CHAPTER II

LITERATURE SCANNING
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2.1 INTRODUCTION

The phrase review of literature consists of two words: review and literature. The term ‘review’ means to organize the knowledge of the specific area of research to evolve an edifice of knowledge to show that his/her study would be an addition to this field. The task of review of literature is highly creative and tedious because researcher has to synthesize the available knowledge of the field in a unique way to provide the rationale for his/her study (Saxena, N.R., 2006).

According to Aggarwal J.C. (1986) “The state of related literature implies locating, reading and evaluating the reports of research as well as the causal observation and opinions that are related to the individuals planned research project”.

Thus the review of related literature is a valuable guide to define problem, recognizing its significance, suggesting, promising data, gathering devices, appropriate study design and source of data. The investigator can ensure that his/her problem vacuum and that the work has already been done on topics which are directly related to his proposed investigation.

2.2 NEED AND IMPORTANCE OF RELATED LITERATURE

2.2.1 Need for Related Literature

Knowledge is growing rapidly. It gets doubled in a very short span of time. Scholars, researchers and writers go on adding knowledge through their studies and writings. There is a tremendous increase in the number of publications: books and periodicals in developed and developing countries. India alone produces annually about 20,000 books.

One who is not fully conversant with what has gone before has little chance of making a worthwhile contribution. Therefore a researcher has to survey the available literature relating to his field of study. One must keep himself update in his field and related areas (Krishnaswami O.R., 2007)
2.2.2 Importance of Related Literature

The following are the importance of related literature

(i) A review of related literature helps to avoid duplication on one hand it also suggests means of further study on the other hand.

(ii) It helps to link the present research to previous researchers. More over it forms part of any piece of research.

(iii) It is an attempt to ascertain in the light of previous work about the nature of the present problem.

(iv) It is a valuable guide in defining the problem, recognizing its significance suggesting promising data gathering devices, appropriate study design and sources of data.

(v) It is also possible that the researcher may come across with findings and suggestion, which are totally unrelated to the existing knowledge. (Aggarwal, J.C., 1986)

In short, a review of related literature is done to get new ideas, to completely understand the problem, to avoid unnecessary duplication and to demonstrate the relationship between the completed research and the topic under investigation.

2.3 CLASSIFICATION

The research studies reviewed where the investigations carried out in Indian and Abroad. The review has been classified under the following headings.

1. Studies on Metacognition
2. Studies on Social Intelligence
3. Studies on Study Skills
2.4 STUDIES ON METACOGNITION

Studies done on metacognition are reviewed in this sub section.

Everson and Tobias (2001) reported that there was a difference between the metacognition of effective learners and ineffective learners. It was also found that the effective use of metacognition had been shown to predict learning performance.

Kouider Mokhtari and Carla Reichard (2002) assessed the students' metacognitive awareness of reading strategies. The results showed that the relationship between self reported reading ability and strategy usage provided preliminary evidence for the construct validity.

Pelin Cetinkaya and Emine Erktin (2002) examined the assessment of metacognition and its relationship with reading Comprehension, Achievement and Aptitude. The result showed that the awareness and the cognitive strategies subscales of the inventory were significantly and positively correlated with reading comprehension, self-checking and evaluation. Subscales of the inventory were significantly and positively correlated with science course grades of the gifted students. No significant correlations were found between the metacognition scores and the achievement in the Turkish, Science and Mathematics courses.

Areti Panaoura and George Philippou (2003) examined the construct validity of an inventory for the measurement of young pupils' metacognitive abilities in mathematics. The results regarding the existence of the three common items for both the factors indicated the high correlations between the two factors because of the high correlation between the two basic dimensions of metacognition: knowledge of cognition and regulation of cognition.

Thomas Gregory (2003) constructed the conceptualisation, development and validation of an instrument for investigating the metacognitive orientation of science classroom learning environments: The metacognitive orientation learning environment scale-science (MOLES-S). The results showed that each of the scale significantly showed the discrimination between classes. Support for the independence of the seven refined scales was found in the result of the factor analysis on the items.

Sperling, Rayne et al. (2004) studied the Metacognition and Self-Regulated Learning Constructs. The findings indicated the convergence of self-report measures of
metacognition, significant correlations between metacognition and academic monitoring, negative correlations between self-reported metacognition and accuracy ratings and positive correlations between metacognition and strategy use and metacognition and motivation.

Sperling et al. (2004) utilized the metacognition awareness inventory (MAI) to determine college student metacognitive awareness and found significant correlation between the knowledge of cognition factor and the regulation of cognition factor. They were also interested in whether the MAI would be correlated with other measures of academic achievement such as SAT scores and high school average. They found no relation between scores on the MAI and measures of academic achievement. They were surprised to find a negative correlation between SAT math scores and the MAI scores.

Marcel Veenman et al. (2005) studied the relation between intellectual and metacognitive skills in early adolescence. The finding of the study was that Metacognitive cueing triggered a higher level of metacognitive activities that were explicitly addressed by such cues, as well as other metacognitive activities that implicitly prospered by cueing. Moreover, metacognitive cueing yielded better learning outcomes. With regard to the relation between intelligence and Metacognitive skillfulness, results clearly reflected that metacognitive skills had their own virtue in learning, partly independent of intellectual ability, even for young adolescents who were in an early stage of metacognitive skill development.

Nietfeld et al. (2005) revealed the metacognitive regulation by measuring accuracy at the local and global level on a series of multiple choice tests given as a part of a semester long course. They found that monitoring accuracy remained stable across tests throughout the semester. They also found that students were more accurate in their global predictions than their local predictions. They found that student performance on the tests was related to local monitoring accuracy.

Trainin et al. (2005) examined the cognition, metacognition and achievement of college students with learning disabilities. The results showed that the college students with learning disabilities compensated for their processing deficits by relying on cognition, metacognition and achievement by verbal abilities, learning strategies and help seeking.
Marcantonio Spada et al. (2006) described the metacognition as a mediator of the effect of test anxiety on a surface approach to studying. The results of structural equation modeling supported the meditational hypothesis and suggested that the mediation is complete. Findings suggested that metacognition appeared to play a central role in determining whether or not test anxiety lead to a surface approach to studying.

Rezvan et al. (2006) conducted a study on the effects of metacognitive training on the academic achievement and happiness of Esfahan University conditional students. The results suggested that metacognitive training had increased the academic achievement average of the experimental group. Similarly, metacognitive training had increased the happiness scores average of the experimental group.

Savia Coutinho (2006) studied the relationship between the need for cognition, metacognition and intellectual task performance. The findings revealed that there was a significant correlation between the need for cognition and metacognition. However, only the need for cognition was a significant predictor of intellectual task performance.

Li Cao and John Nietfeld (2007) studied the college students’ metacognitive awareness of difficulties in learning the class content does not automatically lead to adjustment of study strategies. The result showed that the students’ awareness of different kinds of difficulties in learning the class content did not lead to adjustment of study strategies. Students reported primarily upon passive rehearsal strategies throughout the semester rather than strategies supported by previous literature as being more effective.

Coutinho (2007) studied the relationship between goals, metacognition and academic success. This study examined the relationship between mastery goals, performance goals and metacognition and academic success. Regression analyses revealed a partial mediation effect in the relationship between mastery goals and academic performance.

Semra Sungur (2007) studied the contribution of motivational beliefs and metacognition to students' performance under consequential and non-consequential test conditions. The findings showed that the regulation of cognition component of metacognition and mastery goal orientation were the best predictors of students'
achievement under consequential test conditions. However, under non-consequential test conditions, regulation of cognition lost its predictive power and mastery goal orientation and task value became the main reasons for students' engagement with the task.

Ahmet Tosun, Metehen Irak (2008) evaluated the adaptation, validity and reliability of the metacognition questionnaire-30 for the Turkish population and its relationship to anxiety and obsessive compulsive symptoms. The results revealed that there was significant positive relationship between the subscales of MCQ-30 and measures of anxiety and obsessive-compulsive symptoms provided further support for the convergent validity of the Turkish version. Moreover, significant negative correlations were observed between age and MCQ-30 subscales and the effect of gender was significant on some of the subscales.

Argiris Theodosiou et al. (2008) examined the student self-reports of metacognitive activity in physical education classes having the age group differences and the effect of goal orientations and perceived motivational climate as the sub variables. The results revealed that task-orientation and task-involving motivational climate had a significant impact on students’ self-reported metacognitive activity in physical education classes.

Barahmand, Usha et al. (2008) studied the metacognitions to identify emotionally vulnerable college students. The results revealed that a curvilinear relationship emerged between negative metacognitive beliefs and social dysfunction. Beliefs about uncontrollability and danger accounted for about 29% of the variance and beliefs about cognitive competence accounted for an additional 1%. Worry correlated with mental health scores in both sexes. Beliefs about uncontrollability and danger, beliefs about cognitive competence and general negative beliefs discriminated nonclinical subjects high in both anxiety and depression.

Enrique Coleoni and Laura Buteler (2008) studied the metacognitive resources during the solving process of a physics problem. The findings showed that the students, considered novices had a set of metacognitive skills that might be used as bases for the design of instructional environments that would overcome the idea of the limitation of the desired behaviors of novices and, as such, would be more efficient.
Feryal Cubukcu (2008) studied how to enhance reading comprehension through metacognitive strategies. The results of the present study confirmed that reading comprehension could be developed through systematic instruction in metacognitive language learning strategies. Systematic explicit instruction about the concept of metacognition and learning strategies helped students of the experimental group to better comprehend this new approach and how to apply it to different learning tasks on reading.

Jayapraba (2008) studied the metacognition and achievement in biology of higher secondary students. The challenges of biology learners who ought to develop skills in learning that can enhance self-learning competency and self-learning competency were expected to improve the performance. The study predicted that training in metacognition should have had positive effects on the academic achievement in biology and to carefully assess and interpret single biological phenomena from daily life.

Ramganesh (2008) investigated the effect of metacognitive strategy on enhancing teaching competency in mathematics among prospective teachers. The findings revealed that the B.Ed. trainees could strengthen their teaching competency through metacognitive control.

Vrugt, Anneke and Oort, Frans (2008) explored the metacognition, achievement goals, study strategies and academic achievement: pathways to achievement. The results showed that effective self-regulated learning involved two pathways: a metacognitive and a strategy pathway. The first pathway involved a positive relationship of mastery goals and a negative relationship of performance-avoidance goals with metacognition. Metacognition positively affected the use of the four study strategies. The strategy pathway involved positive effects of mastery and performance-approach goals on the use of metacognitive and deep cognitive strategies. Further, the performance-approach goals positively affected the use of surface cognitive and resource management strategies. The use of metacognitive and resource management strategies had a positive and the use of surface cognitive strategies had a negative effect on exam scores.
Cengiz Tuysuz (2009) studied the effect of computer based game on pre-service teachers’ achievement, attitudes, metacognition and motivation in chemistry. The result revealed that the learning environment supported with computer-based games had a positive effect on students’ achievement in chemistry, on attitudes toward chemistry and motivation.

Gökhan Ozoysa and Ayşegil Ataman (2009) conducted the study on the effect of metacognitive strategy training on mathematical problem solving achievement. The results indicated that students in the metacognitive treatment group significantly improved in both mathematical problem solving achievement and metacognitive skills.

Helen Ngozi Ibe (2009) explored the metacognitive strategies on classroom participation and student achievement in senior secondary school science classrooms. The results revealed that the metacognitive strategies were most effective in enhancing academic achievement followed by the TPS. The researcher recommended that metacognitive strategies and questions be infused in the classroom so as to help students learn material more efficiently, retain information longer and generalize skills.

Jeffrey Karpicke et al. (2009) studied metacognitive strategies among students’ learning. The results revealed that the majority of students repeatedly read their notes or textbook, but relatively few engaged in self-testing or retrieval practice while studying. Many students experienced illusions of competence while studying and that those illusions had significant consequences for the strategies students select when they monitor and regulate their own learning.

Master Arul Sekar and Annaraja (2009) examined the influence of metacognition and information and communication technology awareness on teaching competency of mathematics teacher trainees of colleges of education. The findings showed that there was significant influence of metacognition and ICT awareness on teaching competency of male mathematics teacher trainees.

Sarwar, Muhammad et al. (2009) studied the relationship between achievement goals, meta-cognition and academic success in Pakistan. The findings revealed that there was no significant relationship between meta-cognition and academic achievement at all levels and there were no significant gender differences in mastery goals, performance goals and meta-cognition.
Simon Philip and Nellaiyapan (2009) studied the teacher trainees’ metacognitive awareness in relation to their attitude towards teaching. The findings showed that there was significant difference in respect of gender, age and medium of study in respect of metacognitive awareness and attitude towards teaching and also indicated that there existed low and negligible relationship between metacognitive awareness and attitude towards teaching.

Stephan du Toit and Gary Kotz (2009) studied metacognitive strategies in the teaching and learning of mathematics. The findings indicated that planning strategy and evaluating the way of thinking acting were used most by both teachers and learners. Journal-keeping and thinking aloud were used least by teachers and learners.

Jacoby, Larry et al. (2010) examined the test-enhanced learning of natural concepts: effects on recognition memory, classification and metacognition. The results revealed that testing enhanced recognition memory and classification accuracy for studied and novel exemplars of bird families on immediate and delayed tests. These effects depended on the balance of study and test trials during training. Metacognitive measures provided results suggesting that participants were aware of the beneficial effects of testing. A new measure of metacognition at the level of categories was introduced and shown to be potentially useful for theory and applied purposes. It was argued that focusing on optimizing the learning of natural concepts encouraged the convergence of theorizing about memory, concept learning and metacognition and held promise for the development of applications to education.

Magno, Carlo (2010) conducted a study on the role of metacognitive skills in developing critical thinking. The results indicated that in both models, metacognition had a significant path to critical thinking, p less than 0.05. The analysis also showed that for both metacognition and critical thinking, all underlying factors were significant. The second model had a better goodness of fit as compared with the first as shown by the RMSEA value and other fit indices.

Saravanakumar and Mohan (2010) revealed the effect of metacognitive orientation and attention activation of high and higher secondary school students. The findings of the study were (i) there was significant mean difference between the successive progressive assessments on the metacognitive orientation due to variation on
metacognitive orientation due to variation in the dependent variable because of the influence of metacognitive orientation; (ii) there was significant mean difference between pre and progressive assessment of achievement in science. The difference in the mean scores was due to 37% variation in dependent variable.

Wilson and Haiyan (2010) studied the relationship and impact of teacher’s metacognitive knowledge and pedagogical understanding of metacognition. The result revealed that the teachers who had a rich understanding of metacognition reported that the teaching students required a complex understanding of both the concept of metacognition and metacognitive thinking strategies.

Young (2010) studied metacognition among academically talented middle and high school mathematics students. The findings revealed that metacognition as measured by the existing questionnaire was not significantly related to measures of academic achievement or problem solving metacognition. However, problem solving metacognition was related to both problem solving accuracy and students diagnostic test score and summer courses grade.

Burhan Akpunar (2011) analysed of the concepts of cognition and metacognition in terms of the philosophy of mind. This paper concluded that in order for the metacognitive capacity to be comprehended together with its nature, source/sources and all of its dimensions, there was a need for comprehensive analyses and discussions to be carried out with an interdisciplinary approach comprising with disciplines such as psychology, neuropsychology, educational science, anthropology and philosophy.

Chun-yi shen and Hsiu-Chuan (2011) studied the development of metacognitive skills: A web-based approach in higher education. The purpose of this study was to design a web-based learning environment and further examine the effect of the web-based training. The results of paired-samples t-test showed that experimental group’s posttest scores were significantly higher than the pretest scores in self-plan, self-monitor and total score, while there was no significant difference in the control group scores. In addition, students in the experimental group made significantly greater gains compared to control group in self-plan.
Connie Qun Guan et al. (2011) examined the psychometric properties of metacognitive awareness of reading strategy inventory. The results revealed that the current form of the MARSI was not appropriate for use with students who were very proficient in reading. More theoretically-based quantitative and qualitative studies using the MARSI were warranted.

Downing, Kevin et al. (2011) studied the impact of problem-based learning on student experience and metacognitive development. The purpose of this paper was to examine the effectiveness of problem-based learning (PBL) in higher education based on a large sample of first-year undergraduates from two programmes at a Hong Kong University. The findings revealed that the PBL group reported significantly higher scores in their overall course satisfaction and generic skills development.

Irfan Yardabakan and Muge Olgun (2011) explored the influence of peer and self-assessment on learning and metacognitive knowledge: consequential validity. The results of the study revealed that learning and metacognitive knowledge levels in the treatment group were higher than those in the control group.

Kay Hong-Nam and Alexandra Leavell (2011) explored the reading strategy instruction, metacognitive awareness and self-perception of striving college developmental readers. The findings revealed that the reading strategy instruction gave positive effects on the students' metacognitive strategic reading and led to significant increase in the use of Global Reading Strategies. Although the overall correlation between strategic thinking and learner self-perception showed no statistical significance, correlations between Support Strategies and social anxiety and Global Reading Strategies and mathematical self-efficacy revealed statistical significance.

Mahesh Narayan Dixit (2011) studied the readiness towards the use of metacognition and its relationship with academic achievement of higher secondary students. The results of the study revealed that there was a significant difference in the readiness towards the use of meta-cognition of higher secondary students on the ground of gender differences. However, no significant difference was found in the readiness towards the use of meta-cognition of higher secondary students on the basis of their academic streams. Positive correlation was found between the readiness towards the use of metacognition and academic achievement.
Master Arul Sekar and Annaraja (2011) revealed the relationship between metacognition and teaching competency of mathematics teacher trainees of colleges of education. The findings showed that there was no significant difference in knowledge-cognition, regulation-cognition and metacognition and efficacy in teaching competency with regards to gender and there was significant relationship between metacognition and teaching competency of mathematics teacher trainees of colleges of education.

Master Arul Sekar and Rajendran (2011) revealed the correlation of metacognition teaching competency of D.T.Ed. teacher trainees of teacher training institutes. The findings revealed that there was significant relationship between metacognition and teaching competency of D.T.Ed. teacher trainees of TTIs in thanjavur districts at Tamil Nadu.

Miller and Geraci (2011) conducted a study on the training of metacognition in the classroom and the influence of incentives and feedback on exam prediction. The finding revealed that when feedback was made more concrete, metacognitive improved for low performing students although exam scores did not improve across exams, suggesting that feedback and incentive could influence metacognitive monitoring but not control.

Ozsoy, Gokhan (2011) examined the relationship between metacognition and mathematics achievement of primary school students. The results demonstrated a significant and positive relationship (r=0.648, p less than 0.01) between metacognition and mathematics achievement. Furthermore, research results showed that 42% of total variance of mathematics achievement could be explained with metacognitive knowledge and skills.

Sandi-Urena, Santiago et al. (2011) studied the enhancement of metacognition use and awareness by means of a collaborative intervention. The study compared to the control group, the treatment group showed a significant increase in the metacognition awareness, as evidenced by the Metacognitive Activities Inventory, increased ability in solving non-algorithmic chemistry problems of higher difficulty and with higher percent correctness. The findings were consistent with an overall increase in the use of regulatory metacognitive skills by the treatment group.
Schellenberg, Suzanne et al. (2011) studied the effects of metacognition and concrete encoding strategies on depth of understanding in educational psychology. The academic achievement, as measured by final examination scores of an experimental group of undergraduate educational psychology students who were provided with concrete mechanisms designed to promote metacognition and the use of specific encoding strategies to the achievement of a control group of similar students who were not provided with the same concrete mechanisms. The two groups were taught by the same instructor, who used the same teaching methods and identical class activities, homework, quizzes and tests. The results indicated a statistically significant difference between the two groups, favoring the experimental group.

Sheeja Titus and Annaraja (2011) studied the existence of significant relationship between metacognition and teaching competency of secondary teacher education students. The findings revealed that there was significant relationship between metacognition and teaching competency of secondary teacher education students.

Ahmet Sait Candan (2012) explored the metacognitive theory and levels of history department students, Karabük University. The findings revealed that there was no significant difference found among the students' with regard to their metacognitive skills, gender and grade level and types of programs.

Artino, Anthony and Jones, Kenneth (2012) explored the complex relations between achievement emotions and self-regulated learning behaviors in online learning. The results from a survey of 302 undergraduates participating in an online course indicated that enjoyment, a positive activating emotion, was a positive predictor of elaboration and metacognition. Moreover, consistent with previous findings from a similar sample, frustration, a negative activating emotion, emerged as a positive predictor of metacognition. Implications for the theory, research and practice of online learning were discussed, were theoretical implications for understanding students' achievement emotions and self-regulated learning behaviors.

Hui Guo (2012) explored on the relation between metacognitive strategies and listening autonomous learning ability. The results showed from the empirical study of meta-cognition strategies training on 60 non-English major students. The results also
showed that meta-cognition strategies training contributed to autonomous listening behaviors.

**Johnson (2012)** studied the empowerment of science teaching competence of M.Ed. trainees through e-content with a metacognitive instructional design. The findings revealed that the study might be taken into consideration for a better framework in developing science teaching competence among the M.Ed. trainees. Also the various education commission reports insisted on the development of teaching competence among the teachers at all levels.

**Leila Anjomshoaa et al. (2012)** explored the influence of metacognitive awareness on reading comprehension in Iranian English undergraduate students in Kerman, Iran. The results revealed a significant moderate positive relationship between metacognitive awareness and reading comprehension Results also confirmed that being aware of reading metacognitive strategy considerably affects reading comprehension. The findings suggested that the students who were aware of the range of efficient reading strategies could significantly enhance their reading ability.

**Mair, Carolyn (2012)** utilized the technology for enhancing reflective writing, metacognition and learning. The findings provided evidence for the positive acceptance, efficiency and effectiveness of the intervention. Using a structured approach to online reflective practice is empowering and ultimately enhances undergraduate learning through the development of metacognition.

**Mojtaba Rezaei Rad (2012)** studied the relationship between metacognition and students training-learning process. The results indicated that there was positive and significant relationship between metacognition and training-learning process among students. Also, there was significant relationship between metacognition and educational tools, learning situations, students motivation and teacher duty.

**Vijayakumari and Myrtle Joyce Shobha D'Souza (2013)** examined the influence of metacognitive-cooperative learning approach on mathematics achievement. The finding showed that metacognitive co-operative learning approach had enhanced mathematics achievement among secondary school students. It also revealed that the approach was significantly more effective to high achievers as well as
low achievers than traditional method, but the effectiveness was significantly more on high achievers than low achievers.

**Jegede Samuel Akingbade and Awodun Adebisi Omotade** (2013) explored the impact of metacognitive strategies of textbook reading on students’ learning of physics in secondary schools. As a result of the study, concluded that “application of metacognitive strategies” had significant impact on the reading and learning of physics students and their academic performance in physics in secondary schools.

**Ryan Hargrove** (2012) assessed the long-term impact of a metacognitive approach to creative skill development. The findings showed that students who participated in one or both interventions finished with significantly higher levels of creative thinking. The knowledge gained also demonstrated how newly structured educational interventions utilizing online blogs and other Internet based technologies were successful in enhancing and maintaining students’ creative thinking abilities.

**Seda Sarac and Sema Karakelle** (2012) explored the on-line and off-line assessment of metacognition. The findings of the study showed that metacognitive processes form a complex structure that needs to be assessed using various methods. However, in the multi-method studies, using on-line and off-line measures together would be appropriate rather than using only on-line measures or only off-line measures.

**Sima Khezrlou** (2012) examined the relationship between cognitive and metacognitive strategies having age and level of education as sub variables. The results showed that the preferences for the cognitive and metacognitive strategies differed across levels of education. The findings offered implications for the classroom suggesting that foreign language learning could involve more than the acquisition of the target language as the learners could develop themselves cognitively, socially and linguistically.

**Singh** (2012) studied metacognitive ability of secondary students and its association with academic achievement in science subject. The findings of the study were: (i) there was no significant association between metacognitive ability and academic achievement in science subject of standard IX students, (ii) there was significant difference in the metacognitive ability of boys and girls in science subject of standard IX, (iii) there was significant difference in the metacognitive ability of rural
and urban students in science subject of standard IX, (iv) there was no significant difference in the metacognitive ability of Marathi and English medium students in science subject of standard IX and (v) there was no significant difference in the metacognitive ability of Government aided and non aided school students in science subject of standard IX.

Toma Strle (2012) studied the metacognition and decision making: between first and third person perspective. The outcome of the study revealed that the first and third person perspective on metacognition and decision making mutually constrained each other regarding insights and contradictions that arose between them.

Garrison and Akyol, Zehra (2013) studied the development of metacognition for communities of inquiry. The metacognitive construct was developed using the Community of Inquiry framework as a theoretical guide and tested by applying qualitative research techniques in previous research. The results indicated that in order to better understand the structure and dynamics of metacognition in emerging collaborative learning environments; one must go beyond individual approaches to learning and consider metacognition in terms of complementary self and co-regulation that integrates individual and shared regulation.

Taasoobshirazi, Gita and Farley, John (2013) described the construct validation of the physics metacognition inventory. An exploratory factor analysis provided evidence of construct validity, revealing six components of students' metacognition when solving physics problems including: knowledge of cognition, planning, monitoring, evaluation, debugging and information management. Although women and men differed on the components, they had equivalent overall metacognition for problem solving. The implications of these findings for future research were also discussed.

Angus MacBeth et al. (2013) studied about metacognition, symptoms and premorbid functioning in the first episode psychosis sample. The results showed that there were significant metacognitive impairments in chronic psychosis samples but metacognition was less understood in first episode psychosis (FEP).

Aysel Memiş and Metin Bozkurt (2013) examined the relationship of reading comprehension success with metacognitive awareness, motivation and reading levels of
fifth grade students. The findings revealed that the internal motivation had no significant effect on reading comprehension.

Chellamani (2013) examined the effect of metacognitive strategies on enhancing reading skill among high school students. The results showed that metacognitive strategy use and cognitive control process had its effect on the reading comprehension of high school students. The significant correlation between their awareness on metacognitive strategies and their reading comprehension indicates the developed self-awareness and reading comprehension among high school students. The outcome of the treatment proved the possibility of development of regulatory skills among high school students which in turn helped them to acquire reading comprehension. It also recommended that language teachers should build metacognitive awareness among students and facilitate reading strategies for the enhancement of reading comprehension.

Ozden Demir and Devrim Erginsoy Osmanoglu (2013) studied the degree of relationship between the secondary education students’ learning styles and their metacognitive awareness. The findings revealed that there was a meaningful relationship between the awareness and the evaluation and the dimension of metacognitive awareness scale of controlling of the self.

Farhat Ayuub Khan and Suhail Ahmed Khan (2013) conducted a study on metacognitive reading strategies in relationship with scholastic achievement in science of ninth standard students of English medium schools in Aurangabad city. The findings revealed that there was positive and moderate relationship between metacognitive reading strategies and scholastic achievement in science. It also revealed from the findings that female students were better in metacognitive strategies than male students.

Harandi et al. (2013) explored the effect of metacognitive strategy training on social skills and problem-solving performance. The purpose of this study was to assess the effect of metacognitive strategy training on problem-solving Performance and social skills in high school girls. The results indicated that students in the metacognitive treatment group significantly improved in both social skills and problem-solving performance.
Inomiesa et al. (2013) studied the effects of self-regulated learning and metacognitive learning cycle on achievement of physics students. The major findings of this study were: (i) there was a significant difference in the mean achievement score between students taught with metacognitive learning cycle and lecture method (ii) there was a significant difference in the mean achievement score between students taught with self-regulated learning and lecture method (iii) there was a significant difference in the mean achievement scores between students taught with self-regulated learning and metacognitive learning cycle and (iv) there was no difference in the mean achievement scores between male and female students taught using self-regulated learning and metacognitive learning cycles.

Jayapraba and Kanmani (2013) examined the metacognitive awareness in science classroom of higher secondary students. The results revealed that students in cooperative learning received higher metacognitive awareness compared to other groups. The researchers recommended that cooperative learning could be adopted regularly in classroom to enhance metacognitive awareness of higher secondary students.

Joel Magogwe (2013) studied the metacognitive awareness of reading strategies of University of Botswana English as second language students of different academic reading proficiencies. The findings indicated that University of Botswana English as Second Language (ESL) students reported high reading proficiency and high use of metacognitive strategies, but there were no vast difference in terms of proficiency. Students who reported their proficiency as high had an edge over low-proficiency ones mainly because their management and monitoring of reading was guided more by the goals they had set for themselves than by the tests and assignments they were supposed to write.

Leonora Weil (2013) studied the development of metacognitive ability in adolescence. The results suggested that awareness of one’s own perceptual decisions about the prolonged developmental trajectory during the stage of adolescence.

Marcantonio Spada and Giovanni Moneta (2013) examined the metacognitive and motivational predictors of surface approach to studying and academic examination performance. The findings of the study provided further support
for the adoption of interventions aimed at preventing surface approach to studying and improving academic examination performance.

**María Luisa Sanz de Acedo Lizarraga et al.** (2013) studied ‘how creative potential was related to metacognition’. The results showed that the relationships between the assessed variables were significant and positive. Furthermore, metacognition moderately predicted narrative creativity; thus, cognitive processes did not operate in isolation because they were affected by other factors. The findings also revealed that students obtained different results with regard to verbal and graphic creativity and men and women differed only in narrative creative potential. The most important conclusion drawn from this research was that creative and metacognitive skills explicitly involved in higher education stimulating the creative potential of future professionals.

**Mehrangiz Shoaakazemi et al.** (2013) examined the relationship between happiness, metacognitive skills (self-regulation, problem-solving) and academic achievement of students in Tehran. The findings indicated significantly positive relation between 3 variable (p≤0.05) in which happiness could predict academic achievement and problem-solving, self-regulation of Students and moreover, keep them away from depression and other mental and physical disorders.

**Rekha Rani and Punita Govil** (2013) studied about metacognition and its correlates. The findings of the study revealed that gender had no significant impact on the metacognition of undergraduate students, on the other hand the metacognitive level of urban students differed significantly from their rural counterparts. The high and low achieving undergraduate students differed significantly on their metacognitive level. Moreover, fathers’ educational qualification found to have no significant impact on metacognition of the students under study while mothers’ education had significant impact on it.

**Rolf Schwonke et al.** (2013) studied about how the metacognitive support promoted an effective use of instructional resources in intelligent tutoring. The finding showed that a lack of metacognitive conditional knowledge could account for learning difficulty in computer-based learning environments.
Seher Mandaci Sahin and Fatma Kendir (2013) conducted a study on the effect of using metacognitive strategies for solving geometry problems on students’ achievement and attitude. More significant results were obtained when the findings revealed by statistical analyses were accompanied by student essays. It was observed that the students in the experimental group had developed a better attitude toward geometry and mathematics, which might be attributed to the improvement in their self-confidence. Furthermore, those students had developed the ability to perceive the importance of problem solving to understand problems, to be involved in planned studying and to control and be aware of the problem solving process. The improvement in their attitude towards geometry and mathematics led to a corresponding increase in their achievement.

Smith, Mary Jarratt (2013) conducted a study on metacognition and its effect on mathematical performance in differential equations. The findings showed that would be difficult to predict a student’s course performance, as measured by the grade in the course, by considering their scores in declarative, procedural and conditional metacognition.

Suresh Kotwani (2013) studied about the metacognitive awareness of primary teachers. The findings of the study revealed that there was significant difference between male and female primary teachers in their knowledge of cognition and metacognition. The female primary teachers were better than male teachers. But there was no significant difference between rural and urban primary teachers in their knowledge of cognition and metacognition. Urban primary teachers were better than rural teachers in regulation of cognition.

Amine Amzil (2014) studied the effect of metacognitive intervention on college students’ reading performance and metacognitive skills. The results showed that the experimental group gained in metacognitive skills and reading performance while the control group did not show any change from pretest to posttest. Finally, we found that within the experimental group high achievers as measured by GPA showed greater gains in reading than low achievers.

Anandaraj and Ramesh (2014) studied that the relationship between metacognition and problem solving ability of physics major students. The findings of
the study revealed that there was significant difference between metacognition of the physics major students and their problem solving ability with regard to gender and locale of the students.

Ayberk Bostan Sarioglan (2014) compared the science teacher candidates’ metacognitive and scientific story writing skills. The result showed that the relationship between scientific story writing and metacognitive skills indicated that metacognition had explained only 8% of the scientific story writing skill.

Behzad Ghonsooly et al. (2014) studied about the degree of in-service Iranian English teachers’ sense of self-efficacy and metacognitive awareness predicts their academic performance. The results indicated that both metacognition and self-efficacy affected the academic performance. However, metacognition had a stronger effect. Also, the results of t-test showed that there was no difference between males’ and females’ self-efficacy and metacognition.

Hemant Lata Sharma and Poornima Devi (2014) studied about the relationship of academic achievement with metacognition, self-confidence and family environment among 10+1 students. The findings indicated that there was significant and positive relationship between academic achievement and metacognition. Significant and negative but low relationship between academic achievement and self confidence was found. There was also significant and positive relationship between academic achievement and family environment.

Indu Rathee (2014) conducted a study on the metacognition of college students in relation to their gender and discipline. The findings of the study were: (i) there was significant difference between arts group and science group students in their metacognition, (ii) there was no significant difference between male and female college students in their metacognition.

Jegadeeswari and Chandrasekaran (2014) studied the promoting metacognitive awareness among higher secondary students. The findings revealed that the metacognitive awareness level among higher secondary students were found to be high and there was significant difference in the metacognitive awareness based on their gender and type of school management and it was found that there was no significant
difference in the metacognitive awareness based on their residential locality and family income.

Koriat et al. (2014) examined the effects of goal-driven and data-driven regulation on metacognitive monitoring during learning: A developmental perspective. Children, fifth to sixth graders, exhibited a positive ST-JOL relationship for goal-driven regulation and a negative relationship for data-driven regulation but never in the same task. In contrast, the JOLs and recall of ninth-graders' and college students yielded differential co-sensitivity to data-driven and goal-driven variation. The 5-6th-graders also evidenced an adult-like pattern of JOLs and recall under a partitioning procedure that helped them in factoring the variation in ST that was due to data-driven and goal-driven variation in ST. The results were discussed in terms of the metacognitive sophistication needed for considering both types of variation simultaneously in making metacognitive judgments.

Loretta, Worghu (2014) studied about the metacognitive instructional approaches and their implications of the Nigerian senior secondary school biology curriculum. The findings revealed that the attempt was made to propose some of the productive instructional approaches that sufficiently challenged the students’ thinking and made them consciously aware of their own thinking processes in the context of the implementation of the senior secondary school biology curriculum.

Nahil Aljaberi and Eman Gheith (2014) studied the relationship between the university students’ metacognition thinking and their ability to solve mathematical and scientific problems. The findings of the study were: (i) there was a significant correlation between a few factors of metacognitive thinking and the ability to solve mathematical problems and these were: procedural knowledge, evaluation, fault picking and managing knowledge (ii) there was significant correlation between Fault Picking and the ability to solve both mathematical and scientific problems.

Wojcik, Dominika et al. (2014) studied the metacognitive Judgments-of-Learning in adolescents with Autism Spectrum Disorder. The results showed that the two groups spent more time learning items given lower judgments-of-learning. However, the Experiment 2 showed that judgments-of-learning and study time varied according to item difficulty in both groups. The findings demonstrated that adolescents
with autism spectrum disorder could accurately gauge their memory performance while learning new word associations and used these skills to control their study time at learning.

Yogaraj and Selvaraju (2014) studied about the gender-wise analysis on metacognition and learning styles on problem solving skill of B.Ed. trainees. The findings of the study were: (i) there was no significant difference between male and female B.Ed. trainees in their metacognition and its dimensions, (ii) there was no significant difference between male and female B.Ed. trainees in their visual learning style, kinesthetic learning style and learning style. But there was significant difference between male and female B.Ed. trainees in their auditory learning styles (iii) there was no significant difference between male and female B.Ed. trainees in their problem solving skill and (iv) there was significant influence of metacognition, learning styles and problem solving skill of B.Ed. trainees.

Arsaythamby Veloo et al. (2015) examined the role of gender in the use of metacognitive awareness reading strategies among biology students. The findings of the study were: (i) there was significant difference between male and female biology students in their metacognitive awareness reading strategies (ii) there was no significant difference between male and female biology students in their global reading strategies and problem-solving reading strategies.

Razieh Rajaei and Hamid Taher Neshat Dost (2015) conducted the metacognition relationship with specific recalling in autobiographical memory test of students. The findings of the study showed that there was a significant relationship between specific recall of autobiographical memory and meta-cognition.

Sukla Roy Choudhury and Susanta Roy Chowdhury (2015) examined the teaching competency of secondary teacher educators in relation to their metacognition awareness. The findings of the study were: (i) there was significant difference between male and female secondary teacher educator in their metacognition and (ii) there was significant difference between rural and urban college secondary teacher educators in their metacognition.
2.4.1 Summary

The studies reviewed in this subsection reveal that metacognition as a research variable has been studied mostly among the populations such as post graduate students, undergraduate students, university students, higher education students, higher secondary students, high school students, fifth grade students, sixth grade students, community college students, adult learners, high school teachers, special education students and teachers, pre-service and in-service teachers, secondary teacher education students, etc. with the other research variables namely collaborative learning environments, undergraduate biology teaching, achievement emotions, self-regulated learning, collaborative intervention, concrete encoding strategies, problem based learning, critical thinking, test-enhanced learning, academic achievement, motivation, mental health, reflective writing, learning, study skills, web-based learning, achievement in biology, test anxiety, awareness in science classroom, self-assessment on learning, teaching competency, cognition, learning disabilities, reading strategy, self-perception, verbal and graphic creativity, problem solving, reading performance, intellectual task performance, attitudes, computer based game, reading comprehension, reading skills, decision making, learning styles, listening autonomous learning ability, intellectual skills, information and communication technology awareness, story writing skills, adjustment, co-operative learning and examination performance in India and Abroad.

Out of those studies reviewed, only nineteen studies are seemed to have taken metacognition as one of the research variables and arts and science college students as the population. After making critical analysis of the studies related to the research variable metacognition, the investigator has made the following conclusion.

The investigation made by Pelin Cetinkaya (2002) indicated the existence of significant and positive correlation of metacognition with reading comprehension, self-checking and evaluation. No significant correlations were found between metacognition and the achievement in the Turkish, science and mathematics courses. The findings of the study made by Sperling (2004) revealed the existence of significant correlation between the knowledge of cognition and the regulation of cognition of metacognition.
The investigation made by Marcel Veenman (2005) highlighted the existence of the metacognitive cueing triggering a higher level of metacognitive activities that were explicitly addressed by such cues, as well as other metacognitive activities that implicitly prospered by cueing. The study conducted by Coutinho, Savia (2006) revealed the existence of significant correlation between the need for cognition and metacognition. The findings of the study made by Rezvan and Ahmadi (2006) showed that the metacognitive training had increased the academic achievement average of the experimental group and also had increased the happiness scores average of the experimental group.

The study conducted by Coutinho (2007) indicated the existence of the relationship between mastery goals, performance goals and metacognition and academic success. The research work done by Usha Barahmand (2008) indicated the curvilinear relationship emerged between negative metacognitive beliefs and social dysfunction. The study conducted by Jayapraba (2008) revealed that the existence of metacognition and achievement in biology of higher secondary students. The investigation made by Gokhan Ozzoia and Aysegilataman (2009) studied the existence the effect of students in the metacognitive treatment group significantly improved in both mathematical problem solving achievement and metacognitive skills. The research work done by Master Arul Sekar and Annaraja (2009) highlighted the existence of the significant influence of metacognition and ICT awareness on teaching competency of male mathematics teacher trainees. The study conducted by Magno, Carlo (2010) revealed the existence of a significant role of metacognitive skills in developing critical thinking.

The investigation made by Sheeja Titus and Annaraja (2011) indicated the existence of significant relationship between metacognition and teaching competency of secondary teacher education students. The research work done by Sima Khezriou (2012) revealed the existence the preferences for the cognitive and metacognitive strategies differed across levels of education. The study conducted by Artino, Anthony and Jones, Kenneth (2012) revealed the existence the complex relations between achievement emotions and self-regulated learning behaviours in online
learning that enjoyment, a positive activating emotion, was a positive predictor of elaboration and metacognition. The investigation made by Jayapraba and Kanmani (2013) revealed that the students in cooperative learning received higher metacognitive awareness compared to other groups of higher secondary students in the classroom. The study conducted by Rekha Rani and Punitha Govil (2013) showed that there was significant difference between rural and urban college students. The research work done by Amine Amzil (2014) revealed that the experimental group gained in metacognitive skills and reading performance while the control group did not show any change from pretest to posttest. The study conducted by Ayberk Bostan Sarioglar (2014) revealed the existence of the relationship between scientific story writing and metacognitive skills and the study conducted by Arsaythamby Veloo et al. (2015) indicated the existence of significant difference between male and female biology students in their metacognitive awareness reading strategies.

2.5 STUDIES ON SOCIAL INTELLIGENCE

Studies done on social intelligence are reviewed in this sub section.

Lee, Wong, Day, Maxwell and Thorpe (2000) carried out a study to assess whether the crystallized and fluid distinction commonly discussed in the academic intelligence literature was applicable to the domain of social intelligence. Results showed convergent and discriminated validities for the 4 trait constructs: social knowledge (hypothesized to reflect crystallized social intelligence) social inference (hypothesized to reflect fluid social intelligence), crystallized academic and fluid academic intelligences. The study revealed that the crystallized and fluid distinction might be applicable in the social intelligence domain also.

Kobe, Reiter-Palmon and Rickers (2001) examined the power of both emotional and social intelligence to account for variance in self-reported leadership experiences. The results indicated that both social intelligence and emotional intelligence accounted for variance in leadership experiences. Although emotional intelligence was found to account for variance in leadership, it did not add unique variance beyond social intelligence. Thus the findings suggested that social intelligence played a principal role in leader shop.
Silvera, Martinussen and Dahl (2001) developed a self-report measure of social intelligence. Three studies were conducted to develop and validate the Tromsø Social Intelligence Scale (TSIS). Study I examined the professional psychologists' interpretations of social intelligence to derive a consensually agreed-upon definition of the construct. In study II, a large pool of Social Intelligence items were tested and a 3-factor, 21-item scale was identified. In study III, the stability of the measure was confirmed.

Kajal (2002) studied the relationship between emotional intelligence and social intelligence. The findings show that the some of the measures of Emotional Intelligence showed significant association with measures of social intelligence. Some of the measures of emotional intelligence were found to correlate significantly with big five personality factors and the measures of social intelligence demonstrated significant relationship with some of the measures of personality.

Varma (2002) studied the influence of types of school, job stressors, role commitment, vocational maturity and social intelligence and their intonation on job satisfaction of teacher separately. The findings showed that there was significant influence of interaction between sex and vocational maturity on job satisfaction of teachers. Vocational maturity influenced more to the job satisfaction of female teachers in comparison of male teachers.

Aggrawal (2003) at Bundelkhand University has studied social intelligence and teacher effectiveness purposed to study and compare the social intelligence of the teacher in relation to their sex, age, educational qualification and to study the relationship between social intelligence and teacher effectiveness. The findings were: (i) Female teachers were found to have more social intelligence than male teachers in respect of sensitivity, tactfulness, sense of humour, memory dimensions of social intelligence as well as in respect of global social intelligence, (ii) Teachers of age group (26-30) were found to be high in patience, sensitivity, tactfulness, sense of humour dimensions social intelligence in comparison to the teachers of other age group, (iii) The discipline wise difference did not exist in relation to social intelligence, (iv) The graduate teachers were found to be highly sensitive, while the trained graduate teachers were to be high in recognition of social environment, dimensions of social intelligence
in comparison to other teachers, (v) The teachers upto 25 years of age were found high in academic and emotional dimension of teacher effectiveness, (vi) Patience dimension of social intelligence were found to be significantly correlated with academic, moral, personality and composite teacher effectiveness and the composite social intelligence is found significantly correlated with academic, professional and personality dimensions of teacher effectiveness and composite teacher effectiveness.

Frantisek Baumgartner and Miroslav Frankovsky (2004) conducted a study to find out possibilities of a situational approach to social intelligence research. The results concluded that the psychometric characteristics of the method were quite satisfactory.

Kaur and Kalarmma (2004) conducted a study to assess the levels of interrelationship between home environment, social intelligence and socio-economic status among high school students. The results revealed that socio-economic status had got effect on social intelligence. Home environment also showed positive impact on social intelligence.

Sheeja (2005) conducted a study on social intelligence among college students. The findings were: (i) The College students had high social intelligence. (ii)The sex and locality had no influence on the social intelligence of college students. (iii)The level of subjects of study, caste, educational qualification of parents had influence on the social intelligence of the college.

Bye and Jussim (2006) proposed a model for the acquisition of social knowledge and social competence. A review of approaches to social intelligence for which, a model of the acquisition of social knowledge and a model of the use of the social knowledge were presented. The study indicated the importance of social knowledge exclusive of social skill or social competence.

Gayathri Devi (2006) conducted a study on social intelligence among prospective teachers. The findings of the study were that the prospective teachers had high social intelligence the male and female prospective teacher have high social intelligence and the urban and rural have high social intelligence the graduate and post graduate prospective teachers have high social intelligence.
Goleman (2006) found that school leaders had a significant influence on the social-emotional climate of the school as a whole and had a responsibility to develop a socially intelligent leadership style that would engender a culture conducive to peak learning.

Hackworth and Barnnon (2006) investigated the impact of social intelligence (measured in terms of discriminate facility) upon the breadth of social influence strategy choice. The findings indicated that individuals were high in social intelligence and showed a broader base of persuasion tactics in many situations. The study concluded that social intelligence had a positive impact on social effectiveness.

Makovska and Kentos (2006) studied the relationship between abstract intelligence and social intelligence in children. The study revealed significant relations between measurements of abstracts intelligence and social intelligence, especially in the social awareness dimension.

Vyrost and Kyselova (2006) conducted a study on the interconnections between social intelligence, wisdom, values and interpersonal personality traits among University students. The results indicated that there were close mutual relations between social intelligence and wisdom-related knowledge. The results also showed that there was correlation between interpersonal personality traits like dominance and extraversion and measures of social intelligence.

Zuzana and Michal (2006) studied the correlation of social and abstract intelligence. The results revealed that there was significant relation between measurement of social and abstract intelligence mainly in the social awareness dimensions.

Crowne (2007) examined three forms of intelligence: social intelligence, emotional intelligence and cultural intelligence. The study revealed that cultural intelligence and emotional intelligence were distinct but related to the constructs as well as subsets of social intelligence.

Liff (2007) carried out a study to find out the relationship between social and emotional intelligence and success in college. The findings revealed that sensitivities and learning within the affective domain were strongly linked to the efficacy of successful collegiate experience for all students.
Sameer Babu (2007) conducted a study on social intelligence and aggression among senior secondary school students: a comparative sketch. The results showed an average of social intelligence among senior secondary school students. They had a greater amount of aggression. Relationship between social intelligence and aggression among senior secondary school students was found to be negative and negligible for the whole sample, but not significant. Gender based comparison of social intelligence was proved to be significant. Social intelligence based comparison of aggression was significant.

Archana Kaushik and Tanushree Sanwal (2008) studied about the determinants of social intelligence among elderly. The results showed that elderly women scored low on all the dimensions of social intelligence except sensitivity. Patriarchal social structure that had influenced the upbringing of females in the society characterized by lack of opportunities for independence, development and skill upgradation that might be contributing to lower social intelligence among aged women.

Deepti Hood et al. (2009) conducted study on social intelligence as a predictor of positive psychological health. The correlation analysis showed significant positive association between the two components of positive psychological health i.e. satisfaction with life and happiness and six factors of Social Intelligence (Cooperativeness, Confidence, Sensitivity, Tactfulness, Sense of humour and Memory). Optimism was found to be significantly and positively correlated with patience, cooperativeness and tactfulness and negatively correlated with memory. Further step-wise regression analysis revealed that out of eight, seven factors of social intelligence significantly predicted one or the other positive health dimensions.

Juchniewicz (2008) investigated the influence of social intelligence on effective music teaching. Results showed that ‘exemplary’ or effective teachers scored higher than ‘challenged’ or ineffective teachers on the social intelligence measure. Effective communication skills, including both categories of Effective Instructional Communication and Effective Non-Instructional Communication were the most frequently cited attributes for ‘exemplary teachers’.

Karthi and Alphonse Raj (2008) examined the social intelligence of teachers working in higher secondary schools. The findings were: (i) there was no significant
difference between male and female higher secondary school teachers in their social intelligence with regard to its various dimensions namely patience, tactfulness, sense of humor, memory and social intelligence. (ii) there was no significant difference between the higher secondary school teachers with regard to its various dimensions namely patience, cooperativeness, confidence, sensitivity and recognition and tactfulness, sense of humour, memory and social intelligence. (iii) but there was significant difference with regard to the dimensions sensitivity and tactfulness.

*Lukanadha Reddy, Ramar and Ponnambalam* (2008) studied the effectiveness of comprehensive social skill strategy in overcoming social skill deficiency of the failure syndrome students. The findings of the study were: (i) there was no significant difference in the pre-test performance between control group failure syndrome students and experimental group failure syndrome students and showed significant difference between pre-test and post-test scores when they were taught through the traditional lecture method. (ii) there was a significant difference between pre-test and post-test mean scores of the failure syndrome students with achievement problem in the experimental group when applying multimedia based modular instructional strategy.

*Meijs Antonius et al.* (2008) conducted a study on social intelligence and academic achievement as predictors of adolescent popularity. The findings revealed that perceived popularity was significantly related to social intelligence, but not to academic achievement, in both contexts. A sociometric popularity was predicted by an interaction between academic achievement and social intelligence, further qualified by school context. Whereas college bound students gained sociometric popularity by excelling both socially and academically, vocational students benefited from doing well either socially or academically, but not in combination.

*Qingwen Dong et al.* (2008) conducted a study of social intelligence, self-esteem and intercultural communication sensitivity. The results showed a statistically significant relationship between social intelligence (SI) and intercultural communication sensitivity (ICS), with SI accounting for more than 10% of the variance in ICS. In addition, both dimensions of self-esteem: self worth and self efficacy-were significantly related to ICS, accounting for an additional 4% of the variance in ICS.
Shobana and Zambare (2008) conducted a study on social competencies of B.Ed. trainees in relation to their social intelligence. The findings of the study were: (i) the frequency distribution of the three groups of social intelligence indicated that medium social intelligence group had slightly higher frequencies value than the normality which indicated that the trainees in higher social intelligence group were slightly higher than the low social intelligence. (ii) the findings concluded that the trainees of medium social intelligence group also had somewhat higher social competencies indices whereas the trainees of lower social competencies indices and the relationship between social intelligence and social competencies were slightly positive.

Tayfun Dogan and Bayram Çetin (2008) conducted an investigation of relationship between social intelligence, depression and some variables at university students. The research findings showed some significant relations between social intelligence and level of depression. Also some significant correlations were found between social skills and social awareness but no statistically significant interactions were observed among the social information processing and level of depression.

Wessel et al. (2008) studied the relationship between emotional-social intelligence and each of leadership, caring and moral judgment among college students. The results confirmed positive relationship between emotional social intelligence and leadership and suggested that emotional social intelligence might be an important construct in caring. Also the findings revealed that emotional social intelligence was found not to be related to moral judgment.

Henderson, Gerson and Woodward (2008) carried out a study on the birth of social intelligence by examining infants’ understanding of human action. The findings showed that infants come to understand human action within the first few months of their lives. The study concluded that infants were well on their way to becoming social experts by their second birthdays.

Williams (2008) studied about the characteristics that could distinguish the outstanding school principals. The findings indicated that outstanding school principals demonstrated a broad and deep repertoire of competencies related to emotional intelligence and social intelligence. The study suggested that emotional intelligence and social intelligence were critical factors in effective principal performance.
Baumgartner (2009) studied the relationship between social intelligence and interpersonal traits in a sample of elementary school pupils. Social intelligence components included social information processing, social skills and social awareness. Interpersonal traits included four characteristics-withdrawnness, harshness, kindness and dominance. Withdrawnness was found to correlate negatively with components of social intelligence. Harshness was correlated negatively with social awareness. Dominance and kindness were positively correlated with social information processing and social skills. The findings supported closeness of social intelligence and personality; boys were found more withdrawn, harsher and less kind in comparison to girls who reached higher scores in components of social intelligence.

Dogan and Cetin (2009) investigated the reliability and validity of the Turkish version of the Tromsf Social Intelligence Scale (TSIS) developed by Silvera, Martinussen and Dahl (2001). Construct validity and criterion related validity and reliability were assessed. Factor analysis yielded 3 factor solutions as the original TSIS. Overall results of the study showed that the scale was capable enough to measure social intelligence among university students in a valid and reliable way.

Khudaverdyan (2009) explored the relationship between Emotional Social Intelligence and academic outcomes of at risk secondary school students. A significant relationship was found between Emotional Social Intelligence and passing examination. The study showed that emotional social intelligence might serve as a predictor of academic outcomes.

Minikutty (2009) found that there was a significant positive relationship between social intelligence and teacher competency of student teachers. It was suggested that teacher education courses should include necessary provisions for the enhancement of social intelligence of teacher trainees.

Prabhakar (2009) analyzed the status of social intelligence of teacher trainees and school children in Maharashtra. It was found that both teacher trainees and pupils had low level of social intelligence. The study suggested that theoretical and practical programmes could be incorporated in the teacher training course for the nourishment of social intelligence among teacher trainees.
Suresh (2009) identified the level of social intelligence of student teachers of Guntur district in Andhra Pradesh. It was found that student teachers were having high level of social intelligence. Gender, locality, teaching methodology and qualification of student teachers were found to have no significant influence on their social intelligence.

Meijs, Cillessen, Scholte, Segers and Spijkerman (2010) compared the effects of social intelligence and cognitive intelligence, as measured by academic achievement on adolescent popularity. A distinction was made between sociometry popularity, a measure of acceptance and perceived popularity, a measure of social dominance. Results showed that perceived popularity was significantly related to social intelligence, but not to academic achievement. Also, sociometry popularity could be predicted by an interaction between academic achievement and social intelligence.

Noortje Meijs et al. (2010) conducted a study on social intelligence and academic achievement as predictors of adolescent popularity. This study compared the effects of social intelligence and cognitive intelligence, as measured by academic achievement on adolescent popularity in two school contexts. This study compared the effects of social intelligence and cognitive intelligence, as measured by academic achievement on adolescent popularity in two school contexts.

Tanakinci and Vildirim (2010) investigated the impact of social intelligence on academic achievement of students attending school of vocational studies. A weak positive relationship was found between social intelligence and academic achievement of students.

Gnanadevan (2011) conducted a study on the social intelligence of higher secondary students in relation to their socio-economic status. The finding showed that Social Intelligence of higher secondary students was found to be high. The social intelligence scores of higher secondary students were found to differ significantly with respect to caste, mothers’ education and parent’s income. Differences with respect to gender, fathers’ education and mothers’ occupation were not significant.

Sandra Hampel et al. (2011) conducted a study on the relations between social anxiety and social intelligence: a latent variable analysis. The findings showed that the social anxiety was related to deficits in social intelligence. Especially the behavioral
component of social anxiety was negatively related to the two domains of social intelligence social understanding and social memory and perception.

Unterborn (2011) developed a performance based measure of social intelligence using a situational judgement test format. Scores on the performance based social intelligence were compared to personality traits and general mental ability to give evidence of construct validity. The measure's criterion related validity was established by using ratings of socially effective behaviours and performance in novel social situations. Results indicated that social intelligence is independent from, but related to general mental ability.

Zamirullah Khan et al. (2011) conducted a study on social intelligence of the students of physical education. The findings revealed that there was no significant difference in social intelligence of the two groups except on tactfulness. The B.P.Ed. students scored more on the tactfulness variable than B.P.Ed. in spite of the fact that subjects of both the groups were almost of same backgrounds as far as their participation in games and sports activities were concerned, but the students of B.P.Ed. were graduates in different subjects and seemed to have faced varied atmospheres which could be the reason for the difference on the variable tactfulness.

Ahmad Abdulhameed AUFAN AL-MAKALEH et al. (2012) conducted a study on the social intelligence and personal characteristics of talented secondary school students in King Abdullah II schools for excellence, Jordan. The findings revealed that the averages were medium for each of the creativity, leadership and motivational characteristics, whereas the average was low for the learning characteristics. The results indicated that there were no statistically significant differences in the average degree of response of the study sample due to the sex variable on both the social intelligence and behavioral characteristic scales for each of the total score or on the sub-dimensions. Furthermore, the results showed that the interaction with others dimensions was the only one which had a significant effect on the explanation of each of the behavioral characteristics of talented students' variables of creativity, leadership, learning and the total score.

Chandrakant Borse (2012) studied on the academic achievement of B.Ed. students in relation to social intelligence. The findings indicated that there existed a
significant difference in the Social Intelligence of Male and Female B.Ed. students. Also the findings revealed a positive and significant relationship between the Social Intelligence and Academic Achievement of Male, Female and the total B.Ed. students.

**Geir Thompson and Magne Aarset** (2012) studied the impact of social intelligence, demographics and context for implementing the dynamics of the situational leadership model. The findings revealed that the significance of age for implementation of situational leadership theory, as older superiors were better able to rate follower competence and commitment than younger superiors.

**Lekshmi** (2012) developed a Social Intelligence Enhancement Package (SIEP) for the students at primary level. The findings of the study made that clear that the prepared package was very effective in enhancing social intelligence and study skills and in reducing aggression of primary school students.

**Mudita Bhatnagar and Suman** (2012) investigated the self-disclosure of adolescents in relation to their social intelligence. The findings were: (i) Girls are more extrovert than boys and could disclose their feelings more quickly than the boys, (ii) The urban adolescents were more social and unreserved than the rural adolescents and they disclose their feelings more quickly than the rural adolescents, (iii) The adolescent boys were more socially intelligent than the adolescent girls. Boys were more independent and liberal. They spend most of their time in social gatherings as compared to the girls, (iv) The rural adolescents were socially intelligent than the urban adolescents, (v) There was positive relationship between the two variables self-disclosure and social intelligence.

**Sembiyan and Viswanathan** (2012) conducted a study on the social intelligence of college students. The result revealed that the locality, type of family and type of colleges had no significant difference but, gender and type of institution exhibited significant difference in respect to the social intelligence of college students.

**Soleiman Yahyazadeh Jeloudar et al.** (2012) conducted a study on the influence of social intelligence of secondary school teachers on classroom discipline strategies. The findings indicated that there were significant differences between teachers with high and moderate level of social intelligence in five strategies of classroom discipline used, i.e., teachers with high level of social intelligence scored
higher in the classroom discipline strategies of discussion, recognition, involvement and hinting, whereas teachers with moderate level of social intelligence scored higher in the use of aggression. However, no significant difference was found concerning one strategy of classroom discipline (punishment).

Soleiman Yahyazadeh-Jeloudar et al. (2012) examined the relationship between social intelligence and job satisfaction among MA and BA Teachers. The findings of the study indicated that there was significant relationship between teachers’ social intelligence and their job satisfaction. The study also revealed that there was a significant difference between teachers’ social intelligence and their academic degree levels. Further, significant relationships were found between teachers’ social intelligence and five factors of job satisfaction: nature of the work itself, attitudes towards supervisors, relations with co-workers, opportunities for promotion, work condition in the present environment, but the relationship with one factor (salary and benefit) of job satisfaction was low and negligible. The results indicated that the teachers with higher social intelligence enjoyed greater job satisfaction.

Abbas Shekarey et al. (2013) studied the relationship between social intelligence and aggression: a case study of high school boy students. The results showed that there was a significant relationship between social intelligence and aggression especially verbal aggression, physical aggression, violence and hostility among the high school boy students in Kashan city. The results also showed that the students’ with social intelligence showed the less aggressive behavior.

Asma Nazir (2013) conducted a study about social intelligence and the academic achievement of college students. The findings of the study were: (i) there was significant difference between male and female students of colleges in their social intelligence and academic achievement (ii) there was significant difference between rural and urban students of colleges in their social intelligence and academic achievement.

Crowne, Kerri Anne (2013) conducted an empirical study on three intelligences. The objective of the study was to investigate the social intelligence, emotional intelligence and cultural intelligence. The results did not support social intelligence being super ordinate to emotional and cultural intelligence. The findings
did support emotional intelligence and cultural intelligence that were distinct but related.

Gurdeep kaur and Amrik Shinh (2013) studied about the relationship among emotional intelligence, social intelligence spiritual intelligence and life satisfaction of teacher trainees. The findings were: (i) the emotional intelligence and life satisfaction were not related to each other, (ii) Social Intelligence and Spiritual Intelligence were highly related to each other if or if not Emotional Intelligence and Life Satisfaction were held constant (iii) Emotional intelligence and Life Satisfaction were not related to Social Intelligence and (iv) Emotional Intelligence and Life Satisfaction were not related to Spiritual Intelligence.

Hassan Aminpoor (2013) found the relationship between social intelligence and happiness in University students. The findings of the study showed that there was a positive significant relationship between social intelligence and happiness of University students.

Joakim and Harikrishnan (2013) conducted a study on social intelligence among distance education students. The findings revealed that that there was no significant difference in the mean social intelligence of male and female distance education students and it was inferred that the male students had more level of social intelligence than the female students, (ii) there was a significant difference in the social intelligence of urban and rural distance education students and it was inferred that the urban students had more level of social intelligence than the rural students (iii) there was no significant difference in the social intelligence of married and unmarried distance education students and it was inferred that the married students had more level of social intelligence than the unmarried students. (iv) there was no significant difference in the social intelligence of Tamil and English medium distance education students and it was inferred that the English medium students have more level of social intelligence than the Tamil medium students. (v) there was no significant difference in the social intelligence even though they study in UG and PG distance education students and it was inferred that the UG students had more level of social intelligence than the PG students.
Kamalpreet Kaur Toor (2013) studied about social and emotional intelligence of secondary school teachers. The findings of the study revealed that there was no significant difference in social intelligence of male and female secondary school teachers. The private secondary school teachers were significantly more socially intelligent than government secondary school teachers. These results of main effects of gender and type of school were inter-dependent for emotional intelligence, as male secondary school teachers were more emotionally intelligent than female secondary school teachers, with regard to private schools. Government secondary school teachers were more emotionally intelligent than private secondary school teachers, with regard to female teachers.

Paed Zuzana Birknerova et al. (2013) conducted a study on social intelligence in the context of personality traits of teachers. Social intelligence as a personality trait as well as a performance characteristic might be regarded as an important social competence of a teaching profession and a significant predictor of successfulness of a teacher in their profession. The findings also enabled the specification of the differences in the responses of the male and female teachers. From the methodological point of view the results of the research contributed to the verification of the basic parameters of the evolving SIPS methodology for detecting social intelligence as a personality trait.

Prathima and Umme Kulsum (2013) conducted a study on the relationship between social intelligence and mental health of secondary school teachers. The findings of the study showed that there was a significant relationship between secondary school teachers’ social intelligence and their mental health. There was a significant difference between male and female secondary school teachers’ in their mental health. The results indicated that the teachers with higher social intelligence were better in their mental health.

Ruchi Thakur et al. (2013) conducted a study on parenting style and social intelligence of adolescents of Himachal Pradesh. The results of the study revealed that Social Intelligence was found statistically significant with sex of adolescents, family type, caste, religion and urban/ rural and parenting style. Dimensions of parenting
styles and social intelligence showed a significant regression with sex of the respondents.

**Snehlata and Triygee Narayan** (2013) conducted a study of social intelligence among college students in relation to their subject stream in Ghadiabad. The findings of the study revealed that there was no significant difference between arts and science subject streams in relation to their social intelligence.

**Sumanlata Saxena and Rajat Kumar Jain** (2013) conducted a study on social intelligence of undergraduate students in relation to their gender and subject stream. The findings of gender analysis indicated that female student possessed more social intelligence than male students and analysis of stream indicated that arts students had greater social intelligence than students of other streams.

**Kasture and Bhalerao** (2014) studied about the social intelligence of pupil teachers. The findings revealed that the pupil teachers had high patience, high cooperativeness and confidence and also had low sensitivity, low recognition of social environment, low tactfulness, low sense of humor and average memory.

**Rakesh Rai and Meetu Singh** (2014) explained the social intelligence among college students in relation to their subject stream in Bijnor district. The findings of gender analysis indicated that female student’s possessed more social intelligence than male students and analysis of stream indicated that arts students were having greater social intelligence than students of other streams.

**Ramesh Singh Bartwal** (2014) studied the mental health of senior secondary students in relation to their social intelligence. The findings of the study were: (i) there was no significant difference between mental health of male and female senior secondary students of rural and urban area (ii) there was no significant difference between social intelligence of male and female senior secondary students of rural and urban area and (iii) there was a significant relationship between mental health and social intelligence of male and female senior secondary students of rural and urban areas.

**Ramesh Singh Bartwal and Anoj Raj** (2014) studied about the academic stress among school going adolescents in relation to their social intelligence. The results of the study revealed that there were no significant gender differences with
regard to academic stress and social intelligence among rural and urban adolescents. Male and female students experienced same amount of academic stress. A significant correlation was found between academic stress and social intelligence of rural and urban adolescents. Social intelligence, time management, parental involvement and school play a vital role in reducing academic stress.

Ravbeet Gaur (2014) examined the emotional maturity and social intelligence of first born and last born girls of working mothers. The findings of the study were: (i) there was significant difference between first born and last born girls on social intelligence (ii) there was no significant difference between first born and last born girls on emotional maturity and (iii) there was positive as well as negative relationship between social intelligence and emotional maturity.

Vel Murugan and Rajendran (2014) examined the relationship between creativity and social intelligence of B.Ed., trainees. The results indicated that there was no significant relationship between creativity and social intelligence of B.Ed. trainees. While comparing the mean scores, the women B.Ed. trainees were better in their ideational fluency, associational fluency and expressional fluency and in their spontaneous flexibility than the men B.Ed. trainees.

Vipinder Negara (2014) explored the relationship between social intelligence and adjustment of secondary school students. The results revealed average levels of social intelligence and adjustment in those students. Insignificant differences were observed in social intelligence and adjustment in relation to type of school and gender.

Supriya Patil and Neelima Sapre (2015) conducted a study of relation among intelligence, social intelligence and general teaching competency of B.Ed, Teacher trainees. The findings revealed that there was no significant relationship between social intelligence and general teaching competency, intelligence quotient and general teaching and intelligence quotient and social intelligence of B. Ed. teacher trainees.

Suresh Prabu (2015) conducted a study on social intelligence among arts and science college students. The finding of the study were: (i) there was no significant mean difference between male and female students with respect to social intelligence, (ii) there was significant mean difference between rural and urban area students with respect to social intelligence, (iii) there was no significant mean difference between
Government and Private college students with respect to social intelligence and (iv) there was significant mean difference between UG and PG students with respect to social intelligence.

**Yogita Rathore and Sansmruni Mishra** (2015) conducted a comparative study of adjustment and social intelligence of urban higher secondary school students in relation to their gender. The finding of the study revealed that there was significant difference between social intelligence of higher Secondary students on the basis of their gender.

### 2.5.1 Summary

The studies reviewed in this sub section reveal that social intelligence as a research variable has been studied mostly among the populations such as university students, college students, distance education students, colleges of education students, higher secondary school students, high school students, senior secondary school students, higher secondary school teachers, secondary school teachers, physical education students, teacher trainees etc. with the other research variables namely job stressors, role commitment, vocational maturity, emotional intelligence, classroom discipline strategies, job satisfaction, depression, socio-economic status, anxiety, social competencies, academic achievement, academic stress, self-esteem, intercultural communication sensitivity, creativity, cultural intelligence, adjustment, mental health, spiritual intelligence, life satisfaction personality trait and self-disclosure in India and Abroad.

Out of those studies, only seventeen studies are seemed to have taken social intelligence as one of the research variables and college students as the population. After making critical analysis on the studies related to the research variable social intelligence, the investigator has come out with the following conclusion.

The research work done by **Varma** (2002) highlighted the existence of significant influence of interaction between sex and vocational maturity on job satisfaction of teachers. The study conducted by **Sheeja** (2005) revealed the existence of high social intelligence among college students. The investigation made by **Gayathri Devi** (2006) revealed the existence of high social intelligence among
prospective teachers. The study conducted by Tayfun Dogan (2008) highlighted the existence of significant relations between social intelligence and level of depression. The research work done by Karthy (2008) revealed the existence of no significant difference between male and female higher secondary school teachers in their social intelligence with regard to its various dimensions namely patience, tactfulness, sense of humor, memory and social intelligence. The investigation made by Deepti Hood et al. (2009) indicated the existence of a significant positive association between the two components of positive psychological health such as satisfaction with life and happiness and six factors of social intelligence namely co-cooperativeness, confidence, sensitivity, tactfulness, sense of humor and memory. The research work done by Khudaverdy (2009) explored the existence of the relationship between emotional-social intelligence and academic outcomes of at risk secondary school students.

The study conducted by Noortje Meljs et al. (2010) revealed the existence of social intelligence and academic achievement as predictors of adolescent popularity. The investigation made by Gnanadavan (2011) indicated the existence of the significant difference in the social intelligence scores of the higher secondary school students with respect to caste, mothers’ education and parent’s income, but the differences with respect to gender, fathers’ education and mothers’ occupation were not significant. The study conducted by Zamirullah Khan et al. (2011) revealed the existence of no significant difference in social intelligence of the two groups except on tactfulness. The investigation made by Sembiyan (2012) highlighted the existence of no significant difference in the social intelligence scores of college students with respect to locality, type of family and type of colleges but, gender and type of institution exhibited significant difference in their social intelligence. The research work done by Mudita Bhatnagar and Suman (2012) revealed the existence of positive relationship between the two variables namely self-disclosure and social intelligence.

The investigation made by Sumanlata Saxena and Rajat Kumar Jain (2013) indicated that the female students possessed more social intelligence than male students and analysis of stream indicated that arts students were having greater social
intelligence than students of other streams. The research work done by Joakim (2013) studied the existence of no significant difference in the mean social intelligence of male and female distance education students and it was inferred that the male students had more level of social intelligence than the female students. The investigation made by Vel Murugan and Rajendran (2014) highlighted the existence of no significant relationship between creativity and social intelligence of B.Ed. trainees. The study conducted by Ramesh Singh Bartwal and Anoj Raj (2014) revealed the existence of no significant differences with regard to academic stress and social intelligence among rural and urban adolescents. The study conducted by Suresh Prabu (2015) indicated that there was significant difference in the social intelligence among arts and science college students with regard to gender, degree of study and locality of colleges.

2.6 STUDIES ON STUDY SKILLS

Studies done on study skills are reviewed in this sub section.

Kindel and Dawn (2000) conducted a study on the development of a study skills component to accompany the foundations of mathematics course with pilot-testing and plans for implementation and evaluation. The findings revealed the increase of the mean final exam grade from 67.6 to 72.0, the rate of successful completion of the course from 65.2% to 92.3% and the decrease of the percentage of students receiving final course grades of A, B and C from 1998 to 1999.

Maxwell-Maher and Marta (2000) studied the effects of combining study skills training with counselling to increase academic performance and school success in the University of Duquesne. The findings were: (i) There was significant difference in English scores among the seventh grade students who participated in the small group study skills instruction verses the students who participated in small group study skills instruction with individual counselling verses those students who did not participate in either, (ii) There was no significant difference in mathematics grade and no interaction effect between either parent or gender and grade.

Cardin and Lesli Manh Lan (2001) indicated the effect of individual Web-based instructional modules on the learning strategies of students enrolled in a university study skills course in university of Texas. Results indicated that individually
targeted web-based instructional modules used a for the study skills intervention were effective in increasing reported study skill use.

**Gregory and Lorraine** (2001) studied the effects of study skills training on the performance of mathematically challenged among students in college mathematics course in university of Duquesne. The grades earned by the participants were statistically compared to a group of classmates who did not participate in study skills training. The observations and discussions illustrated the need for freshmen to learn about effective study methods for success. The study was unique in that the participants were enrolled in a college level calculus course and the prior use of study strategies was examined.

**Nicole Vette** (2001) highlighted the effective of Journal writing on the reflective metacognitive analysis and study skills of college students enrolled in a critical reading on thinking course in Temple University. The findings indicated that students were able to reflect on their learning and to integrate and use information a variety of sources while increasing their academic abilities and mastering lifetime learning process of thinking about thinking.

**Schwanz** (2001) studied about the value of parent identified behavioural problems for predicting adaptability, social skills and study skills of school acted children. The results indicated that attention problems were the only significant predictor of social skills for boys and aggression emerged as a significant predictor of social skills for girls. Parent identified attention problems along with a child’s intelligence accounted for a significant and meaningful amount of variance in study skills for both boys and girls. Ratings of hyperactivity were found insignificant in predicting adaptive skills.

**Gettinger and Siebert** (2002) studied the contribution of study skills to academic competence and found that study skills are fundamental to academic competence. Evidence-based strategies that were effective in helping students to improve their study skills were also identified.

**Shen and Le-vent** (2002) explored the relationships between college reading and study skills of textbooks. The findings were: (i) textbook authors were experts from the related field, (ii) textbook features did not increase in relation to the size of the texts,
(iii) textbooks were more alike than different, (iv) the number of physical features included grew steadily across five periods, (v) physical features that were common to most textbooks were introduction, headings, index exercises questions and illustrations.

Bassappa (2003) studied about the factors influencing the study habits degree college students of Kuvembut University: a study. The findings were: (i) there was a significant difference between the government aided and unaided colleges students in respect to achievement, (ii) middle achievement B.A. students significantly were different from low achievement students’ disrespect of SSH, (iii) while no such difference was found among B.Sc. and B.Com. students.

Pazhanivel (2004) studied the impact of modular approach on achievement, study habits and attitude of students in Tamil grammar at secondary level. The‘t’ test and Product moment correlation were used in the study for data analysis. It was concluded that Control group and experimental group students differed in their achievement in Tamil grammar and study habits, there was significant relationship between the achievement and study habits, the modular approach was effective in enhancing the academic achievement and study habits.

Robbins et al. (2004) studied about the relationship between psychosocial and study skill factors and college outcomes by meta-analyzing 109 studies. The psychosocial and study skill factors included achievement motivation, academic goals, institutional commitment, perceived social support, social involvement, academic self-efficacy and general self-concept. The findings of the study confirmed the incremental contributions of the psychosocial and study skill factors in predicting college outcomes.

Sirohi (2004) examined the under achievement in relation to study habits and attitudes of elementary grade school students. The findings revealed that all under achievers indicated deficiency in study habits. 98.7% of the under achievers possessed unfavorable attitude towards teachers and needed guidance, 97.5% of them had poor concentration. 92.5% of them indicated deficiency in school and home environment, 96.2% of them lacked proper attitude towards examination, 72.8% of them faced mental conflicts 72.8% of them were low in self-confidence, 70.3% of them had problems related to home assignments and 24.6% of them indicated deficiency in attitude towards education.
Benner, Beaudoin, Kinder and Mooney (2005) studied the relationship between beginning reading skills and social adjustment of a general sample of elementary aged children. Reading skills included letter-word identification, word attack, passage comprehension and auditory comprehension and social adjustment included social skills, problem behaviours and academic competence. The results showed that early literacy skills and skills of auditory comprehension were positively associated with measures of social skills and academic competence. Early literacy skills and vocabulary were negatively associated with the measures of problem behaviours. Letter-word identification was found to be the best predictor of social skills, problem behaviours and academic competence.

Abid Hussain (2006) explored the effect of guidance services on study attitudes, study habits and academic achievement of secondary school students. The results of the study indicated that the guidance services had significant effect on the students’ study attitude, study habits and academic achievement.

Lambet and Nowacek (2006) suggested 20 ways to help high school students to improve their study skills. It was found that students specially lack the skills in the area of listening, note-taking, test-taking, time management and organizational skills. The study demanded the teachers to incorporate study skills in their instruction.

Daisy Nambikkal and Annaraja (2007) examined the relationship between assertiveness and study skills in higher secondary girls. The findings revealed that was a significant relationship between assertiveness and time scheduling, concentration, listening and note taking, reading skills, preparing for the examination, writing skills and study skills in higher secondary girls.

Meneghetti, De Beni and Cornoldi (2007) studied the relationship between study skills and strategic knowledge and consistency in students. It was found that students with poor study skills were less able to make distinction between poor and good study strategies and were less consistent in matching their knowledge to their use of strategies. The findings of the study proved that strategic use and consistency played a crucial role in successful learning.
Suresh (2007) explored the improvement of study skills through intervention on memory and academic performance. The finding of the study was intended to improve the study skills and memory of the students and see effect on academic performance.

Crede and Kuncel (2008) found that study habits, skills and attitudes are predictors of academic performance of students. It was also found that academic specific anxiety was found to be an important negative predictor of performance.

Geetha Janet Vitus (2008) conducted a study on the effective organization and time management of study skills in secondary school students. The findings were: (i) many students appeared to have poor organization and time management skills because they had no idea of the amount of work that was to be involved in learning. (ii) The study explores some possible student attitudes towards organization and time management and some tips for students to manage their time well and to improve their study skills.

Megha Gakhar (2008) studied about the academic achievement of college students in relation to their preferred learning thinking styles and study skills. It was inferred that those students who had stronger preference for learning through structural, content, concrete experience, abstract learning and artistic aesthetic interest were likely to get higher academic marks in the examination.

Rozalli (2008) studied about the significance of student’s study skills such as listening, note-taking and memory and found that these are crucial in student’s ability to succeed academically. The study stressed the importance of nurturing study skills especially in students with emotional and behavioural problems who often lack them.

Kayler and Sherman (2009) used a small-group counseling intervention program for promoting study skills, personal and social development of at risk high school students. It was found that the intervention programe strengthened student’s studying behaviours and increased connectedness to peers, teachers, school counselors and the school as a whole.

Thomas Alexander and Annaraja (2009) studied about the influence of emotional intelligence, study skills and aspiration on scholastic performance of the problem students. The findings show that there was significant influence of emotional
intelligence, study skills and aspiration on scholastic performance of the problem students.

Amutha Sree and Krishnamurthy (2010) studied about the academic achievement of commerce students in relation to their study habits. The findings showed that there was significant relationship between achievement in commerce and the study habits of higher secondary school students.

Ellen Jansen and Suhe (2010) revealed the effect of secondary school study skills preparation on first year university achievement. The finding of the study reveals that the perceived study skills preparation concerning time management and learning skills had a positive impact first year on college students study behavior and academic achievement.

Usha Bright (2010) conducted a study on the influence of listening, reading comprehension on the skill of speaking of the students studying in the teacher training institute of kanyakumari district. The findings were: (i) there was significant correlation between listening comprehensions of the students studying in teacher training institute and speaking skill, (ii) there was significant correlation between reading comprehension and speaking skill.

Afsaneh Hassanbeigi et al. (2011) conducted a study on the relationship between study skills and academic performance of university students. The findings of the study showed that the study skills scores of university students with a grade point average (GPA) of 15 or more (out of 20) were statistically higher than that of those students with a GPA of less than 15 in all of the 7 skills of time management and procrastination (P<.01), concentration and memory (P<.01), study aids and note taking (P<.02), test strategies and test anxiety (P<.01), organizing and processing information (P<.01), motivation and attitude (P<.04) and reading and selecting the main idea (P<.0001).

Shamara-tus-sabah and Gilani (2011) examined the relationship between home chaos and conduct problems, social skills and study skills of primary school children. Home chaos was revealed as a significant predictor of children’s conduct problems social skills and study skills.
Shree Deepa (2011) conducted a study on ‘Critical Thinking’ - a technique in enhancing the skill of preparing to write essays at the undergraduate level – a report. The results revealed that (i) the students were able to positively engage in conversation and discussion with their class and voted that method as one of the better ways of preparing to write essays, (ii) mind mapping was converted into informed choice and organization of ideas.

Subramanyan (2011) studied the impact of emotional intelligence and study skills of high school students. The findings were: (i) there was significant difference between boys and girls with regard to their emotional intelligence, (ii) there was no significant difference between boys and girls with regard to their study skills.

Wernerbach (2011) studied the impact of study skills courses on academic self-efficacy of students. The results revealed that the students who had undergone study skills courses exhibited greater increase in academic self-efficacy than those who had not enrolled in any such course.

Fazal, Hussain, Majoka and Masood (2012) carried out a study to find out the role of study skills in academic achievement of students. The findings of the study indicated a significant relationship between study skills like time-management skills, reading and note-taking skills with academic achievement. It was also found that goals were better in using study skills as compared to boys.

Kulasekara Perumal Pillai (2012) conducted a study on an empirical study on study habits of tenth standard students in nagarkovil district. The findings were: (i) there was significant difference between male and female students with respect to their study habits; (ii) there was significant difference between Government and Private school students with respect their study habits. (iii) there was significant difference between rural and urban area students with respect to their study habits.

Premalakshmi (2012) conducted a study on study habits and academic achievement of higher secondary students. The results indicated that there was a significant relationship between study habits and Academic Achievement.

Rajakumar and Soundararajan (2012) studied about higher secondary students’ study habits in Tirunelveli district. The findings were: (i) the mean value of Study habit scores 142.12 (63.16%) indicated that the higher secondary students were
having good study habit, (ii) there was no significant difference between male and female, rural and urban higher secondary students with respect to their Study habit, (iii) there was significant difference between day scholar and hostel staying, government and aided higher secondary school students with respect to their study habit.

Ramasamy and Rita Goretti Lourdes (2012) conducted a study the study involvement of retained adolescent students studying in namakkal district of tamil nadu state. The findings were: (i) the retained adolescent students had average level of study involvement and irrespective of the sub-samples under study also had average level of study involvement; (ii) the male and female retained adolescent students did not differ significantly in study involvement.

Sasikala (2012) studied about the influence of study skills and academic achievement of B.Ed. teacher trainees. The results revealed that the respondents developed a favorable study skills and attitude towards teaching profession after the completion of the B.Ed. programme.

Benazir Ayesha and Fauzia Khurshid (2013) investigated the relationship of multiple intelligence and effective study skills with academic achievement among University students. The findings showed that the multiple intelligence, study skills and academic achievement were significantly positively correlated with each other.

Jaskiran Kaur Dayal (2013) conducted a study about the impact of family environment on study habit of high school students. The findings of the study were: (i) there was significant relationship between study habits and family environment of the students and (ii) there was significant difference between study habits and the various dimensions of the family environment of personal growth and system maintenance.

Master Arul Sekar and Rajendran (2013) studied about the relationship between study skills and metacognition of arts and science college students. The findings revealed that there was significant relationship between the dimensions of metacognition namely knowledge of cognition and study skills of arts and science college students.

Naga Raja and Viswanatha Reddy (2013) studied the effect of television viewing on study habits among high school going children. The findings of the study
revealed that there was significant difference between boys and girls, rural and urban, government and private school going children with regard to their study habits.

**Radhamani (2013)** conducted a study on enhancing study skills through educational guidance among B.Ed. teacher trainees. The findings of the study were: (i) There was no significant difference between the mean values of age group 20-23 and age group 24-26 trainees with regard to the dimensions of study skills, (ii) there was no significant difference between the mean values of age group 20-23 and age group 24-26 trainees with regard to overall study skills, (iii) there was a significant increase between the mean values of dimensions of study skills after the training at 0.01 level and (iv) there was a significant increase between the mean values of study skills after the training at 0.01 level.

**Reena Rani (2013)** conducted a study on the relationship between home environment and study habit of senior secondary school students. The results of the study showed a significantly positive relationship of home environment components of rejection with study habits of boys. However, the correlation of other components of home environment was significantly negative with study habits among boys. The study also found that there was no significant difference in the home environment between boys and girls studying in science stream of senior secondary school.

**Anbuchelvan and Thilagavathy (2014)** conducted a study on achievement in commerce in relation to study habit. The findings revealed that there was no significant difference among higher secondary commerce students’ achievement in commerce, study habit based on their gender, Medium of instruction, locality of institution and there was significant relationship between achievement in commerce and study habit of higher secondary commerce students.

**Arul Lawrence (2014)** conducted a study about the relationship between study habits and academic achievement of higher secondary school students. The findings of the study were: (i) there was significant difference between XI and XII, a day-scholar and hosteller higher secondary school student (ii) there was no significant difference among students of Government, Government aided and self-financed higher secondary schools in their study habits.
Arul Lawrence (2014) investigated the relationship between study habits and test anxiety of higher secondary students. The findings were: (i) the level of study habits and test anxiety of the higher secondary students were moderate (ii) there was no significant relationship between study habits and test anxiety of higher secondary students.

Ishrat Naaz (2014) examined the study of undergraduate college students study habits in relation to their academic achievement. The findings of the study were: (i) there was no significant difference between male and female undergraduate students in their study habits and academic achievement (ii) there was significant difference between arts stream and science stream of undergraduate students in their study habit (iii) there was no significant difference between arts stream and science stream undergraduate students in their academic achievement and (iv) there was significant relationship between study habits and academic achievement of undergraduate students.

Maureen Drysdale and Margaret Mc Beath (2014) conducted a study on hope, self-efficacy and procrastination and study skills among cooperative and non-cooperative education students. The results indicated significant differences in several study skill characteristics as a function of co-operative, gender and faculty. No significant differences emerged between co-op and non-co-operative students on hope, self-efficacy or procrastination scales.

Pachaiyappan and Prabu (2014) studied the study habits of higher secondary biology students. The findings of the study were: (i) there was significant difference between male and female higher secondary biology students in the study habits, (ii) there was significant difference between government and private higher secondary school biology students in their study habits and (iii) there was significant difference among parents’ monthly income and study habits of higher secondary biology students.

Vellaichamy and Jeysankar (2014) conducted a study on reading habits of central library users: a case study of Alagappa University, Tamilnadu, India. The findings revealed that the majority of the users preferred home (36.67%) followed by library (24.67%) and classroom (21.01%) as the place for reading.

Winnie Muthoni Ngila, Lazarus Ndiku Makewa (2014) conducted a study on the learner attitude towards chemistry, study skills and examination preparedness: A
case of a public school in eastern, Kenya. The findings of the study were: (i) there was no significant difference in chemistry preparedness in terms of attitude towards chemistry, study skills and exam preparedness between boys and girls, (ii) There was no significant difference in chemistry preparedness in terms of attitude towards chemistry, study skills and exam preparedness between boarders and day scholars and (iii) There was no significant difference in chemistry preparedness in terms of attitude towards chemistry, study skills and exam preparedness between low and high achievers.

2.6.1 Summary

The studies reviewed in this sub section reveal that study skills as a research variable has been studied mostly among the populations such as university students, college students, arts and science college students and secondary education students, higher secondary school students, high school students, colleges of education students, teacher training institute students, elementary school students, seventh grade students, senior secondary school students, non-cooperative education students, etc. with the other variables namely web-based instruction, performance of mathematics, journal writing on the reflective metacognitive analysis, reading skills of text books, attitude, achievement, academic achievement, under achievement, emotional intelligence, aspiration, scholastic performance of the problem students, self-handicapping, test anxiety, study habits, assertiveness, intervention on memory and academic performance, personality types, learning thinking styles, effective organization and time management, listening skill, reaching comprehension and speaking skill, critical thinking, study involvement, metacognition, home environment, reading habits, self-efficacy and procrastination in India and abroad.

Out of those studies reviewed, only thirteen studies are seemed to have taken study skills as one of the research variables and college students as the population. After making critical analysis of the studies related to the research variable study skills, the investigator has made the following conclusion.

The research work done by Maxwell-Maher (2000) studied the existence of a significant difference in English scores among the seventh grade students who
participated in the small group study skills instruction verses the students who participated in small group study skills instruction with individual counseling verses those students who did not participated. The study conducted by Pazhanivel (2004) revealed the existence of a significant relationship between the achievement and study habits also the study showed that the modular approach was effective in enhancing the academic achievement and study habits.

The research work done by Daisy Nambikkal (2007) indicated the existence of a significant relationship between assertiveness and time scheduling, concentration, listening and note taking, reading skills, preparing for the examination, writing skills and study skills of higher secondary girls. The study conducted by Megha Gakhar (2008) revealed the existence of significant difference between learning styles and study skills on academic achievement of college students. The findings of the study made by Thomas Alexander (2009) showed the existence of a significant influence of emotional intelligence, study skills and aspiration on scholastic performance of the problem students. The research work done by Amutha Srce (2010) highlighted the existence of significant relationship between achievement in commerce and the study habits of higher secondary school students. The study conducted by Ellen Jansen (2010) revealed that the perceived study skills preparation concerning time management and learning skills had a positive impact on the study behavior of the first year college students first year study behavior and academic achievement.

The investigation made by Subramanyan (2011) indicated the existence of significant different between boys and girls with regard to their emotional intelligence. The research work done by Kulasekara Perumal Pillai (2012) revealed the existence of significant difference between male and female students with respect to their study habits. The study conducted by Sasikala (2012) indicated the respondents developed a favourable study skills and attitude towards teaching profession after the completion of the B.Ed. programme. The findings of the study made by Master Arul Sekar and Rajendran (2013) studied the existence of significant relationship between the dimensions of metacognition namely knowledge of cognition, regulation of cognition and study skills of arts and science college students. The study conducted by Arul
Lawrence (2014) highlighted the existence of no significant relationship between study habits and test anxiety of higher secondary students. The investigation made by Maureen, Drysdale (2014) indicated the existence of significant differences in several study skill characteristics as a function of co-operative, gender and faculty but no significant differences emerged between co-op and non-co-operative students on the hope, self-efficacy, or procrastination scales.

2.7 METACOGNITION AND STUDY SKILLS

The study conducted by Nicole Vette (2001) highlighted the effectiveness of Journal writing on the reflective metacognitive analysis and study skills of college students enrolled in a critical reading on thinking course in Temple University. The findings indicated that students would be able to reflect on their learning and to integrate and use information from a variety of sources while increasing their academic abilities and mastering lifetime learning process of thinking about thinking. The findings of the study made by Chellamani (2013) examined the activating metacognitive strategies on enhancing reading skill among high school students. The results showed that metacognitive strategy use and cognitive control process had their effect on the reading comprehension of high school students. The significant correlation between their awareness on metacognitive strategies and their reading comprehension indicated the developed self-awareness and reading comprehension of the college students.

2.8 SOCIAL INTELLIGENCE AND STUDY SKILLS

The investigation made by Lekshmi (2012) examined the social intelligence Enhancement Package (SIEP) of students at primary level. The study revealed that the variable study skills had been a positive correlate of social intelligence while, aggression was a negative correlate. The findings of the study made it clear that the prepared package was very effective in enhancing social intelligence and study skills and in reducing aggression of primary school students.

2.9 METACOGNITION AND SOCIAL INTELLIGENCE

The research work done by Marcel Veenman et al. (2005) studied the relations between intellectual and metacognitive skills in early adolescence. The findings of the
study was revealed that metacognitive cueing triggered a higher level of metacognitive activities that were explicitly addressed by such cues, as well as other metacognitive activities that implicitly prospered by cueing. Moreover, metacognitive cueing fielded better learning outcomes. The study conducted by Savia Coutinho (2006) investigated the relationship between the need for cognition, metacognition and intellectual task performance. The findings revealed that there was a significant correlation between the need for cognition and metacognition. The investigation done by Harandi et al. (2013) explored the effect of metacognitive strategy training on social skills and problem solving performance. The results indicated that the students in the metacognitive treatment group significantly improved in both social skills and problem-solving performance.

2.10 CRITICAL REVIEW

The investigator has reviewed two hundred and twenty six studies from within India and abroad. Among them, ninety nine studies were related to metacognition, seventy five studies were related to social intelligence and the remaining fifty two studies were related to study skills. The present study differs from the reviewed studies in many ways. Regarding the variable metacognition, many studies have been conducted on it. But the present study is different from the other studies by its dimensions namely regulation of cognition and knowledge of cognition. So far many studies have been conducted on social intelligence. But, in the present study, for the variable social intelligence, investigator has included the following dimensions namely social information processing, social awareness and social skills. Finally the study is different from other studies with regard to study skills, which is one of the research variables of the present investigation. Many studies have been conducted on study skills. But the present study is different from other studies by its dimensions namely time Scheduling, concentration, listening and note-taking, reading skill, writing skill and preparing for examination. Therefore the study is different from other studies in a matchless way. Moreover no study has combined metacognition, social intelligence and study skills together and has conducted a study on the arts and science college students. Furthermore, the present study is a new one and is different form other studies in terms of population and sample too. Hence it has become very significant for the investigator
to study the influence of metacognition and social intelligence on study skills of arts and science college students.

2.11 RATIONALE FOR THE PRESENT STUDY

The research studies are reviewed from Indian and International journals, Dissertation Abstracts International, Indian Educational Abstracts, etc. Many investigators have conducted studies on metacognition among the populations such as undergraduate and postgraduate students, high and higher secondary school students, primary and upper primary school students etc. Out of those research studies a few studies are related to metacognition as the variable and the arts and science college students as the population. It is learnt from the review of literature that the studies on social intelligence of the arts and science college students are very few in number. This inference has motivated the researcher to study the relationship between metacognition and social intelligence of the arts and science college students. Some of the studies reviewed have correlated the study skills of different subjects like college students, university students, arts and science college students, secondary education students, etc. with some other variables. A very few studies are related to study skills as the variable and the arts and science college students as the population. It is very hard to cite a single work clubbing metacognition and social intelligence with study skills as the research variables and the arts and science college students as the population.

At this juncture, the review of literature has helped the researcher from the methodological point of view too. It is clear that most of the research studies in this chapter have adopted survey method for finding out the lapses and for further remediations. For the present study the survey method is deemed significant. Generally the study can provide opportunity for the arts and science college students to become aware of the level of metacognition and the level of social intelligence with the help of teachers or guides and to improve the study skills. The study will help the students to understand various levels of dimensions of social intelligence and metacognition in the development of effective study skills. After learning the weak areas of their personality, the students can work hard in that dimension of study skills which will help them to enhance their academic scores and social competence. It is
assumed by the investigator that the influence of metacognition and social intelligence may prove better study skills inside and outside of the classroom. Having absorbed by the above discussion, the investigator has prepared his mind to study the “Influence of Metacognition and Social Intelligence on Study Skills of arts and science college students”.

2.12 CONCLUSION

This chapter, the literature scanning shows the significance of the previous research work carried out in the areas of metacognition, social intelligence and the study skills. The study of related literature has helped the investigator to have a clear perspective of the problem chosen for the present investigation. Based on this review, a suitable methodology and a well planned procedure for the present study will be adopted and they are explained in the succeeding chapter.