to achieve higher success. Students reported feeling more comfortable with the various aspects of language learning when using these language learning strategies.

Kuo et al (2003) carried out a comparative study of two and four year college students’ use of study skills and technology.

The explorative study aimed at finding out the differences between two year and four year students and the implications of these differences in the creation of policy and delivery of services. 101 four-year students and 218 two-year students completed the survey. Findings indicated that community college students (two year) show great reliance on technology; both groups did not use college skill centre rather they studied at home and alone.

Tuckman Bruce (2003) studied on strategies for achievement approach for teaching study skills.
It was an experimental study. An educational psychology-based study skills program called Strategies for Achievement was developed to teach learning and motivation strategies to college students. It involved teaching student four major achievements like take reasonable risk, take responsibility for outcomes, search the environment and use feedback. The training was provided as a course taught using a technology-based instruction model called Active Discovery and Participants through Technology (ADAPT). Students who took the training course earned significantly higher grade point average in comparison to matched group.

**James and Lisa Marie (2003)** conducted a study in University of Auburn, on the effects of incorporation a study skill component within a developmental Mathematics course at a Historical African American University the focus of this quasi-experimental study was to find out the effect of study skill on student’s achievement and course completion. Six research question were addressed, four on student achievement and the other two on course completion.

The results of this quasi-experimental study showed that although the mean score on achievement for the study skill groups was consistently higher than the comparison groups, there were no significant differences among the groups. The study had a positive effect upon nontraditional students but a negative effect upon the traditional students.

**Hagie Chris et al (2004)** explored the instructional challenges, response strategies and study skills of contemporary undergraduates.

The objective of this study was to examine the study skills used by college students, the challenges the face and how they see themselves responding or coping with these challenges. The results showed that in academic areas, students behave generally individually, choosing to invest their time and not on campus or in organized group study or tutoring environment.

**Mortimotre Tilly and Crozier Ray (2006)** conducted a study on dyslexia and Difficulties with Study skills in Higher Education.

The aim was to identify the difficulties experienced by the students with dyslexia and to compare with students, 62 with dyslexia and 74 without dyslexia. From
the study, it was reported that the students with dyslexia had difficulties with a wide range of skills and academic tasks, notably note taking, organization of essays and expressing ideas in writing. The pattern of difficulties had been changing over time and they were able to make use of resources available including additional time for examinations, access to dyslexia tutors and support with information technology.

**Yuksel Sedat (2006)** made a study on undergraduate students’ resistance to study skills course.

The purpose of the research was to investigate reasons for the students not showing interest to the course of study skills and habits. Here a qualitative retrospective interview was employed. Students who showed resistance to the course of study skills and habits were interviewed. The research indicated the following reasons: not willing to change their study habits, unable to change the study skills, believed that new skills were meaningless and relief that teaching the skills was not the duty of counselor.

**Philips Gregory (2006)** made an evaluative study on using open-book test to encourage reading and assessing the improvement of college students, study skills;

The study revealed a statistically significant improvement from the initial test to the final test given for the entire sample. The students with weaker study skills benefited more from open book test than the overall sample. The entire sample had an average improvement of 4.47 points over the first test whereas the students will weaker study skills had an average improvement of 23.79 points.

**Deborah and Brian (2006)** conducted a study on study skills and academic performance among second-year medical students in problem based learning.

The investigation aimed at finding out the relationship between study aid use study habits and academic performance of second hear medical students. It also discussed how students used study aids in preparing for Problem Based Learning (PBL) and compared whether students wise used others’ study aids performed better than students who used their own. A questionnaire was distributed to second year students after completion of their exams. It was related to exams scores and other academic indicators. The research revealed that the students used mostly similar study habits. A majority of students used study aids as a memory aid or for review. There was a
negative relationship between study aid use and exam performance also students in the top third, were less likely to use study aids for exam preparation whereas students in the bottom third of the class were more likely to use study aids.

Tilly Mortimore and Ray Crazier (2006) conducted a study on dyslexia and difficulties with skill in higher education.

The study presented the findings from a questionnaire survey of 136 male students 62 with dyslexia and 74 without dyslexia from 17 British higher education institution. The students with dyslexia reported difficulties with a wide range of skills and academic tasks, notably note taking, organization of essays and expressing ideas in writing. They reported that their difficulties were long-standing and had been experienced in primary and secondary schools. Although the pattern of these difficulties changed over time, they reported that making use of resource available to them, including additional time for examination, access to dyslexia tutors with information technology. However, there are indications of unmet needs in several areas, notably support for specific subjects and with organizing coursework, learning in lectures and academic writing skills. The implication of these finding for provision for students with dyslexia were discussed.

Sevg Turanetal (2009) conducted a study on meta cognitive awareness and self-regulated learning skills of medical students in different medical curricula.

The aim of this study was to investigate the acquisition of meta cognitive awareness and self-regulated learning skills in medical schools using different curricular models. Methods: The study was carried out in four medical schools implementing different curricular models. Eight hundred and sixty two medical students took part in the study and two scales (self-regulated learning perception scale-SRLPS and Meta cognitive Awareness Inventory-MAI) were used Cronibach’s alpha was 0.93 for MAL and 0.88 and 0.76 for the four dimension of the SPRLS results. There were no statistically significant differences in MAIs score according to gender, curricular language or previous exposure or not to a learner-centered model were found to be significant. With regard to SRLPS scores of students from the medical school using a learner-centered curriculum were higher than the other schools’ students.
Groves et.al (2010) conducted a study on facilitating experimental learning of study skills in sports students.

The study experimented that in recent years the student population in UK has grown considerably, and students are entering higher education with a more diverse range of qualifications and skills. This is particularly the case in post-1992 universities with a widening participation agenda, as these institutions have a larger share of students from non-traditional backgrounds. Universities therefore need to consider ways in which they can encourage achievement and success amongst a diverse population of students, many of whom enter higher education without the skills needed to study effectively. Within the study the authors considered the use of experiential learning tasks to facilitate the development of study skills, as it has been suggested that such tasks aid student learning and the acquisition of skills. The authors outline a Level I module, delivered to a large chart of student at a post-1992 university in the United Kingdom and designed to facilitate the development of study skills in a way that is consistent with Kolb’s experiential learning cycle. Their small-scale and provisional examination of the fire iteration of the module suggested that they have produced an initiative that encourages student access to some of the key aims of higher education.

Jansen et.al (2010) conducted a study on the effect of secondary school study skills preparation on firs-year university achievement,

The study have revealed the importance or study skills for students’ first-year performance and college retention, the extent of the impact of study skills preparation on student’s academic achievement is less clear. The study explored the impact of pre-university study skills preparation on students’ first-year study experiences, academic achievement and persistence. The setting for the study was a large law school in the Netherlands which attracts students from more than 100 students from more than 100 schools for secondary education. The results showed that the perceived study skills preparation concerning time management and learning skills does have positive impact on college students’ first-year study behavior and academic achievement. However, the study also showed that the impact of perceived college preparation was far less important for college retention than other factors such as satisfaction about the chosen degree programme and tutorial attendance.
*Silvana Weiss et.al (2010)* conducted a study on behavioral and neurophological effects of morphological awareness training on spelling and reading.

The study examined the behavioral and neurophological effects of a computer-aided morphological training protocol were examined in German-speaking children form grades 3 to 9. Study was compared morphological awareness, reading and spelling skills of 34 trained children with an untrained control group of 34 children matched for age, sex and intelligence. All participants in the train troop shoed increases in morphological awareness, nit only students from secondary school improved significantly in reading and spelling competences. In study 2, a subsample of 8 trained children with poor spelling and reading abilities and 10 untrained children with higher language competencies underwent an electroencephalography testing involving three different language tasks. The training resulted in decreased theta-activity and increased activity in lower (7-10 HZ) and upper alpha (10-1hz).

*Ometere Tope (2011)* conducted a study on the effects of study habits on the academic performance of students.

The study investigated the effect of study habits on the academic performance of student’ using some selected senior secondary schools in Ijebu - Ode Local government are of Odun state as a case study. Two selected from five senor secondary schools in the area. The instrument utile for the study was questionnaire named Study Habit and Study Attitude Scale (SHASAS). Four hypotheses were tested and the result showed that family background, peer group of study pressure. Personality type of the student and the school environment all affect the reading habit of students in secondary schools.

*Coughlan et.al., (2011)* conducted a study on student and tutor perceptions of learning on first year study skills module in a university computing department.

The study examined the level of student preparedness for university-level study has been widely debated. Effective study skills modules have been linked to supporting student’s academic development during the transition phase. However, few studies have evaluated the learning experience on study skills modules from both a student and staff perspective. It was surveyed 121 first-year students and seven tutors on a study
skills module on an undergraduate computing programmer. The aspects in which the students’ and tutors’ view diverge provide insights into the perceptions of academic tasks and associated competencies for higher education and delivery of study skills in practice for computing students. Using Simultaneous Prompting to Teach Computer-based Story Writing to a Student with Autism

Robert C. Pennington; Donald M. Stenhoff; Jason Gibson; Kristina Ballou (2012) conducted a study on Education and Treatment of Children.

Writing is a critical skill because it is used to access reinforcement in a variety of contexts. Unfortunately, there has been little research on writing skills instruction for students with intellectual disabilities and autism spectrum disorders. The purpose of this study was to evaluate the effects simultaneous prompting and computer-assisted instruction on story writing responses of a 7-year-old male with autism. Data indicated that the intervention was effective in teaching the participant to construct stories related to three different topics. Additionally, the student maintained responding at 2 and 4 weeks following intervention and increased responding across different topographies (i.e., handwriting, vocal).

CRITICAL REVIEW OF RELATED LITERATURE

The investigator has reviewed total number of seventy three Studies both Indian and Foreign. There are forty four Foreign and twenty nine Indian studies. Among them twenty ones are on Achievement in Mathematics sixteen are on academic self-regulation and thirty six are on study skills.

Studies on study skills mostly have been experimental and comparative, trying to assess the impact of a particular cohort of study skills on the variables. The studies have attempted to identify the study skills that are used by students and the challenge they face.

Petchiammal (2001) reported that there was a significant relationship between students’ achievement in Mathematics and their prior knowledge in algebra, geometry, number system, business Mathematics, graph and Mathematics.
Sheeja (2002) found a significant influence of level of aspiration and study habits on achievement in Mathematics of higher secondary students.

Coraisco and Janet (2008) concluded significant differences in the math attributes, math attitudes, math attribution, and math achievement between the gifted and the non-gifted, boys and girls, elementary and middle school levels.

Olatoye and Olajumoke (2009) reported that parental involvement is an important predictor of Mathematics and science achievement.

Bodovski and Katerina (2011) in a study reported that the complexity of the intertwined relationship between cognitive and behavior outcomes among young students and the long-term effects of early acquired skills and behaviors.

Harwell et al. (2012) in a study indicated that students (including science, technology, engineering, and Mathematics majors) were equally prepared for intense college Mathematics coursework regardless of which high school Mathematics curriculum they completed.

Josesph Catherine (2014) revealed that girls are better than boys in academic achievement. Female student show higher academic achievement perhaps because they are more adaptable, hardworking and are more achievement oriented.

Helena Thuneberg (2007) conducted a study on is a majority enough psychological well-being and its relation to academic and pro-social motivation, self-regulation and achievement at school. The results showed that the majority of students felt well, but the well-being varied by group. Age and educational group were the most effective factors; gender was important in relation to pro-social identified behavior.

Edun and Akanji (2008) in a study reported that academic self-regulation, emotional intelligence and perceived self-efficacy together significantly predicted student’ academic performance.

Carlo Magno (2009) conducted a study on self-regulation and approaches to learn. The results showed that: (i) Deep approach significantly correlated with the factors of self-regulation except for environmental structuring and seeking assistance while surface approach did not, (ii) deep approach and surface approach was also
significantly correlated, and (iii) deep approach significantly increased the variance in all self-regulation components while surface approach only increased the variance in memory strategy.

Christopher Wolters and Paul Pintrich (2009) revealed that the mean level differences by subject area and gender in the motivation and cognitive strategy use variables, but not in regulatory strategy use or academic performance.

Rybicki Amenda (2002) concluded that students were able to use the language learning strategies to achieve higher success. Students reported feeling more comfortable with the various aspects of language learning when using these language learning strategies.

Philips Gregory (2006) revealed that the statistically significant improvement from the initial test to the final test given for the entire sample. The students with weaker study skills benefited more from open book test than the overall sample.

Deborah and Brian (2006) revealed that the students used mostly similar study habits. A majority of students used study aids as a memory aid or for review. Tilly Mortimore and Ray Crazier (2006) concluded that making use of resource available to them, including additional time for examination, access to dyslexia tutors with information technology.

Sevg Turanetal (2009) reported that there were no statistically significant differences in Meta cognitive awareness inventory score according to gender, curricular language or previous exposure or not to a learner-centered model were found to be significant.

Jansen et.al (2010) revealed the importance or study skills for students’ first-year performance and college retention, the extent of the impact of study skills preparation on student’s academic achievement is less clear.

Chidambaram and Malathi (2011) conducted a study on self-confidence, exam anxiety, study habits and Mathematics achievement of underachievers at secondary school level.
Paul Devenesan & Selvam (2013) concluded that the language laboratories are supplementary tools to language education that could undoubtedly and positively contribute to effective development of reading skills.

Rajendran et.al (2007) concluded that parents’ education have no significant influence on the various dimensions of habits such as home environment and planning, reading and note taking.

Uma Tandon (2008) conducted a comparative study of net qualified and net appeared candidates, study habits, family environment and academic achievement.

Amutha Sree and Krishnamurthy (2010) found that the higher secondary school students had high achievement and average study habits. There was significant relationship between achievement in commerce and the study habits of higher secondary school students.

Vembudurai and Annaraja (2011) reported that there was no significant relationship between study skills and adjustment of the students and there was significant influence between study skills and adjustment on academic achievement of male students.

Syiem and Roa (2014) conducted a study on a short course to improve the English writing skills of Higher Secondary school students. The research was done in Megalaya state among higher secondary school students to develop their competence and confidence in English writing skills.

The present study differs from the rest of the studies in several ways. First of there was no study undertaken so far which had the variables of achievement in Mathematics, academic self-regulation and Study Skills. Therefore, the present study is the first of its kind in this regard.

Secondly, though many studies were conducted on study skills on different target groups, no study was conducted on high school students and so in this regard, this present study stands unique.
Thirdly, with regard to the academic self-regulation there were many studies on academic self-regulation conducted on graduates, student teachers and junior secondary school students no study was conducted on high school students and so in this regard, this present study stands unique.

Fourthly, there was only one study made on the variable reflectiveness in India. In this respect, this study is something new and different.

Fifthly, though a few studies were conducted relation to achievement of students, no study has linked achievement with Mathematics and so in this regard, it stands unique.

From the above study the investigator felt that no exclusive study has been conducted an achievement in Mathematics among IX and X standard students in relation to their academic self-regulation and study skills. So the investigator selects the topic “Achievement in Mathematics of High School Students in relation to their Academic Self–Regulation and Study Skills”. The present study is different from the studies discussed above in terms of population, area and sample and hence relevance of the present study.