learning & thinking style. Rationale of the study, Statement of the problem, Operational definitions of the key terms, variables involved, objectives, hypotheses and delimitations of the study are also included in the chapter. The Chapter II is devoted to the Review of Related Literature. An overview on the relationship or effect of independent variables with/on dependent variables of the present investigation has been explained with facts perceived by a few important earlier studies on the related issues/problem in the Chapter II. In chapter III, Design of the Study, Sample, Tools, Procedure and Statistical Techniques have been presented. The Chapter IV deals with the Analysis and Interpretation of the Data along with the Discussion of the Results. In Chapter V, the Main Findings, Educational Implications of the Study and Suggestions for Further Research have been presented. The Chapter VI is allocated to the Summary of the present study.

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CHAPTER-II
REVIEW OF RELATED LITERATURE

A literature review is usually regarded as being an obligatory part of student projects, research studies and dissertations because it covers all previous research done on the topic and sets the platform on which the current research is based. No new research can be taken seriously without first reviewing the previous research done on the topic. It is an evaluative report of studies found in the literature related to the selected area. The review should describe, summarize, evaluate and clarify this literature. It should give a theoretical basis for the research and help to determine the nature of the research. In research methodology, literature means “the selection of available documents (both published and unpublished) on the topic, which contain information, ideas, data and evidence written from a particular standpoint to fulfill certain aims or express certain
views on the nature of the topic and how it is to be investigated, and the effective evaluation of these documents in relation to the research being proposed” (Chris, 1998). It is often useful to review the types of researches that previous investigators have launched as a means of determining what approaches might be of most benefit in further developing a topic. By the same token, a review of previously conducted studies might lend itself to researchers determining a new angle for approaching research.

A literature review, therefore, helps us to appreciate something of the sequence and growth of knowledge. “A first step in the research process is the literature review, which helps to shape your research question (David, Paul & Justin, 2011). A literature review requires the author to identify, critically analyze and synthesize a set of useful articles and books on a particular topic. Often associated as a section within a dissertation, a literature review is characterized by the emphasis on sources, which are organized, summarized and synthesized with the goal of providing a new interpretation of old material or a trace of the intellectual progression of the field.” It provides a thorough introduction to the readers on the topic and presents all the analyses and findings of previous studies. With the help of these findings, the Current researchers develop their own research problems and eventually to create their own hypotheses on the topic that provides a focus for their explorations and analyses. After that, these findings of the present research can be compared and contrasted with the previous findings and used as takeoff point for further research. In a nutshell, review of literature is an essential component of any research by which the researcher can review all the previous work that has been done in the relevant field, so that ‘he can stand on the shoulders of the giants.’

In the light of the significance of the related literature, it was indispensable for the investigator to conduct a survey of the related literature widely. The review provided an insight into various dimensions of the problem and concerned issues at different stages. In this endeavor, the investigator selected and reviewed various researches which had direct impact on the present research. The present chapter provides a thumbnail account of such studies conducted in India as well as in abroad. Studies have been reviewed and organized chronologically in the present study. In order to have clear
picture of the present research, the researches in the concerned field have been classified under the following two sections for the sake of convenience:

2.1 Studies related to Academic Achievement
2.2 Studies related to Study Habits

2.1 STUDIES RELATED TO ACADEMIC ACHIEVEMENT

Maqsud (1997) investigated the relationship between meta-cognitive strategies and academic achievement having a sample of one hundred forty students from South Africa. The analysis of the data indicated that there was significant positive relationship between meta-cognitive strategies and academic achievement of students. Finding of the study also showed sex difference in performance of students in mathematics.

Cano (1998) examined the relationship between learning style and academic performance. Data were analyzed using SPSS/PC for Windows software program. In order to find out the relationship between learning style and academic performance, the Pearson Product Moment correlation coefficients were calculated. Results of the study revealed that entering freshmen tended to lean towards the field-independent learning style. The results of current study also indicated that there was positive relationship between learning style and academic achievement.

Landine and Stewart (1998) examined the relationship between meta-cognition and academic achievement of 12th graders by taking a sample of one hundred students in New Brunswick and Newfoundland. Pearson’s coefficient correlation was used to analyze the data. The results showed a significant positive relationship between meta-cognition and academic achievement of students.

Baker and Cerro (2000) investigated meta-cognition in children and adults. The results revealed that students who were better achievers in academic domains such as reading, writing, mathematics and science also exhibited better levels of meta-cognitive knowledge about the domain and had developed abilities in self-regulation.

Collison (2000) studied learning style and academic achievement of elementary school students. The results of the study revealed that low achievers preferred more formal learning environment that includes wooden, steel or plastic chairs and desks, like those
found in mostly traditional classrooms. Low achievers also preferred to learn with one or more peer compared to high achievers who favored alone.

Taraban, Rynearson, and Kerr (2000) examined the relationship between meta-cognitive skills and learning outcomes among university freshmen. They investigated the meta-cognitive strategies commonly used by the students and which strategies were helpful for their academic performance. The findings of the study revealed that meta-cognitive strategies for reading comprehension could improve college students’ academic performance.

Alam (2001) studied academic achievement in relation to socio-economic status, anxiety level, and achievement motivation. Results of the study indicated a significant positive relationship between socio-economic status and academic achievement, achievement motivation and academic achievement; and further, a negative relationship was found between anxiety and academic achievement.

Bernardo, Zhang, and Callueng (2002) explored the relationship between thinking styles and academic success among Filipino students. The results of the present study also revealed a relationship between the judicial style and general academic achievement, but no relationship was found between the legislative style and academic achievement. Moreover, in the present study the executive style was positively correlated with grade point average.

Nachmias and Shany (2002) examined students’ learning in virtual courses and the relationship between their performances and thinking styles. Participants were one hundred ten eighth and ninth graders who were enrolled in a three-month virtual course on the retrieval and use of on-line information. The findings showed that learners with liberal or internal thinking styles outperformed than the other students in the course.

Zhang (2002) studied the relationship between styles of thinking and academic performance and modes of thinking among U.S. university students. As per the results of the study, it was found that the more creativity-generating and more complex thinking styles were significantly related to holistic mode of thinking, and the more
norm-conforming and more simplistic thinking styles were significantly related to an analytic mode of thinking.

Phakiti (2003) investigated the relationship of cognitive and meta-cognitive strategy used to English Foreign Language (EFL) reading achievement test performance. Data analysis revealed that there was a positive relationship of cognitive and meta-cognitive to the reading test performance. The test takers who were highly successful reported significantly higher meta-cognitive strategy use than the moderately successful ones who in turn reported higher use of these strategies than the unsuccessful test takers.

Rysz (2004) conducted a study to identify meta-cognition learning elementary probability and statistics concepts. From the results it was found that students, using limited or no meta-cognitive awareness, can earn above average grades, but those who provided evidence of cognitive awareness and self-monitoring were better able to report an understanding of probability and statistics concepts.

Avinashilingam and Sharma (2005) observed the factors which influence students’ academic performance. Results revealed that in affecting the students’ academic performance, the classroom factors play a major role. This is followed by developmental factors and environmental factors. The students’ inner urge, the competency of teachers, no physical distraction and contacts with like-minded colleagues make a student more capable to succeed in life.

Dwivedi (2005) studied the impact of school environment on academic achievement of students. The results showed that the students, who had better school environment, scored significantly better academic achievement than poor school environment; the students who were high approval seeker had significantly high achievement than the students who were low approval seeker.

Namabu and Kunijiro (2006) examined the effect of meta-cognition in relation to motivational beliefs, learning strategies and academic achievement in mathematics. Further, the students were categorized according to meta-cognition level as low, middle and high. There were found some differences between the low and high meta-cognition groups in the relation between motivational beliefs and the understanding oriented
strategy in the relation between the learning strategies and academic achievement. In the middle meta-cognition group, the relationship was poorer than the other groups. It was found that meta-cognition had quadratic effects for these relationships.

Ponnusamy (2006) investigated the impact of meta-cognitive strategies among lower achievers in secondary schools. Research was concluded using a quasi-experimental design with pre- and post- tests. The results showed that meta-cognitive and problem solving strategies had a significant impact on academic achievement, meta-cognitive awareness and meta-cognitive knowledge.

Zulkiply and Norehan (2006) examined the relationship between student’s academic performance and five components of meta-cognitive regulation namely planning, information management strategies, comprehension monitoring, debugging strategies and evaluation. Meta-cognition awareness in students across gender and different academic years was also examined. Overall, the findings revealed a significant positive relationship between student’s academic performance and their meta-cognitive awareness.

Albaili (2007) studied the differences in styles of thinking among low, average and high achieving United Arab Emirate College students. Thinking Styles Inventory was used to assess students’ styles of thinking. Results indicated that low-achieving students scored significantly poor on executive, hierarchic, anarchic, local, conservative and internal styles of thinking. But on the other hand, it was found that low-achieving students scored significantly better on legislative, oligarchic, and liberal styles. A discriminate analysis showed that executive and conservative styles were the most discriminating factors that separated low-achieving students from their counterparts.

Reilly and Mc Namara (2007) observed how well cognitive abilities predict high school students’ science achievement as measured by traditional content-based tests. Students were assessed on their science knowledge, reading skills and reading strategy knowledge. The cognitive variables reliably predicted all three measures of science achievement and there were also significant gender differences. Reading skills helped the learners to compensate deficits in science knowledge for most measures of
achievement and had a larger effect of achievement scores for higher knowledge than lower knowledge students.

Ibe (2009) investigated a study on effect of meta-cognitive strategies on students’ achievement in senior secondary school science classrooms. From the results, it was revealed that the meta-cognitive strategies were most effective in enhancing the academic achievement followed by TPS (Think Pair Share). The researcher recommended that meta-cognitive strategies and questions be in fused in the classroom so as to help students to learn material more efficiently, retain information longer, and generalize skills.

Moeni, Aliapour and Ghaderi (2009) studied learning styles and their roles in academic achievement of the students of Payame Noor University, Ardebli center, Iran by selecting a sample of 184 students through random sampling technique. Findings showed that most of the male students used verbal and solitary learning styles and most of the female student used aural and verbal learning styles. The academic achievement of female students was better than the academic achievement of male students. Further, it was found that students with visual learning style had the highest achievement whereas logical and physical learning styles showed the poor academic achievement.

Cano-García and Hughes (2010) observed whether college students’ learning styles and thinking styles were interrelated, and if these could predict academic achievement by comprising a sample of 210 college students. The results of canonical correlation analysis showed the moderate relationship between learning and thinking styles. The results of regression analysis indicated that students’ academic achievement was related to students’ thinking styles. The students who preferred to work individually (Internal) were those that do not enjoy creating, formulating and planning for problem solution (Legislative in a negative sense) and those who have adherence to existing rules and procedures (Executive) were those who obtained better academic achievement.

Gulsum et al. (2010) investigated the differences in the level of 7th grade Turkish students’ cognitive and meta-cognitive strategy use in science and studied the contribution of cognitive and meta-cognitive strategy use in students’ science
achievement. The present study also examined the relationship between students’ background characteristics and cognitive and meta-cognitive strategy use and science achievement. The statistical analysis indicated a significant difference in the level of students’ cognitive and meta-cognitive strategy use scores. Besides elaboration, organization and meta-cognitive self-regulation strategy use were found to make a significant input in students’ science achievement.

Abidin, Rezaee, Abdullah, Kaur, and Singh (2011) explored the relationship between learning styles and overall academic achievement of 317 upper secondary class students both male and female with an age group of 16 years. To analyze the data, the statistical techniques i.e. one-way ANOVA & multiple regression were used. The results of the study indicated a significant relationship between overall academic achievement and learning styles. It was also found that there was similar preference pattern of learning in all learning styles among high, moderate and low achievers.

Gupta and Kapoor (2012) studied the impact of learning styles on scholastic achievement in English by selecting a sample of 300 students of 10th class studying in various schools located in urban area and affiliated to Haryana Board of School Education. To select the sample for the present study, multi-stage random sampling technique was used. Findings revealed a significant difference in scholastic achievement in English among students with three categories of learning styles viz. left hemisphericity, right hemisphericity and integrated hemisphericity. It was also found that students with integrated hemisphericity had more scholastic achievement in English than those who had left hemisphericity or right hemisphericity.

Jahanbakhsh and Mina (2012) conducted a study to find out the relationship between learning styles of female high school students and their academic achievement. A sample of 350 individuals was selected through multi-stage random sampling method. Collected data were analyzed by Pearson correlation coefficient and multiple regressions. From the results, it was showed that in human science courses, intuitive learning style, and in empirical science courses, global learning style correlated to academic achievement of students. Other styles showed no significant correlation with
academic achievement. Multiple regression analysis revealed that intuitive learning style of students of human science courses and global learning style of students of empirical science courses can predict academic achievement.

Lun Su (2012) explored the relationship between the learning styles preferences of students at a Taiwanese hospitality college and their academic performance. This study involved a convenient sample of 360 students in a hospitality management program at a university in Taiwan. Results revealed that hospitality college students were more likely to be reflective, sensate, visual and global in their learning style. There was found a significant difference between sequential and global learners emerged with respect to their academic performance. Sequential learners performed better academically in comparison to global learners.

Richmond and Conrad (2012) investigated the relationship between thinking styles and academic performance in psychology and how those styles may affect academic performance in an online class. One hundred and eighty seven online college students were administered the Sternberg Wagner Thinking Style Inventory (TSI) and measured on their online academic performance. Similar with past research, the researchers found that student’s internal and hierarchical scores positively predicted online course GPA and anarchic & legislative style scores negatively predicted online course GPA.

Sharma and Neetu (2012) examined the relationship and significance of difference between academic achievement and learning & thinking style of secondary school students. From the analysis, it was found that there was positive and significant relationship between learning & thinking style and academic achievement of secondary school students. Students with high academic achievement were better for teaching. It can be said that academic achievement is a factor which influence the learning & thinking style of secondary school students. It was also concluded that male and female secondary school students did not differ significantly with respect to their academic achievement whereas they were different in respect to their learning & thinking style.
Adodo and Oyeniyi (2013) studied the students’ variables as correlates of secondary school students’ academic performance in Biology in Ikere Local Government Area of Ekiti State, Nigeria. The sample for the study was four hundred biology students selected using stratified and simple random sampling techniques. The data were analyzed using Pearson’s Product Moment Correlation and multiple regression analysis. The results showed that there was significant relationship between students’ variables (i.e. attitude and study habit) and their academic performance in Biology. It was also inferred that there was no significant difference between academic performance of male and female secondary school students.

Amzil and Stine-Morrow (2013) studied the relationship between meta-cognition and academic achievement in college students. Findings indicated that both meta-cognitive monitoring and control are good predictors of academic performance in college, while meta-cognitive knowledge is not. Moreover, consistent with the idea that relatively poor monitoring skills contribute to lower academic achievement, ratings of confidence revealed that low achievers tend to over-estimate their performance.

Bhatti and Bart (2013) explored the impact of learning styles on scholastic achievement levels. The subjects in this study were 193 undergraduate students from three randomly selected classes in Sociology at the University of Minnesota. The data analysis showed that the dominant learning style was Assimilator. Learning style and gender influenced academic achievement because the results of two-way ANOVA point out that there was a significant difference between males and females in relation to their scholastic achievement. The females had a higher GPA mean, on the average, in comparison to the males.

Brahmakasikara (2013) observed learning styles and academic performance of English III students by selecting a sample of sixty seven students. From the results, it was concluded that most of the students were auditory/verbal learners and this group had maximum number of students who passed the course with no failure while the tactile learners had the least number of students who passed the course. Further, it was
also concluded that there was no significant difference in the grades of the students with respect to their learning styles.

Chowdhry (2013) examined the relationship between meta-cognition and academic achievement of XI standard students studying in schools affiliated to C.B.S.E. A sample consisted of 84 students (Both Male & Female) of Meerut Zone was taken as the participants for the research. As a result, a positive and significant relationship was found between meta-cognition and academic achievement of XI standard students studying in schools affiliated to C.B.S.E.

Eluemuno and Azuka-Obieke (2013) studied the influence of meta-cognitive skills on academic performance of senior secondary school students with the sample of one hundred forty four senior secondary school students. The results of the study showed a positive relationship between meta-cognitive skills and academic performance such that developing meta-cognitive skills among students will lead to the improvement of their academic performance in English Language.

Gappi (2013) examined the relationship between learning style preferences and academic performance of students. The subjects of the study 84 males and 47 females; 23 of them were taking Diploma in Informatics Engineering, 16 were in the Diploma in Computer Studies and 92 were enrolled in the program of Diploma in Business Informatics. To analyze the collected data, Pearson product-moment correlation coefficient was used. The results revealed that no significant correlation was found between learning style preferences and academic achievement of the students.

Inomiesa, Achufusi, and Mgbemena (2013) studied the influence of self-regulated learning and meta-cognitive learning cycle on academic achievement of secondary school Physics students. Through random sampling technique, a sample of 325 students was taken. Using a three way analysis of covariance (ANCOVA), the collected data were analyzed. The findings of the study pointed out that the self-regulated learning group of students performed better in comparison to the meta-cognitive learning cycle group of students, while the meta-cognitive learning cycle group of students performed
better than the lecture method group of students. No significant difference was found in performance of male and female secondary school Physics students.

Narang and Saini (2013) investigated the effect of meta-cognition on academic performance of rural adolescents (13-16 years). Results revealed that the major proportion of subjects having high level of meta-cognition also preferred above average in academics. Analysis of the collected data further showed Knowledge of Cognition and Regulation of Cognition as components of meta-cognition significantly contributed towards the academic performance of rural adolescents.

Negahi, Ghashghaeizadeh and Hoshmandja (2013) explored the relationship between learning and thinking styles with academic self-efficacy of English lesson among students of Islamic Azad university of Behbahan. A sample of 367 students was selected using stratified sampling technique. Results indicated that the judgmental thinking style and legislative thinking style were significantly related with academic self-efficacy of students. But, a significant and negative relationship was found between the executive thinking style and academic self-efficacy of students. There was also found significant and positive relationship between all of the leaning styles elements with academic English lesson self-efficacy of students.

O’Neale and Harrison (2013) investigated learning styles, study habits, and academic achievement of Chemistry students enrolled at the University of the West Indies, Cave Hill Campus. Participants of the study were 59 students. The collected data were analyzed using t-test, ANOVA and linear regression at 0.05 level of confidence. It was inferred that introvert, sensate, thinking, and judging learning styles were most prevalent among the students. There was no significant difference in academic achievement of students based on study habits and learning styles. The contribution of learning styles and study habits as predictors of a chemistry student’s academic achievement in group theory was not significant however, extrovert/introvert learning style dimension was the highest contributor towards student’s academic achievement.

Rani and Govil (2013) studied the correlates of meta-cognition of undergraduate students. The study explored the relationship of meta-cognition of undergraduate
students with the demographic variables like gender, place of living, academic achievement and parents’ education. Results revealed that the high and low achieving undergraduate students differ significantly on their meta-cognitive level.

**Shoaakazemi, Javid, Keramati, and Tazekand (2013)** examined the relationship between meta-cognitive skills and academic achievement of students. Sample was consisted of 100 students. For data analysis, Pearson’s correlation and regression tests were used. Results of the study concluded that there was a significant and positive relationship between three variables in which happiness could predict academic achievement & problem-solving, self-regulation of students and moreover, keep them away from the depression and other mental and physical disorders.

**Vaishnav (2013)** conducted a study to see the relationship and effect of different learning styles on academic achievements of secondary school students. Findings of the study indicated that, kinesthetic learning style was found to be more prevalent in comparison to visual and auditory learning styles among secondary school students. There existed positive and high correlation between kinesthetic learning style and academic achievement of students. The main effects of visual, auditory and kinesthetic learning style were significant on academic achievement of secondary school students.

**Al-Thani, Al-Thani, and Semmar (2014)** explored the relationship between students’ thinking styles and academic achievement at Qatar University. Participants of the study were 289 college students. The collected data were analyzed with the help of descriptive statistics and inferential statistics. Results of the study revealed that there was significant relationship between students’ thinking style and academic performance.

**Anjum (2014)** studied hemispheric dominance and mathematics achievement of 10th class students. A sample composed of 150 students was selected by stratified random sampling method. Findings of the study revealed that majority of the students had right hemispheric dominant style of learning and thinking. There was found no significant difference between Mathematics achievement of students with respect to different hemispheric dominant style of learning and thinking. Further, it was also concluded that
there was no significant difference girls and boys with respect to their achievement in Mathematics.

**Bhakhshayesh (2014)** studied the relationship between thinking styles and academic performance of Azad University students. Through stratified sampling technique a sample of 350 students (both male and female) was selected. Data were analyzed by using Pearson correlation and t-test. The obtained results indicated that a positive and significant correlation was there between thinking styles and academic performance of students. Both genders showed a significant difference in legal, conservative, hierarchical, anarchy and internal thinking styles.

**Himghaempanah, Karimi, and Najafi (2014)** studied the relationship between internet addiction and meta-cognitive skills with academic achievement in students of Islamic Azad University, Hamedan branch. The results of the study indicated that there was no significant relationship between meta-cognition and internet addiction. However, there was a significant relationship between meta-cognition and academic achievement of students. A significant and inverse relationship was also observed between internet addiction and academic achievement. There was found a significant difference in terms of meta-cognition among the groups of different fields of studies.

**Ilayaperumal and Ambedkar (2014)** studied the difference in learning styles, thinking styles and academic achievement of 11th standard students. A sample composed of 1250 11th standard students was selected through cluster sampling technique. From the result it was found that right hemisphere seems to dominate then left hemisphere. It was also found that male / female seem to have more right brain dominance since it is a well known fact that generally right hemisphere of the brain seems to be activated for most of the students.

**Kaur and Lal (2014)** investigated the relationship of style of learning and thinking in right cerebral hemisphericity dominance with achievement in Mathematics. A random sample of 120 school children was drawn from different schools of Abohar, Punjab. Findings of the study indicated that a difference was found between high and low achievement of school children on SOLAT scale.
Mizakhani, Bagheri, Sadeghi, Mizakhani, and Modanloo (2014) studied the impact of meta-cognitive skills on academic achievement of students in Mazandaran University of medical sciences with a sample of 5096 students. The results of the study inferred that planning, controlling, monitoring, evaluating and regulating skills were found to have significant roles in students’ academic achievement. Meta-cognitive skills were found to be more effective in academic achievement of female students. Control skill was the only variable that could predict the academic achievement of students.

Narayani (2014) studied the impact of learning styles on academic achievement of higher secondary school students. A sample was taken as 43% of boys’ schools, 43% of girls’ schools, and 14% of co-education schools using simple random technique. To analyze the collected data, the statistical techniques: t-test and product moment correlation were used. From the results, it was concluded that there existed a significant difference between learning style and academic achievement of higher secondary school students. Active, visual, sequential, and verbal learning styles were significantly correlated with academic achievement, but other learning styles were not correlated significantly with academic achievement.

Sharma, Devi, and Rani (2014) observed the difference between right hemisphere and left hemisphere preferred adolescent students on their academic achievement. A sample of 120 students was taken through systematic random sampling technique. For data analysis the statistical techniques like frequency, percentages, mean and standard deviation and inferential statistics like t-test were used. From the findings of the study, it was concluded that the right hemisphere adolescent students were showing better academic performance than left hemisphere adolescent students. Right hemisphere preferred male and female adolescent were equally good in their academic achievement. In the end, it was also find out that left hemisphere preferred male and female were good in their academic achievement equally.

Humera (2015) conducted a study to find out hemispheric dominance and mathematics achievement of 10th class students of Aurangabad city. Stratified random sampling technique was used to select the sample for the study. Findings of the research revealed that majority of the students had right hemispheric dominant style of learning and
thinking. There was no significant difference found between Mathematics achievement of 10th class students with respect to their different hemispheric dominant style of learning and thinking. Further, it was also concluded that there was no significant difference between Mathematics achievement of girls and boys.

Ibe (2015) investigated the effect of learning styles on the performances of senior secondary school Biology students in Imo state, Nigeria. The sample was composed of 300 Biology students selected through simple random sampling technique. From the results of the research, it was revealed that the four learning styles of Kolb were represented amongst the biology students; that many students preferred to learn by more than one mode of information presentation; learning style varied from one group to another and there was no significant interaction effect of learning styles and their gender on the performances of senior secondary school Biology students.

Kristiani, Susilo, Rohman, and Aloysius (2015) examined the correlation between students’ meta-cognitive skills and academic achievement of higher secondary school students in Malang, Indonesia. Twenty-three students participated in this correlational study. The collected data of the research were analyzed using multiple regression analysis. The students’ meta-cognitive skills were measured by an essay test integrated with academic achievement measurement. The results of the research indicated that meta-cognitive skills contribution in academic achievements of students was 71.42%.

Maqbool, (2015) studied learning style and academic achievement of Science, Social Science P.G students of Kashmir University. The sample for the research was 180 students which was selected through random sampling technique. For the analysis of the collected data Mean, S.D, t-test and Pearson’s correlation were applied. The major findings of the study showed that there were found significant relationship between learning style and academic achievement of Science students.

Oommen (2015) examined the relationship between learning style and academic achievement of secondary school students. The subjects for the study were selected through stratified sampling technique. Correlation and t-test were employed to analyze the collected data. After analysis of the data, there was found a significant relationship
between learning style and academic achievement of secondary school students. It was also found that there was no significant difference between male and female students with respect to their learning style.

**Ranjeeta and Agnihotri (2015)** investigated the academic achievements of secondary schools students in relation to their learning styles. A sample of 200 students of IX class was randomly selected from four government and smart schools of Chandigarh. Statistical techniques i.e. Mean, S.D. and t-test were applied to analyze the data. The results of the study revealed no significant difference in learning and thinking styles of smart schools and govt. schools students. The academic achievement of smart schools and govt. schools secondary school students differed partially in relation to their learning and thinking styles.

**Sajjadi, Jamaldini, Baranzehi and Maghsoodi (2015)** explored the relationship between meta-cognition and their academic achievement by selecting a sample of 380 high school students of Bandar Abbas. To collect the data, stratified sampling technique was used. The collected data were analyzed by using correlation analysis. The findings revealed that a moderate relationship was found between meta-cognition and achievement.

**Singh (2015)** conducted a study to observe the level of brain hemispheric dominance and to find out the relationship between achievement in Mathematics and brain hemispheric dominance of secondary stage students. A sample composed of 600 students was selected from XI and XII class out of the government and non-government secondary schools. Findings of the study revealed that most of the girls were whole brain dominant and approximately both the sexes were in equal proportion on being right brain dominance. Further, it was found that the correlation co-efficient was positive but not significant between the academic achievement in mathematics and left brain dominance. Lastly, the correlation co-efficient was also found positive and not significant between the whole brain dominance of the students and their academic achievement.
Owo and Ikwut (2015) investigated the relationship among chemistry students’ meta-cognition, and academic achievement in secondary schools in Port Harcourt Local Government Area, Rivers State, Nigeria. From eight randomly selected coeducational senior secondary schools, a sample of 600 students was selected. The collected data were analyzed by using Pearson Product Moment Correlation, and stepwise multiple regression analysis. Results showed that meta-cognition correlate significantly with academic achievement. Results of prediction also showed that meta-cognition predict slightly the academic achievement of students.

Aghayousefi, Yaghoobian, and Arsanjani (2016) studied the effectiveness of teaching of meta-cognitive skills in improving critical thinking female students suffering from neurotic disorder. The samples studied here were 40 students who were firstly chosen in terms of their scores in the Eysenck juvenile personality test and then randomly divided in two groups: the experimental and control ones. Results received from analyzing covariance showed that differences in critical thinking variable and its components which include analysis, interpretation, inference, inductive reasoning and deductive reasoning were significant. The results are indicative of positive impact of teaching meta-cognitive on significant improvement of critical thinking.

Bhadawkar and Padmanabhan (2016) examined academic achievement of B. Ed students with respect to their hemisphericity. Stratified random sampling technique was applied to select the sample for the research. A sample of 1037 students was drawn proportionately from fourteen B. Ed colleges. For analysis of the data, descriptive survey involving correlational and causal comparative methods was used. The results of the research indicated that no significant relationship was there between hemisphericity and academic achievement of participants.

Fatemi and Heidarie (2016) examined relationship between the thinking styles and academic achievements of the high school students in Ahvaz. The statistical population included all high school students of Ahvaz, from which 320 students were selected using the multistage random sampling method. SPSS-18 was used for data analysis and the results were reported in form of descriptive statistics and Pearson Correlation. Results showed that there was a significant relationship between the variables of
legislative, executive, oligarchic, monocratic, anarchic, hierarchic, judiciary thinking styles and academic achievements.

**Garima (2016)** studied the effect of learning & thinking style on academic achievements of senior secondary schools students. A sample of hundred students was taken randomly from senior secondary schools of Abohar Tehsil. Test of learning and thinking style by Dr. D. Venkata Raman was used for present investigation. For the analysis of data, t-test was used. The study revealed no significant effect of learning & thinking style on academic achievement of senior secondary schools students.

**Heydri, Zolghadrnia, and Mahmoudian (2016)** examined the relationship between thinking style and academic achievement among girls and boys high school students. A sample of 367 students was drawn by cluster sampling method. Research data were computed using descriptive statistics, Pearson correlation coefficient, two-way ANOVA and the results showed that the relationship between and academic achievement legislative, executive, judicial, monarchic, hierarchical, conservative thinking style was positive and this relationship with lawless thinking style was negative.

**İsa Yücel İşgör (2016)** explored the relationship between meta-cognitive skills and academic success average by taking a sample of 251 high school students. For computation of the data, percentage, frequency, correlation and stepwise linear regression analysis were used. Results of the research determined that there was a positive and significant relationship between meta-cognitive skills and academic success average.

**Khan and Singh (2016)** examined the relationship between the style of learning & thinking and academic performance of higher secondary school students. A sample of 200 students of 12th standard was selected randomly by utilizing descriptive survey method of research. Mean, standard deviation, Pearson’s product moment correlation (‘r’) and critical ratio (CR) were used as statistical techniques. From the finding of the research, it was concluded that no significant relationship was found between style of learning & thinking and academic performance of higher secondary school students.
Mozafari, Safari, Zohrehabasifard, Safari, and Sharafi (2016) studied the correlation between meta-cognitive skill and academic achievement of high school students in Kermanshah. The participants of the study were 200 applicants who were selected through multistage cluster sampling technique. The data were computed through Persons correlation coefficient and multistage regression. The results of the study revealed that there was a correlation between meta-cognitive skill and academic achievement. Furthermore, it was also revealed that learners’ views were significantly related to the meta-cognitive skills based on gender and region, respectively.

Njoku and Abdulha (2016) investigated the preference of learning styles and its relationship with academic performance among junior secondary school students in Dutse Local Government Area, Jigawa state, Nigeria. The statistics i.e. mean, percentages and Pearson Product Moment Correlation Coefficient were used for analysis of data. Using simple hat and draw method, a total sample of three hundred and twenty seven students out of two thousand, two hundred students was randomly selected. The findings inferred that 217 students preferred kinesthetic learning style, visual style preferred by 66, while 44 of them preferred auditory style. It was also observed that academic performance of students was affected by their preferred learning style.

Panchu, Bahuleyan, and Seethalakshmi (2016) evaluated the role played by the components of meta-cognitive regulation on academic outcome in medical student in south India. Results were analyzed using ANOVA and Spearman’s correlation tests. Most of our students had average meta-cognitive regulation and components like planning, comprehension, monitoring and evaluation play a significant role in determining academic success. Implementation of meta-cognitive regulation strategies in day to day learning will be beneficial and make the students self- efficacious learners.

Khan and Unnisa (2017) conducted a study on learning style, school environment and home environment in relation to academic achievement. This study was conducted on a sample of 50 students of 9th class from Raipur city. The research finding revealed that very low, negative & negligible relationship was found between academic achievement & home environment. Study also revealed that school environment and academic
achievement have positive but very low relationship. Further, a significant difference was found between the academic achievement of students learned by right & left hemisphere but, no significant difference was found between boys & girls students learned either by right hemisphere or left hemisphere with respect to their academic achievement.

**Siswati and Corebima (2017)** examined the correlation between meta-cognitive skills and cognitive learning results with the student character. The sample of this research was 165 students, divided into five learning strategies. The data were analyzed by using multiple linear regressions. The results of the analysis showed that in the five learning strategies, it was proved that meta-cognitive skills and cognitive learning results had a correlation with the students’ characters. The effective contribution of meta-cognitive skills and cognitive learning results in each learning strategy was less than fifty percent.

**Naqvi and Naqvi (2017)** explored the influence of learning styles and gender on the performance scores of undergraduate students in three successive academic years. The sample of the study were 98 management students in the first group comprises of first year management students and in the second group, there were 87 students of second year management students. The statistical techniques i.e. mean, SD, and t-test were applied to analyze the data. Findings of the research revealed that the distribution of learning style type preference of the selected sample was more concentrated towards assimilating and converging learning styles. Further, results also revealed that there was no significant difference in learning style and gender in all groups. It was concluded that the performance scores of males were higher in Finance and Marketing disciplines, whereas scores of females were found higher in Human Resource and International Business disciplines irrespective of non-consistency in all the groups.

**Katigari, Heidari, Firouzi, and Ariya (2017)** investigated the relationship between learning and thinking styles functions with the rate of test anxiety of students. A sample of 400 high school students (200 female & 200 male) of Arak city was selected using multistage cluster random sampling technique. Data were computed using mean, standard deviation, frequency distribution, Pearson correlation coefficient, and one-way
ANOVA. Results of the research indicated significant relationship between the executive & judicial thinking styles and also legal thinking style with students’ test anxiety. The results showed that assimilate learning style than most other styles have been less test anxiety.

2.2 STUDIES RELATED TO STUDY HABITS

Patel (1985) studied the influence of study habits of intellectually backward students on their academic achievement. The sample of the study consisted of 73 intellectually backward pupils of class eighth from six different types of schools. The ANOVA correlational and trend analysis were employed for statistical analysis of the data to test the null hypotheses. After analyzing data the investigator significant difference between the mean scores of study habits of girls and boys students. In order to decide which group was superior in study habits, Scheffe’s test multiple comparison was used. On the basis of the value calculated, it was concluded that rural girls were significantly superior to rural boys in study habits and further it was also found out that urban girls were significantly superior to rural as well as urban boys in study habits.

George (1991) examined the effect of high school students’ study habits on achievement in high school and during the first semester of college by drawing a sample of 159 female and 93 male freshmen. From the results of the research, it was found that the same study habits that contributed to success in high school were not related to academic achievement during the first semester in college. On the basis of this finding it was suggested that college freshmen need to acquire new study habits to be academically successful. For measuring academic achievement, examination results were used as a reliable measure.

Kaur & Lekhi (1995) examined the relationship between study habits and academic achievement of 10th class students. The sample of the research consisted of hundred pupils from X class selected through random sampling technique. Pearson’s product momen correlation (‘r’) was applied to find out the correlation between study habits and academic achievement. Finding of the study revealed that study habits were positively and significantly correlated with academic achievement.
Hussain (2006) examined the effect of guidance services on students’ study habits by developing a guidance programme for secondary school students. An experiment was conducted to examine the effectiveness of guidance services in terms of improvement in students’ study habits. The findings of the study revealed that the guidance services had a significant effect on the students’ study habits.

Sharma (2006) investigated the effect of emotional stability on visually disabled students’ study habits. The sample of the study was composed of sixty visually disabled students belonging to 10-18 years age group studying in special schools of Delhi. For analysis of data, the statistical techniques i.e. mean, S.D, and t-test were applied. Findings of the study indicated that children with high emotional stability had better study habits in comparison to their counterparts with low emotional stability.

Niradhar (2008) investigated the study habits of high achieving CBSE (Central Board of Secondary Education) and ICSE (Indian Certificate for Secondary Education) students in the secondary school examination. The results indicated that high achieving CBSE and ICSE students were having similar nature of highly positive study habits in curricular areas both for boys and girls.

Gokhan, Aysel and Turan (2009) explored the relationship between fifth grade students’ meta-cognition levels, and their study habits & attitudes by selecting a sample of 221 students enrolling to six public primary schools in Turkey. The findings concluded that there was no significant relationship between meta-cognition and study habits & attitudes for low and medium achievers but, a significant relationship was found between meta-cognition levels, and their study habits & attitudes for high achievers.

Mbah (2010) investigated the effect of information and communication technology (ICT) on students’ study habits. The results revealed that students had a positive attitude towards ICTs as such they use them to facilitate their learning, although male students were more favorable toward ICT usage and likely to find that ICT’s help them at their studies. As such students constantly change their study habits based on the type of ICT they use to ease studies.
Florence (2012) examined the influence of environmental (home) factors on students’ reading habits. A total sample of 180 senior secondary school students from six schools was randomly selected. Frequency count, percentages and chi square statistic were used to analyze the collected data. The result of the frequency count and percentages revealed that 59% of the parents encouraged their children to read but, only 46% provided their children the required school texts.

Ul-Amin and Mattoo (2012) conducted a study to see the influence of heavy and low TV watching on study habits of secondary school students. A sample of 500 students was selected randomly from various Government secondary and higher secondary schools of District Srinagar (J&K). The collected data were computed by using mean, standard deviation and t-test. In order to make the results more transparent, the line graph was plotted. The findings of the research indicated that there was a significant difference between the mean scores of study habits of heavy and low TV viewers.

Chand (2013) examined the study habits of 200 secondary school students studying in government and private schools. The statistical techniques i.e. Mean, S.D and t-test were used for the computation of data. The results indicated that no significant difference was found between govt. and private secondary school students on reading and note taking, concentration, habit and interest, school environment components of study habits and total study habits.

Dayal (2013) studied the effect of family environment on the study habits of high school students. This study was conducted on a sample of 120 high school students in Jagraon City. For the selection of sample, random sampling technique was used. To study the nature of distribution of scores, mean, median, mode, standard deviation, skewness and kurtosis were employed. To find out the relationship between study habits and family environment, Product moment correlation was used. Results of the study indicated that a positive and significant relationship was found between study habits and family environment of high school students.

Deniz (2013) investigated the relationship between study habits and learning styles by selecting a sample of 412 university students. The results revealed that the diverging,
assimilating, converging and accommodating learning styles were found to be significantly correlated to deep approach and surface approach sub-dimensions of study habits and further, it was also concluded that diverging, assimilating, converging and accommodating learning styles were important predictors of deep approach and surface approach sub-dimensions of study habits.

**Ekeke and Telu (2013)** investigated the home and its influence on students’ study habits. A simple of 200 senior secondary school students was selected using random sampling technique. Percentage, mean and standard deviation were used to analyze the collected data. From the results, it was inferred that 67% of the subjects agreed that motivation from parents like provision of the recommended books influenced them to read at home. Also some independent variables like parent income, education and living abode influenced their wards’ study habits.

**Kahari (2013)** examined the effect of cell phone use on the study habits of University of Zimbabwe 1st year Faculty of Arts students. The study was carried out using questionnaires distributed to 200 students who own cell phones. The selection of 200 participants was random. The questionnaires collected demographic information about the respondents, cell phone type preferences, uses of cell phones during study, predominant usage during study, and information about challenges facing students in using mobile phones for study purposes. The findings also indicated that cell phone use had both the negative and positive effects on the study habits of university students depending on usage patterns.

**Kumar (2013)** studied the achievement of secondary school students in relation to their study habit in rural and urban areas by selecting a sample of 120 students from Rewari district of Haryana. Results revealed that significant difference was found between study habit and academic achievement. No significant difference of academic achievement was found between rural and urban areas. There was no significant difference found between achievement in girls and boys studying in 9th class of urban areas. Significant difference was found between boys and girls of urban areas with respect to their academic achievement. It was also found out that there was significant
difference between study habit of students studying in 9th class between rural and urban areas. Significant difference was found between study habit of boys and girls studying in 9th class in rural areas. In the last, it was found that there was no significant difference between study habit of boys and girls studying in 9th class in urban areas.

Kaur and Kaur (2013) studied the effect of parental education on the study habits by taking a sample of 100 children (50 children of high educated parents and 50 children of low educated parents). The data were analyzed using t-test. Results of the study indicated that those children were good in study habits whose parents were high educated as compared to children whose parents were low educated.

Lajwanti and Sharma (2013) studied the impact of internet use and adjustment on study habits of higher secondary school students. A total sample of 480 students studying in different secondary schools of Agra city in India was taken through purposive sampling method. Descriptive and inferential modes of treatments were adopted for the computation of the data. The results revealed that the mean of study habits and adjustment scores of internet users and non-users differed significantly.

O’ Neale and Harrison (2013) investigated the difference between learning style and study habits of Chemistry students enrolled at the University of the West Indies (the UWI), Cave Hill Campus by selecting a sample of 59 students. The collected data were analyzed by the t-test, ANOVA and linear regression. From the results it was inferred that the introvert, sensate, thinking, and judging learning styles among the students were most prevalent. There was no statistical difference in the study habits of the students on the basis of their learning styles.

Raja and Reddy (2013) studied the effect of gender, locality, type of management and TV viewing hours on study habits. A sample of 120 children, studying 9th and 10th classes in and around Tirupati rural and urban Mandal high schools, Chittoor district of Andhra Pradesh was selected randomly. For analysis and interpretation of data mean, S.D. and t-test were applied. Results indicated that significant differences were found between girls and boys, rural and urban, government and private management school students and the amount of time spent on TV viewing on their study habits. Boys adopted better study habits than girls; students resided in urban locality were better in
their study habits; subjects hailing private schools were good in their study habits and the student whose TV viewing hours were less possesses good study habits.

**Rani (2013)** studied the correlation between study habits and home environment of the science students studying in secondary school of Haryana. On the basis of randomized technique of sampling, a sample of 100 senior secondary students was selected from science stream of Sonipat district of Haryana. Mean, SD, t-test and correlation approach were used to compute the data. The findings of the investigation concluded that there was a significant and positive relationship between home environment components of rejection and study habits of boys, there by meaning that it can be affected the study habit of boys. However, the correlation of other components of home environment was significantly negative with study habits among boys. The study also revealed no significant difference between boys and girls with respect to their home environment.

**Chandra and Reddy (2014)** investigated the effect of mental health on study habits of 1400 prospective teachers selected through randomly sampling technique from Andhra Pradesh. Mean, S.D and ANOVA were used for analysis and interpretation of data. Results revealed that a significant effect of mental health was found on study habits prospective teachers.

**Chowdhury and Ghose (2014)** studied the effects of patterns of parenting on study habits of adolescents. The sample of 620 students from class VII to 2nd year students of college in Kolkata was taken. The results indicated that study habits were significantly and positively correlated with whole parenting, whole mothering, whole fathering and nearly all the patterns of parenting therein taken individually. It was found that study habits of both girls and boys were strongly affected by whole parenting, whole mothering and whole fathering.

**Darbari (2014)** observed the study habits of English medium school students. Through random sampling technique, a sample of 200 students studying in 12th class was selected from different English medium schools. To analyze the data, the statistical techniques i.e. Mean, S.D and t-test were used. From the results it was inferred that there was no significant difference between science and commerce students of English medium schools with respect to their study habits.
Promila (2014) investigated the study habits among arts and science stream students. A number of 160 male and female (80 Arts Stream and 80 Science Stream) of Rohtak city were taken as a sample on the basis of random sampling method. Mean, standard deviation and t-tests were used for the computation of data. The results of the study revealed that (i) Female students had better study habits than female students; (ii) Science students had better study habits than Arts students; (iii) Female students of science stream had better study habits than male students of science stream; and (iv) Female students of Arts stream had better study habits than male students of Arts stream.

Aditya and Ghosh (2014) explored study habits of secondary school students of working and non-working mothers. A sample of 45 students of working and non-working mothers was selected using simple random sampling technique from class XII. The analysis was done by applying mean, S.D, and t-ratio as per statistical analysis methods. Results of the study revealed that no significant difference was found in total study habits between students of working mother and students of non-working mothers.

Kalhotra (2014) studied the effects of personalized system of instruction and conventional method of teaching on the total study habits and different areas of study habits of schedule tribe students. Sample of 20 students from each school was selected from all the students studying in 10th grade. The study revealed that personalized system of instruction (PSI) had been more effective in increasing the scores on preparation for examinations and environments of the school dimensions of the study habits as compared to that of the conventional method of teaching. Further PSI had been found to be more effective in increasing the total study habits sources of the tribal high school students in comparison to conventional methods of teaching.

Chris (2015) examined the effect of social media on study habits of undergraduate students in one of the Kenya universities. Descriptive survey method was used in this study and also employed both quantitative and qualitative approach for data collection involving oral interview and questionnaire administration. The findings determined that
many students use social media especially face book, what sap and Twitter resulting that even during lecture hours, they spend increasing amount of quality time on these networks. Findings of the present study suggested that social media could negatively affect the study habits of students.

Eta (2015) investigated the effect of information and communication technology (ICT) usage on students’ study habits in the Department of Business Education, Delta State College of Physical Education, Mosogar (DESCOPEM). A sample composed of 100 students was drawn randomly from Business Education Students. To analyze the two research questions, frequency and percentage were used. The results of the research revealed that the effect of ICT on students’ academic studies was very high extent. The present investigation also revealed that DESCOPEM students used ICTs to support and improve their academic studies at a very high extent. The study also concluded that computer usage, internet usage, and mobile phone usage no doubt significantly influenced students’ study habits in DESCOPEM.

Judilla and Gemora (2015) studied the effect of social networking on the study habits of tertiary students of the West Visayas State University (WVSU) System. Two hundred thirty five graduate students taking Bachelor of Science in Information Technology (BS InfoTech) at WVSU were used as respondents of the investigation. Mean and standard deviation were used to describe the effect of social networking on the study habits. To assess the significant differences on the effects of social networking on the respondents’ study habits, the t-test and ANOVA were applied. Findings determined a high extent of influence of social networking on the respondents regardless of age, sex, socio economic status and educational attainment of their parents. The status of the students’ study habits was also high. There was significant relationship existed between the extent of influence of social networking and the status of the study habits of the respondents.

Kumar (2015) conducted a survey in Rajdhani College, Delhi University to analyze study habits of students. A number of 129 students, from first year, second year and third year in different courses, participated in the survey. The computed data revealed
that majority of the students did not ideally follow effective study habits. The average time spent by the most of students in self-study per week was less. Majority of students didn’t revise their lecture same day. Change of environment affected the grades of the students, that is why majority of first year students had low percentage in their first semester.

Agrawal and Teotia (2015) investigated the relations of study habits and attitude towards education with respect to gender, area of school, and type of the school of secondary level students. A sample of total 400 secondary students, of class 9th from various government and public schools in East Delhi and North-East Delhi was taken. The descriptive statistics, Pearson’s coefficient of correlation, and t-test were used for the analysis of data. The results implied that the study habits and attitude towards education were not correlated with respect to gender, area and the type of school. Public school students had better study habits than government school students. Results further revealed that government school students showed better attitude towards education than public school student, but no significant difference with respect to area and gender variation was observed.

Ahmad and Razia (2015) examined the study habits of Muslim adolescents belonging to different socio-economic strata of the society. The sample composed of 208 Muslim students of class IX selected through incidental sampling method from six secondary schools of Aligarh city. By applying mean, standard deviation, product moment correlation (r) and t-test, the data were subjected to statistical analysis. Results of the research revealed that significant difference was existed in the study habits of Muslim adolescents in relation to gender and a significant and positive relationship was also found between study habits and socio-economic status. High socio-economic status and low socio-economic status Muslim adolescents and similarly, Middle socio-economic status and Low socio-economic status Muslim adolescents differed significantly with respect to their study habits where in both the cases going in favour of the upper socio-economic status groups.
Arjun and Juna (2015) determined the effect of social networking sites on the study habits of higher secondary school students. The investigator selected a sample of 40 students using random sampling method from Mammalashery govt. higher secondary school Piravom, Ernakulam. Results of the research implied that the extend usage of media, usage pattern of Social Net Working Sites (SNS) and study habits had been dealt significantly in the present research paper.

Narahari (2015) studied the impact of academic counseling on adolescents studying in government schools by adopting optimum study habits. A sample size of 125 adolescents from XI and XII standard, studying in government schools was selected through random sampling technique. For analysis and interpretation of data, Pearson’s Product-moment correlation and regression analysis were used. Inverse correlation was observed between counseling needs and class of students. The younger adolescent students studying in XI class with less effective study habits showed greater need for counseling when compared to XII class. There was no significant difference found in academic counseling needs of adolescents on the basis of their gender.

Sherafat and Murthy (2016) conducted a study to understand whether government and private school students of Mysore are different on study habits. This investigation was carried out on a sample of 625 students of Mysore city in India which was selected through stratified random sampling technique. Results indicated that government and private school students differed on their study habits. Those students who were on private schools had better study habits in comparison of government school students.

Varghese and Pandya (2016) conducted a research on the interactive effect of hemisphericity of VIII standard students’ study habits. The study was carried out on 240 participants using a three-stage stratified random sampling technique. The study indicated that there was an effect of hemisphericity as well as the treatment on study habits of students after controlling the effect of pre-test scores on study habits of students. Students with integrated hemisphericity were found to have the highest score on study habits followed by those with left and right hemisphericity in that order. Further, students with integrated hemisphericity and left hemisphericity did not differ
significantly in relation to their study habits. On the other hand, students with right hemisphericity had the lowest score on study habits as compared to those with integrated and left hemisphericities. The effect size of the treatment on study habits was found to be high whereas the effect size of hemisphericity on study habits was found to be medium. It is evident from the results that hemisphericity influence students’ study habits but their interaction effect on study habits was statistically not significant.

**Khan (2016)** studied the effect of socio-economic status and sex differences on study habits of VII standard students of government colleges of Amroha District. Random sampling technique was utilized to draw the sample for the present study. The results revealed a significant effect of gender on study habits of the respondents. But, there was no significant effect of socio-economic status on study habits of students. The double interaction effect of sex difference and socio-economic status was also found to be insignificant.

**Vyas and Choudhary (2016)** examined the relationship between socio-economic status and study habits of adolescent students studying in government as well as private schools in Delhi. Normative survey method upon 450 samples from class XI was used to gather the data. Mean, SD, one way ANOVA, t-test and Correlation techniques were applied to analyze the data. The results of the study determined that there was no significant difference between male and female adolescent students with respect to their study habits. Further, no significant difference was observed in study habit scores of adolescents having different socio-economic status except low SES, leading to inference that gender influenced study habits of adolescents who possessed same low SES. Positive low correlation was found between study habits and socio-economic status.

**Kanchan (2017)** investigated the study habits of secondary school students in relation to their family environment. Randomly, a sample of 100 secondary school students was drawn from government secondary school Muktsar district. Mean, SD and t-test were applied to find out the significant difference between groups. Product Moment Correlation was used to see the significant relationship between variables. The results
revealed that significant difference was found between boys and girls in relation to their study habits and family environment. From the finding of the study, it was also concluded that there was a significant and positive relationship between study habits and family environment of secondary school students.

Ghosh (2017) examined the study habits of school students of working and non-working mothers. The sample of the study composed of 200 school students (100 school students of working mothers & 100 school students of non-working mothers) studying in class 10th of Ranchi town. The collected data were then analyzed statistically by applying mean, SD, and t-test. The research indicated that there were significant differences between the adolescent students of working and non-working mothers. It was inferred that school students of working mothers had significantly better study habits in comparison to school students of non-working mothers. Further, it was also concluded that female students had significantly better study habits than their counterparts.

Alade and Kuku (2017) studied the impact of frequent of testing on study habits and achievement in Mathematics among public secondary school students in Ogun State, Nigeria. A sample of 250 students was selected using multistage sampling technique. Means, standard deviations, and analyses of covariance were employed for the analysis and interpretation of the data. The results of the investigation revealed that significant differences were found in the mean scores of students’ achievement in Mathematics and study habits as a result of exposing students to varying test frequencies. In addition, the study revealed that gender was not a significant factor when planning to improve study habits and achievement in Mathematics.

2.3 AN OVERVIEW

The review of related literature presented an overview of studies related to academic achievement and study habits in relation to meta-cognitive skills and learning & thinking style and other related variables. A close perusal of the review of studies revealed that academic achievement and study habits have been studied in relation to
socio-economic status, school environment, family environment, parental education, patterns of parenting, study habits, emotional intelligence, emotional stability, problem-solving ability, meta-cognition, intelligence, mental health, cognitive style, learning style, thinking style, internet addiction, information and communication technology etc. Though it was found that a few studies were conducted on relationship of academic achievement with meta-cognition, and learning & thinking style simultaneously but negligible amount of research has been undertaken on study habits, meta-cognitive skills and learning & thinking style. The variable study habit also has been taken as an independent variable in most of the studies. The studies related to meta-cognitive skills have been conducted mostly in abroad rather than India. Moreover, very few studies have been conducted on meta-cognitive skills at secondary level.

Thus, the review of literature also suggested that variables i.e. meta-cognitive skills and learning & thinking style have been studied either independently or in combination with other variables or in terms of their interaction with various other factors. Also, studies related academic achievement and study habits among secondary school students in relation to their meta-cognitive skills and learning & thinking style have not been undertaken so far. Therefore, the investigator decided to study academic achievement and study habits among secondary school students in relation to their meta-cognitive skills and learning & thinking style.