REVIEW OF RELATED LITERATURE
CHAPTER – II

REVIEW OF RELATED LITERATURE

The review of related literature is the pre-requisite to actual planning and the execution of any research project. It makes the investigator aware of what has already been done in the field, what are the findings and what is being done thereby, ensuring the avoidance of unnecessary duplication. The survey of related studies provides guiding hypotheses, suggestive methods of investigation and comparative data for interpretative purposes. It also helps in planning of an adequate research design and insightful interpretation of findings. Therefore, the study of related literature is of immense importance because it stimulates and encourages the investigator to go deep into the various aspects of the problem.

In the present chapter, an attempt has been made to provide up-to-date information about the researches already done in the field of learning outcomes, emotional intelligence, metacognition, and personality traits with which the present problem is related. The studies which have been reviewed here have some bearing on the present investigation.

2.1 STUDIES RELATED TO LEARNING OUTCOMES AND EMOTIONAL INTELLIGENCE

Nowicki and Duke (1992) studied the determinants of academic success among 412 students of XI grade. It was found out that low levels of empathy, handling stress, self-confidence, self-acceptance, group dynamics and control on emotions were associated with poor school achievement.

Pool (1997) in his study found that emotional well-being is a predictor of success in academic achievement and job success among others.

Finnegan (1998) found that schools should help students to learn the abilities underlying emotional intelligence, processing those abilities or even some of them can lead to achievement from the formal education years of the child and adolescents to the adults’ competency in being effective in the workplace and in society.

Abisamra (2000) examined the relationship between emotional intelligence and academic achievement in eleventh grade students and reported that there was a positive
relationship between emotional intelligence and academic achievement.

Graczyk et al (2000) investigated the criteria for evaluating the school based social and emotional learning programmes and concluded that the social and emotional intelligence had increased teachers’ awareness that provide experiences to meet students social and emotional needs to improve their adjustment.

Izard et al (2001) evaluated an index of emotional knowledge as a long term predictor of positive and negative social attitude and academic competence in 72 children of age 5-9 years. The findings suggested that the ability to detect and label emotions facilitate positive social attitude and excellence in academic performance and a deficit in this ability contributes to behavioural and learning problems.

Crick (2002) investigated the relationship between emotional intelligence and social competence success among 31 male and 89 female adolescents in age range of 14-17 years. Adolescents were categorized as leaders, joiners and non-joiners of school clubs or organizations. Female leaders exhibited high total emotional quotient, interpersonal and adaptability scores in comparison to normative sample. There was significant difference in mean scores of leaders, joiners and non-joiners.

Derksen et al (2002) assessed the divergent validity of general adult mental ability and emotional quotient of 873 adults of age range between 18-84 years. It was found that correlations between both of them were low, both across and within gender and correlations varied with age, decreasing upon middle age and then increasing in older age. The interpersonal component scale consistently correlated negatively with intelligence quotient.

Rubin et al (2002) conducted a study on 618 business students to find out the relationship of their extracurricular involvement to four interpersonal skills. The findings showed significant relationship between them.

Thi and Kirbi (2002) conducted a study on 304 undergraduate students of age range between 17-20 years and found that overall emotional intelligence was related to their performance and in that higher emotional intelligence was associated with better scores on measures of cognitive performance.

Barchard (2003) examined the ability of emotional intelligence to predict academic achievement on a sample of undergraduate psychology students, using year-end grades as the criterion. The predictive validity of emotional intelligence was compared with the predictive
validity of traditional cognitive abilities and the Big Five dimensions of personality. In addition, the incremental predictive validity of each of these three domains was assessed. In this setting, only some measures of Emotional Intelligence predicted academic success, and none of these measures showed incremental predictive validity for academic success over and above cognitive and personality variables. It may be that the overlap between many emotional intelligence measures and traditional measures of intelligence and personality limits their incremental predictive validity in this context.

Farooq (2003) made an attempt to investigate the effect of emotional intelligence on academic performance of students. The results proved that the students who score high on emotional intelligence specifically in the areas of interpersonal skills, intrapersonal skills, adaptability, general moods, and stress management skills tend to have good academic performance as compared to those who score low on these scales. However, comparison of both genders on academic performance revealed no significant differences.

Gakhar (2003) undertook a study to find the effect of emotional intelligence, socio-economic status, levels of rural and institutional difference on the acquisition of mathematical concepts. Results obtained through t-test revealed significant difference in the acquisition of mathematical concepts due to all the variables i.e. emotional intelligence, socio-economic status and institutional differences.

Gill (2003) found that children with high EQ are more confident, are better learners, have higher self esteem, have few behavioural problems, are more optimistic and happier, handle their emotions better than others.

Shanwal (2003) conducted a study on 200 primary school children (100 rural and 100 urban) and found that all the four components of emotional intelligence, namely identification, assimilation, understanding and regulation of emotions correlate with each other and the overall emotional intelligence scores. Relationship between emotional intelligence and academic achievement was also found. Among the different eco-cultural groups, rural children have higher emotional intelligence and rural boys have highest emotional intelligence scores, while urban boys are poorest among all the children. Girls have higher emotional intelligence in comparison to boys, rural girls are better at understanding and regulating emotions while urban girls are best at identification of emotions.

Barchard (2004) examined the ability of emotional intelligence to predict academic
achievement of undergraduates (N=176) and found that only some measures of emotional intelligence predicted academic success and none of these measures showed increment predictive validity for academic success once and above cognitive and personality variables. It may be due to that the overlap between many emotional intelligence measures and traditional measures of intelligence and personality limits their incremental predictive validity in this context.

Drago (2004) examined the relationship between emotional intelligence and academic achievement in non traditional college students and found that academic achievement is related to emotional intelligence i.e. students’ ability to recognize, use and manage their emotions.

Low et al (2004) studied the effect of emotional intelligence skills on the academic achievement and test performance of high school and college students and found that emotional intelligence skills are key factors in the academic achievement and test performance of high school and college students respectively.

Parker et al (2004) examined the relationship between emotional intelligence and academic achievement in the context of transition from high school to university. During the first month of classes, 372 first-year full-time students at a small Ontario university completed the short form of the Emotional Quotient Inventory (EQ-i: Short). At the end of the academic year, the EQ-i: Short data was matched with the student’s academic record. Predicting academic success from emotional intelligence variables produced divergent results depending on how the former variable was operationalized. When EQ-i: Short variables were compared in groups who had achieved very different levels of academic success (highly successful students who achieved a first-year university GPA of 80% or better versus relatively unsuccessful students who received a first-year GPA of 59% or less) academic success was strongly associated with several dimensions of emotional intelligence.

Petrides et al (2004) examined the role of trait emotional intelligence (trait EI) in academic performance and in deviant behavior at school on a sample of 650 pupils in British secondary education (mean age %16.5 years). Trait EI moderated the relationship between cognitive ability and academic performance. In addition, pupils with high trait EI scores were less likely to have had unauthorized absences and less likely to have been excluded from school. Most trait EI effects persisted even after controlling for personality variance. It is concluded that the constellation of emotion-related self-perceived abilities and dispositions that the construct of
trait EI encompasses is implicated in academic performance and deviant behavior, with effects that are particularly relevant to vulnerable or disadvantaged adolescents.

Tiwari and Srivastava (2004) examined the role of medium of instruction and grade on the development of emotional intelligence among 270 primary school children (135 males and 135 females) from Hindi, English and mixed medium institutions of Gorakhpur of Eastern Uttar Pradesh. Findings revealed that gender had no significant main effect while medium of instruction and grade had significant main effects on emotional intelligence. Children attending English medium schools scored higher followed by Hindi and Mixed medium school children. The older children of class V scored higher than III and IV class children.

Woitaszewski (2004) conducted a study to find out the contribution of emotional intelligence to the social and academic success of gifted adolescents. The sample comprised of 39 gifted adolescents. The results of hierarchical multiple regression analysis revealed that emotional intelligence did not significantly contribute to the social and academic success of these adolescents.

Aremu et al (2005) investigated the relationship among emotional intelligence, parental involvement and academic achievement of 500 senior secondary school students ranging in age between 14-18 years. Results showed that emotional intelligence can predict academic achievement and there was a significant positive relationship between emotional intelligence and academic achievement.

Bansibihari et al (2006) examined the level of emotional intelligence of 500 secondary teachers (350 males and 150 females) ranging from 24 to 56 years of age in relation to gender and age. The results indicated that nearly all (98.4%) teachers fall under low category of emotional intelligence and found no significant difference between the emotional intelligence of males and females.

Jain and Singh (2006) concluded that there is a significant effect of emotional intelligence and personality type on role stress, the interactional effect is also found significant. The significance of difference between government and private sector doctors regarding their emotional intelligence, personality type A and B was also found. On all variables, these two groups differ significantly at 0.01 levels.

Lee and Kubilius (2006) in their study examined the level of emotional intelligence, moral judgement and leadership of more than 200 gifted high school students who participated
in an accelerative academic programme or an enrichment leadership programme. Major findings include that on emotional intelligence, gifted males were comparable to students in the age normative sample, while gifted females lagged behind the norm group. Regardless of gender, gifted students had higher scores on adaptability but lower scores on stress management and impulse control ability as compared to the normative sample. On moral judgement, gifted students were comparable to the level of individuals with masters' or professional degrees and they showed an above average level of leadership as compared to the normative sample.

Manhas and Gakhar (2006) conducted a study on 400 XI grade male and female students from government and private schools in rural and urban areas. The results revealed that there is a positive significant correlation between emotional intelligence and academic stress. There is a significant difference in the emotional intelligence of boys and girls; girls mean score is slightly higher than that of boys. There is a significant difference in the emotional intelligence of adolescents studying in government and private schools; mean scores of adolescents studying in private schools is higher as compared to the adolescents of government schools. There is a significant difference in the emotional intelligence of adolescents of arts and science stream; mean scores of adolescents of science stream is higher as compared to the adolescents studying in the arts stream. There is insignificant difference in the emotional intelligence of adolescents belonging to urban and rural areas.

Marquez et al (2006) examined relations between emotional intelligence and social and academic outcomes for 77 high school students and found that students with high emotional intelligence tended to be more pro-social and perform better in schools.

Patankar et al (2006) analysed the role of emotional intelligence in the educational and school context and described that extra curricular activities such as sports, theatre sessions, social work, solidarity day, helping day, sharing sessions, presentations and spiritual upliftment etc. can enhance emotional intelligence.

Adeyemo (2007) examined the moderating influence of emotional intelligence on the link between academic self-efficacy and achievement among 300 undergraduate university students ranged in age between16.5 to 30 years. The results demonstrated that emotional intelligence and academic self-efficacy were significantly correlated with academic achievement. The moderating effect of emotional intelligence on the relationship between
academic self efficacy and achievement was also established.

Delcourt et al (2007) investigated academic and affective changes in elementary school students during their first 2 years in a gifted programme. Students were assessed during the fall of one year and the spring of next year. Subjects were from 14 different schools in 10 states and included African American and Non-Hispanic students. The study compared students enrolled in gifted programmes, high achieving students from districts in which no programme was available at the designated grade levels and non-gifted students in regular classrooms. This project focused on academic and affective student outcomes through multiple administrations of an achievement test, a self-perception survey and a motivation theory. Results revealed that there were differences in cognitive and affective outcomes across programme types.

Done (2007) studied the effect of emotional intelligence development programme on higher secondary students. For investigation 1,577 students of arts, science and commerce faculties from 11 junior colleges were selected as sample through random sampling. Findings revealed that the emotional intelligence between arts, science and commerce students in all junior colleges was the same. The emotional intelligence between boys and girls, rural and urban students was the same in all junior colleges. Moreover, emotional development programme was found to be effective for the development of the component of empathy in emotional intelligence of arts, science and commerce students.

Alumran and Punamaki (2008) examined gender and age differences in 312 Bahraini adolescents selected randomly from intermediate and secondary schools and university of Bahrain. The results showed that gender, but not age was significantly associated with emotional intelligence.

Babu (2008) conducted a study on 86 secondary school students (Age Mean=15.43, SD=0.91) of Malappuram district of Kerala. Results reveal that secondary school students have a good level of emotional intelligence and girls are more intelligent than boys. Significant relationship between emotional intelligence and social science achievement was found. But non significant relationship was found between emotional intelligence and academic achievement of boys and girls.

Singh et al (2008) studied the impact of locale and gender on emotional intelligence of 400 adolescents (200 males and 200 females) from various schools of Varanasi. The findings revealed that emotional intelligence differed significantly in rural and urban adolescents,
indicating urban adolescents better than rural adolescents. Male and female adolescents do not exhibit significant difference in their emotional intelligence.

Sridevi and Parveen (2008) conducted a study on 200 students of 10 colleges of Mysore city. The results revealed that there was a positive and highly significant relationship between emotional intelligence and scholastic achievement of higher school students. Significant difference was found in emotional intelligence among higher secondary students with respect to their gender. But no significant difference was found in their emotional intelligence with respect to the type of college in which they were studying.

Subramanyam and Rao (2008) assessed the impact of gender on emotional intelligence and academic achievement of 200 secondary school students. It was concluded that there is no significant difference with regard to the impact of gender on emotional intelligence and academic achievement. Besides, no relationship was found between academic achievement and emotional intelligence.

Dey (2009) examined the influence of emotional intelligence on academic self-efficacy and achievement of 150 undergraduate students at Raipur in the state of Chattisgarh. Their age ranged between 18 to 20 years with mean age of 19 years. The result demonstrated that emotional intelligence and academic self-efficacy significantly co-related with academic achievement.

Gowdhaman and Murugan (2009) studied emotional intelligence among B.Ed teacher trainees. The sample comprised 300 teacher trainees studying in the five B.Ed colleges of Salem district in Tamil Nadu. The results concluded that gender and type of institution cause significant mean difference in the emotional intelligence of the college students.

Neogi (2009) conducted a study to assess the emotional component of affective learning of the higher secondary students (60 males and 60 females) of Kolkata. The mean values indicated that, in general, the students scored low on both the indicators of emotional development. The findings implied that there is a need to improve our educational system for developing the emotional component of the affective domain of the learners.

Panda (2009) studied the emotional intelligence of 130 pupil teachers belonging to different localities and genders in relation to their personality traits. Findings of the study revealed that there was significant positive correlation between emotional intelligence and normal behavior of pupil teachers; significant and negative correlation between emotional intelligence and academic achievement.
intelligence and neurotic behaviour of pupil teachers; significant difference between normal and neurotic behavior of pupil teachers; no significant difference between males and females as well as between rural and urban pupil teachers in emotional intelligence.

Singh and Kumar (2009) conducted a research on 74 secondary school teachers of convent schools and saraswati schools to analyze their emotional intelligence. The results indicated that emotional intelligence of teachers of convent and saraswati schools differ significantly. It was also observed that saraswati school teachers were good in self-motivation, value orientation and commitment whereas convent school teachers were better on self-awareness, self-development, managing relation, integrity and altruistic behaviour aspects of emotional intelligence.

Indu and Kumari (2010) conducted a study on undergraduate and postgraduate students from various colleges in Coimbatore city. The sample size was 504 students. Results revealed insignificant differences between male and female students on emotional intelligence. Whereas significant differences were found among college students with respect to the specialization of subject (arts, science and commerce).

Kaur and Neetu (2010) explored the impact of gender and style of learning and thinking (SOLAT) on emotional intelligence on a sample of 200 adolescents through descriptive method of research. Results show that the main effect of gender on emotional intelligence among adolescents turned out to be insignificant. It was also shown that males with right and left hemispheric dominance are more emotionally intelligent than the females, though not significantly so.

Shipley et al (2010) studied the relationship between emotional intelligence and academic performance on a sample of undergraduate business students (N=193). Emotional intelligence was not significantly associated with academic achievement, however, students in the mid-range GPA (grade point average) had a significantly higher mean “well-being” factor score than students in the lower and higher range GPA.

2.2 STUDIES RELATED TO LEARNING OUTCOMES AND METACOGNITION

Swanson (1990) while studying the influence of metacognitive knowledge found that students with high metacognitive skills outperformed those with lower metacognitive skills in
problem solving tasks regardless of their overall aptitude. Metacognition and general aptitude appears to operate independent processes.

Neihaus L. (1995) reported that metacognitive skills required for success in higher education programs require deliberate and ongoing practice. Most people, especially beginners, novices and less able persons do not seem to develop the skills of thinking to the fullest. The metacognitive skills of learning, thinking and problem solving are as much as a part of the educational processes as are the skills of reading and computation.

Rasnak (1995) while studying metacognitive dimensions and use of learning strategies by adult college students and traditional age college students found that the two groups of subjects differed significantly in their concepts of the learning process, in their level of metacognitive knowledge about how to learn and in their use of learning strategies.

Entwistle and Tait (1996) found that students using strategic approach are good at organizing their work, managing their time and work hard in their studies. They care about their working conditions and have clear goals for their studies.

Hindi et al (1996) examined the metacognitive awareness and perceived attributions for academic outcomes for a population (N=78) of at risk college students. All participants had a grade point average below 2.0 and were considered at risk for completing their programmes. Results indicated that these at risk students may be able to gain in metacognitive awareness as a result of instruction in academic study skills. A significant correlation between participants’ metacognitive awareness score and total score for controllable attributions for success suggested that participants who tended to be more aware of their reading processes also tended to attribute success to causes within their control. Findings also suggested the need for training in metacognitive awareness and attribution training within academic support courses.

Lindner et al (1996) showed a strong correlation between metacognition and degree completion. Students with higher metacognitive skills outperformed those with lower metacognitive skills in problem solving tasks, regardless of their overall aptitude. It is more important for success in graduate school than in undergraduate school. Motivation is an important element of success of both levels. Self-regulated learners were described as active and independent learners, while other learners were more passive and instructor dependent.

Palladino et al (1997) investigated the relationship between reflective or impulsive cognitive style, metacognitive functioning and depression among 56 junior high school students
of grades 6, 7 and 8. Analysis showed that subjects with impulsive cognitive style had significantly lower scores than those with reflective cognitive style in monitoring of comprehension of text.

Landine and Stewart (1998) while studying relationship between metacognition, motivation, locus of control, self-efficacy and academic achievement on a sample of 108 students studying in 12\textsuperscript{th} grade found that there exists significant positive relationship between metacognition, locus of control, self-efficacy and academic achievement.

Schmidt and Hunter (1998) had shown that non cognitive measures provide a 20\% improvement over cognitive ability measures in predicting training success and job performance.

Schraw (1998) summarized three sources of metacognitive knowledge in adults. The first was direct learning in which the learner receives instructions to increase declarative, procedural and conditional knowledge. Techniques, such as modeling instructors, guided practice and independent practice can promote strategies for reading, study skills and other cognitive activities. Second, peer-regulated learning contributes to one’s metacognitive skills, co-operative learning groups are excellent for increasing self-efficacy, strategy selection, conditional knowledge and self-regulation of learning. The third source of metacognitive knowledge is autonomous learning in which the learner constructs knowledge and strategies for domain-relevant tasks. Existing strategies may be modified, adapted or combined with creative input as the learner encounters new situations.

Ponter (1999) evaluated the effects that musical performance has on children’s academic performance and their thinking abilities. He gave the impression that music plays an important role in academic performance. It enhances the higher brain functions required for mathematics, science and engineering.

Schouwenburg and Kossowska (1999) had found that strategic approaches to studying and work discipline are predictors of a good study result.

Baker and Cerro (2000) while assessing metacognition in children and adults had shown that students who are high achievers in academic learning domains such as reading, writing, math and science also exhibit higher levels of metacognitive knowledge about the domain and have developed greater abilities in self regulation.
Schraw et al (2000) concluded that adults typically monitor their own performance with a moderate degree of accuracy and that accuracy of monitoring improves when tests are easier and cover more factual information. They also concluded that proficiency of monitoring seems to be independent of intellectual ability, knowledge domain, ease of learning judgements and that monitoring ability appears to improve with practice.

Everson and Tobia (2001) in a metacognitive analysis reported that there is a difference in the metacognition of effective learners and ineffective learners. The effective use of metacognition has been shown to predict learning performance.

Justice and Dorman (2001) compared metacognitive difference between traditional age (18-24 years) and non-traditional age (24-64 years) college students and identified a number of differences between the two groups.

Singhal (2001) conducted a research on the role of metacognitive awareness in the reading comprehension process and concluded that less effective readers often have misconception about the reading process, fail to monitor their comprehension, underutilize effective reading strategies, and employ fewer reading strategies when reading. Skilled readers on the other hand, know and use many different strategies in coming to terms with text. They employ both “bottom-up” and “top-down” reading strategies, use a wider range of strategies and use them more frequently and employ metacognitive knowledge, that is knowledge of when and how comprehension and monitoring processes apply.

Valot (2002) in a study investigated that work environment provide opportunities to observe metacognition as it applies to job challenges. This is the ecological approach to the study of metacognition, where external behavior was compared with self-reports provided by subjects, workplace challenges often include making risky business decisions without complete knowledge and uncertainty about one’s own performance.

Joshi and Sharma (2003) explored and compared the developmental trends of different cognitive variables among 146 students and found no significant difference between the cognitive development of boys and girls. These abilities increase with age. However, at a certain age boys are more developed in verbal reasoning than girls, while girls are more developed in abstract reasoning.

Cooper (2004) looked for evidence that metacognitive skills improve with age, particularly in professional teachers. Teachers working in various grade levels from preschool
to post secondary were compared. Non significant differences were found among teachers who teach different grade levels, however, results indicated that metacognitive scores improve with age and years of teaching experience.

Huang (2005) conducted an action research study and found that students generally held positive views towards metacognition training incorporated with the regular EFL (English as Foreign Language) curriculum.


Gakhar (2006) while studying academic achievement of students in relation to their preferred learning styles and study skills inferred that the students who had stronger preference for thinking style were likely to get higher academic marks in the examination or vice versa. It may be said that students whose academic achievement was higher, were likely to have stronger preference for the imaginative thinking style and students showing weaker preference for imaginative thinking style were likely to obtain poor academic achievement.

Garrett et al (2006) studied the development of metacognitive skills of prediction and evaluation on 202 children with and without math disability. The elementary students with and without math difficulty revealed that metacognition changes over time and the children who struggle with math have poor metacognition, specifically, they were overconfident about the number of math problems they could solve correctly and they were less accurate in evaluating their answers. It was suggested that direct classroom instruction in metacognition would be beneficial for children with math difficulty. It was also concluded that metacognition, previewing and self monitoring are important determinants of mathematics performance. Hence, these abilities can and should be developed in order to enhance students’ ability to succeed academically.

Namabu and Kunijiro (2006) investigated moderator effects of metacognition in relation to motivational beliefs, learning strategies and academic achievement in math. Participants were 543 junior high school students. Participants were categorized according to metacognition as low, middle or high. Some differences were found between the low and high metacognition groups in the relation between motivational beliefs and the understanding oriented strategy and in the relation between the learning strategies and academic achievement. In the middle
metacognition group, the relationships were weaker than the other two groups. It was inferred that metacognition has quadratic effects for these relationships.

Reilly and McNamara (2007) examined how well cognitive abilities predict high school students’ science achievement as measured by traditional content-based tests. Students (N=1,651) were assessed on their science knowledge, reading skills and reading strategy knowledge. The dependent variable content-based science achievement was measured in terms of students’ comprehension of a science passage, science course grade and state science test scores. The cognitive variables reliably predicted all three measures of science achievement and there were also significant gender differences. Reading skills helped the learners compensate for deficits in science knowledge for most measures of achievement and had a larger effect on achievement scores for higher knowledge than lower knowledge students.

Stewart et al (2007) conducted a research on 214 pre service and experienced teachers. Results indicated that metacognition improves significantly with age and with years of teaching experience. Male and female participants showed insignificant difference in metacognition and teachers of grades from preschool to post-secondary also showed non significant difference in metacognition.

Philip and Babu (2008) studied the difference in the meta-cognitive awareness of 200 teacher trainees in Kerala in respect to their gender, marital status and training period. It was found that teacher trainees have low meta-cognitive awareness. Male teacher trainees, unmarried teacher trainees and trainees who have completed teaching practice have better meta-cognitive awareness than that of their respective counterparts. Significant difference was found in meta-cognitive awareness of trainees in respect to their gender, marital status and training period.

Ngozi (2009) examined the effects of metacognitive strategies on classroom participation and student achievement in senior secondary school science classrooms. The design for the study was a quasi-experimental design involving 3 intact groups namely two treatment groups:-Think-Pair-Share (TPS) strategy and the Metacognitive Questions (MQ) and a control group. The study lasted for 11 weeks. The sample comprised of 24, 22 and 21 subjects for control, TPS and MQ respectively. A researcher made achievement test on the topic: Density was used to measure achievement in the 3 groups. Results revealed that the metacognitive strategies were most effective in enhancing academic achievement followed by
the TPS. The researcher recommends that metacognitive strategies and questions should be infused in the classroom so as to help students learn material more efficiently, retain information longer and generalize skills.

Sami and Ozgul (2009) investigated the relationship among science achievement, metacognition and epistemological beliefs of 941 altogether elementary students and found that for 4\textsuperscript{th} grade and 5\textsuperscript{th} grade students, knowledge of cognition, regulation of cognition and quick learning contributed to science achievement. For 6\textsuperscript{th} through 8\textsuperscript{th} grade students, knowledge of cognition, regulation of cognition, innate ability and quick learning contributed to science achievement. For both groups of students, while metacognition was related both to gender and socio economic status.

Kistner et al (2010) investigated teachers’ direct and indirect promotion of self-regulated learning and its relation to the development of students’ performance. Twenty German mathematics teachers with their overall 538 students (grade 9) were videotaped for a three-lesson unit on the Pythagorean Theorem. Students’ mathematics performance was tested several times before and after the observed lessons. A low-inferent coding system was applied to assess the teachers’ implicit or explicit instruction of cognitive strategies (e.g., organisation), metacognitive strategies (e.g., planning), and motivational strategies (e.g., resource management). High-inferent ratings were used to assess features of the learning environment that foster self-regulation. Results revealed that a great amount of strategy teaching took place in an implicit way, whereas explicit strategy teaching and supportive learning environment were rare. The instruction of organisation strategies and some features of the learning environment (constructivism, transfer) related positively to students’ performance. In contrast to implicit strategy instruction, explicit strategy instruction was associated with a gain in performance. These results revealed a discrepancy between the usefulness of explicit strategy instruction and its rare occurrence in classrooms.

2.3 STUDIES RELATED TO LEARNING OUTCOMES AND PERSONALITY TRAITS

Goh et al (1977) conducted a study to examine the relationship between personality fitness and academic achievement of 175 students from three different levels of education viz. university, vocational and technical institutes and high schools. It was found that only
Sharma (1981) conducted a comparative study of extraversion, neuroticism, achievement motivation and adjustment of tribal, rural and urban youth. The study employed two-way (2 * 3) factorial design with two conditions of sex (male/female) and three conditions of area (tribal, rural and urban). Through a stratified random sampling technique, 100 students from each area-tribal, rural and urban-were selected. The total sample comprised 300 subjects with an age range of 15 to 25 years from colleges of Himachal Pradesh. The findings of the study were: area emerged as a significant correlate of extraversion with means favouring urban youth followed by tribal and rural youth; area also emerged as a significant correlate of neuroticism with means favouring tribal youth followed by rural and urban youth; area emerged as a significant correlate of lie-scale (social desirability) with means favouring tribal youth followed by urban and rural youth; area emerged as a significant correlate of achievement motivation tribal and rural with means favouring urban youth followed by youth; area emerged as a significant correlate of adjustment with means favouring urban youth followed by rural and tribal youth; sex emerged as a significant determinant of extraversion, neuroticism with means favouring females; sex emerged as significant determinant of lie-scale (social desirability), adjustment, self schedule and independence with means favouring males; urban males were higher on extraversion than tribal females; the tribal males were highest and urban males lowest on the lie scale (social desirability).

Chatterji (1983) conducted a comparative study of personality, intelligence and achievement motivation of students in different academic groups. A sample of 760 male students studying in four academic groups, arts (N = 190), science (N = 180), commerce (N = 190) and agriculture (N = 200) of class XII, was drawn from nine different recognized institutions of the Varanasi region by using the purposive incidental sampling method. The major findings were: commerce and agriculture students obtained significantly higher extroversion scores in comparison to those in the arts and science groups; students of the agriculture, arts and science groups attained significantly higher neuroticism scores in comparison with those in the commerce group; out of the four academic groups, science students were the most intelligent and arts students the least; science students achieved significantly higher verbal factor and total intelligence scores in comparison with those id all
other academic groups. They were significantly superior in numerical factor of intelligence in comparison with arts and commerce students. Furthermore, they were significantly better than students in arts and agriculture groups on the reasoning factor of intelligence; commerce students ranked second in intelligence out of the four academic groups and were significantly more intelligent than those in arts on all the factors of intelligence; the agriculture group ranked third in intelligence and was significantly better than the arts group on all factors of intelligence; science students were significantly higher in achievement motivation in comparison with those in agriculture and the arts groups; students of commerce and agriculture attained a significantly higher mean achievement motive score in comparison with those in arts; scores on the extraversion scale in the commerce group were significantly higher on this dimension of personality in comparison with scores of students in the science and arts groups, whereas scores on the extraversion scale in the agriculture group were significantly higher than the scores of the arts group; score on neuroticism in the agriculture and arts groups were significantly higher in science and commerce groups; scores on intelligence test in science group were significantly higher than those in all other academic groups with respect to all factors of intelligence, namely, verbal, numerical and reasoning and scores on achievement-motivation of students of science or commerce were significantly higher than those of the other groups.

Sybouts and Krepel (1984) claimed that the extra curricular activities in education has a good deal to contribute to develop good citizens, enable pupils to communicate adequately, preparing them for economic independence, developing healthy minds in healthy bodies, preparing them for family life, directing their use of leisure time, developing a set of moral and ethical values, developing social competency, discovering special interests and capacities and developing creative expressions.

Hota (1986) conducted a study to find out the relationship of school achievement and personality traits of three sub cultures (rural, urban and tribal) of the state of Orissa. The Indian version of 10 TAT cards was presented to 108 tribal school children, 100 rural school children and 92 urban school children. Among these, 162 were boys and 138 were girls. Results revealed positive relationship between school achievement and different personality traits. Besides, girls have shown more positive and significant relationship between the personality traits and school achievement as compared to boys.
Bhagabati (1987) examined the organization of co-curricular activities and its relevance on physical, emotional, mental and social aspects of adolescents. It was found that co-curricular activities played an important role in the adjustment of physical, emotional, mental and social aspects of adolescents. Students participating in social as well as co-curricular activities were better adjusted than those who avoided or did not participate in them.

Trivedi et al (1989) examined the personality traits and emotional problems among fifty high and fifty low achieving students. It was concluded that the high achievers had significantly low levels of anxiety and high levels of neuroticism than the low achievers.

Dauber (1990) discovered that peer relations are affected by type and/or amount of giftedness, extremely mathematically or verbally talented 13 year olds (top 1 in 10,000) were compared to modestly gifted students (top 1 in 20) of similar age on measures of popularity and peer acceptance, participation in group activities and personality traits. No differences in group activities or personality traits were found. In their ratings of peer perceptions, the modestly gifted group exceeded the extremely gifted, especially the verbally gifted, in being considered athletic and popular and in social standing. The modestly gifted also rated themselves as more extroverted, socially adept and unhindered.

Sethi (1990) performed a study on personality patterns of high achieving and low achieving students in professional courses and found that personality integration including interpersonal adjustment, good mental health, steady educational aim as well as self concept are important to success as the intellective factors are crucial.

Fung and Wong (1991) studied the academic performance, personality, peer acceptance and involvement in extracurricular activities of 294 Hong Kong secondary school students. Results showed that involvement in extracurricular activities was positively related to academic performance, personality and peer acceptance.

Hafen (1993) notes that the importance of moral development in schools as the development of value systems can have an impact on shaping an individual’s sense of life meaning. The encouragement of emotional, moral and meaning centred teachings with adolescents’ should have a positive impact on their overall well being.

Maqsud (1993) investigated the relationship of some personality variables to academic attainment of secondary school pupils of 14-15 years of age. Results revealed a negative
relationship between psychoticism and academic achievement in languages but achievement was also found to be significantly negatively correlated with extraversion and neuroticism.

Blickle (1996) has compared the Five Factor Model personality traits with learning strategies and learning outcomes. He found that particularly conscientiousness and openness were related to learning style. The student’s personality was related to learning outcomes mediated by learning strategies.

De Fruyt and Mervielde (1996) while analyzing personality and interests as predictors of educational streams and achievement has shown that conscientiousness is the most important characteristic related to academic success.

Mavi (1997) in his study found that there was a significant positive correlation between academic achievement and personality, adjustment, intelligence, self concept and level of aspirations of adolescents.

Joshi (2000) investigated the effect of gender and urban/rural area of residence on neuroticism, extraversion and academic achievement. The sample chosen for the study was 400 students of 8th class. The results revealed that there was a difference between boys and girls of rural area on neuroticism and extraversion. Results also indicated that differences exist between the girls of urban and rural area on neuroticism, extraversion and academic achievement. While the boys of urban and rural area differs on extraversion and academic achievement.

Newsome et al (2000) examined that there was a significant correlation between scores on personality measurements, emotional quotient inventory and academic achievement. Also both cognitive ability and personality (extraversion and self control) were significantly associated with academic achievement.

Heaven et al (2002) examined how personality variables measured by Junior Eysenck Personality Questionnaire adjective scales for Agreeableness and Conscientiousness were related to self rated academic performance in adolescents. They found a negative correlation with psychoticism and positive correlation with agreeableness and conscientiousness.

Kyllonen et al (2002) found that in higher education faculty members believe that non cognitive variables are important determinants of school success. Faculty values non cognitive qualities such as persistence, tenacity, collegiality, communication and enthusiasm as much as cognitive qualities, such as research experience and mastery of discipline for admission and as desirable outcomes.
Zsolnai (2002) conducted empirical research to define those components of social competence that influence learning motivation and academic achievement. The following components were assessed: dynamism, dominance, cooperativeness, politeness, scrupulousness, perseverance, emotional control, impulse control, openness, external internal control and attitude and attachments of adolescents of age group of 12 and 16 years. The results revealed that assessed social factors are not affected by age. The correlation analyses had shown that importance of intrinsic motivation within learning motivation manifested in its strong relationship to the variables representing the social factors of personality.

Barbaranelli et al (2003) reported a negative correlation between academic achievement as measured by grade point average and self reported energy. However, positive correlation between academic achievement and intellect/openness and conscientiousness in elementary and junior high school children was also found.

Gakhar and Sood (2003) conducted a study to find out the relationship of personality traits, creativity and problem solving ability with mathematical achievement of students of residential and non-residential schools. Problem solving ability was found to be significantly and positively correlated with mathematical achievement in both samples. Only one measure of creativity i.e. fluency was found to be positively significant with mathematical achievement in residential school sample. In residential school sample, seven personality factors i.e. factors A, B, E, F, H, N and Q, whereas in non residential school sample, five personality factors, i.e. factors A, B, C, G and I show positive and significant correlation with mathematical achievement.

Hair and Graziano (2003) analysed the correlations between high school GPA (grade point average) and Big Five Personality Traits assessed by bipolar adjective scales when the participants were in middle school. A significant positive correlation was found for all personality factors except emotional stability which was insignificantly correlated to GPA.

Kumar (2005) studied the personality traits of 240 male and female students studying different streams (science, commerce and humanities). Analysis of Variance has shown that all the students vary in personality traits. Male and female students differ significantly in traits B (less intelligent v/s more intelligent), C (affected by feelings v/s emotionally stable), F (serious v/s happy-go-lucky), G (expedient v/s conscientious), L (trusting v/s suspicious), M (practical v/s imaginative), Q1 (conservative v/s experimenting). Students studying science and
commerce streams differed on traits I (tough minded v/s tender hearted) only. Whereas students of commerce and humanities streams differed on traits B (less intelligent v/s more intelligent), F (serious v/s happy-go-lucky), G (expedient v/s conscientious), M (practical v/s imaginative), Q1 (conservative v/s experimenting) and Q3 (uncontrolled v/s controlled). The students of science and humanities streams differed on traits A (reserved v/s outgoing), B (less intelligent v/s more intelligent), I (tough minded v/s tender hearted) and Q3 (uncontrolled v/s controlled).

Kaur and Kaur (2005) analysed the personality traits of 200 adolescents (100 schedule caste and 100 non schedule caste) in relation to their academic achievement and found that out of 16 personality factors, factor A (reserved v/s outgoing), factor H (shy v/s venturersome), factor Q3 (indisciplined v/s controlled) have significant positive correlation with academic achievement of scheduled caste adolescents. While in case of non scheduled caste sample, significant but negative correlation was obtained only in factor F (sober v/s happy-go-lucky).

Kumar and Singh (2005) while studying personality adjustment of Urban and rural adolescents found that male and female adolescent students of rural areas have lower mean scores than the corresponding mean scores of male and female adolescents of urban areas in all the areas of personality adjustment viz. health, home, social, emotional and economic.

Chowdhury (2006) had investigated the impact of personality traits on students’ academic achievement in an undergraduate marketing course on a sample of 130 students (44% males and 56% females). All personality traits except extraversion positively and significantly predicted students’ overall grade. Extraversion was positively related but not statistically significant. Openness and neuroticism were more important predictors of overall grade of the students than agreeableness and conscientiousness.

Laidra et al (2006) conducted a cross sectional study from elementary to secondary school children to see how academic achievement is related to personality traits and intelligence. A sample of 3618 students (1746 boys and 1872 girls) from all over Estonia attending grades 3, 4, 6, 8, 10 and 12 was taken. Among different personality traits openness, agreeableness and conscientiousness correlated positively and neuroticism correlated negatively with academic achievement as measured by grade point average in almost every grade.

Chaudhary (2007) made a comparative study of 500 urban and rural boys and girls in relation to their personality characteristics. Boys and girls differed on factors B, G, H, I, Q and
Q4. Boys were found to be more intelligent having super ego strength, venturesome, tough minded, apprehensive and relaxed as compared to girls who were found to be less intelligent than boys having weaker super ego, shy, timid, self-assured and tense. Urban boys showed higher score in favour of factors A, B, C, E, F, G, H, Q2 and Q3 revealed that they tended to be good natured, ready to co-operate, showing higher scholastic mental capacities, solving emotional problems, demanding in their work, more cheerful, talkative, responsive, socially bold, ready to try new things, preferred their own decisions, socially aware and careful. Rural boys showed higher scores on factors I and O (tender minded and depended to others). Urban girls showed more scores in factors A, B, C, D, E, F, G and Hand thus, found to be good natured, ready to co-operate, showing higher scholastic mental capacities, solving emotional problems, demanding in their work, more cheerful, talkative, responsive and socially bold. Rural girls showed higher scores on factors I, Q2, Q3 and Q4 and were found to be tender minded, socially aware, careful and tense.

Chadha and Kaur (2008) conducted a study on 200 adolescents (100 girls and 100 boys) studying arts and science stream of Ludhiana district to find out the impact of optimistic and pessimistic attitude on the academic achievement of adolescents and found that the optimistic-pessimistic attitude has significant relationship with academic achievement among male and female adolescents and adolescents of arts and science stream.

Kadivar and Shokri (2008) analysed the effects of personality traits on learning approaches, thinking styles and academic achievement on a sample of 419 students (214 males and 205 females). The obtained results indicated that openness and conscientiousness have significant negative effect and neuroticism has a significant positive effect on surface learning approach, while openness and conscientiousness have a significant positive effect on deep learning approach.

Nagarjuna and Mamidenna (2008) made a comparative study on personality characteristics of commerce and engineering graduates. A sample of 200 graduates (100 commerce and 100 engineering) was taken for study. Results showed that there were no significant differences among students in the personality profiles based on academic background except for measures of sensitivity and perfectionism. Another finding also indicated that there were significant gender based differences in some measures of personality like warmth, sensitivity, vigilance, abstractedness and openness to change.
Sultania et al (2009) made an attempt to investigate the level of anxiety, hostility and depression among postgraduate students (200 males and 200 females) between age range of 22-24 years. The result demonstrated that females have more manifest anxiety, hostility and depression in comparison to their male counterparts.

Singh and Sharma (2010) studied the personality traits of the inter university level volleyball players. The subjects were ranging from 19 to 25 years. The results showed that all the selected subjects fall under the average category in neuroticism trait, majority of subjects have secured average to above average category in extraversion. It was concluded that the players who have secured lower in extroversion and inclined towards introversion need to be trained and brought to the streamline.

Vituli and Zupan (2010) examined the predictive value of adolescents’ personality trait ratings by different groups of informants in explaining academic achievement while controlling for students’ sex and their mothers’ education. The inventory of Child/Adolescent Individual Differences was employed as a measure of students’ personality traits at the end of elementary schooling (mean age=14.7 years) and two years later when the participants attended secondary schools. Among personality variables, conscientiousness and low extraversion were consistently predictive of GPA.

2.4 STUDIES RELATED TO ACADEMIC AND NON-ACADEMIC ACHIEVEMENTS

Fung (1969) investigated the relationship of extracurricular with some social and personal factors and found a negative relationship between participation in extracurricular activities and academic achievement.

Hinck and Brandell (1999) conducted a study over students enrolled in kindergarten through twelfth grade and found that students’ performance improved as a result of service learning.

Simon (2001) performed a study to determine the relationship between academic performance and community partnerships and found that regardless of students’ background and prior achievement, volunteering activities positively influenced students’ grades, attendance and behaviour.
Broh (2002) indicated that participation in sports is generally unrelated to educational achievement. He found that playing sports in high school has no significant effects on grades and standardized test scores in the general student population. Whereas longitudinal studies on school sports have suggested that such participation raises students’ grades and test scores. He further found that participation in interscholastic sports promotes students’ development and social ties among students, parents and schools and these benefits explain the positive effect of such participation on achievement.

Darling et al (2005) found that students who did not participate in any extracurricular activities showed the poorest adjustment with grades, attitude toward school and academic aspirations, while non sport extracurricular activities showed the most positive adjustment with sports related activities.

Fujita (2005) examined the effects of extracurricular activities on the academic performance of junior high school students. The sample comprised 52 students (35% in 6th grade, 35% in 7th grade and 30% in 8th grade). The results revealed that the playing games, watching television and participating in community service improves academic performance, while playing a musical instrument does not improve academic performance. Therefore, it was concluded that extracurricular activities affect academic performance and the affect depends on the specific activities in which the student is involved.

Mehra and Mondal (2005) examined the effect of peer tutoring on learning outcomes of high school science students. A sample of 108 students (54 high intelligence and 54 low intelligence) was taken for study. The results revealed that peer tutoring exhibited better gain in achievement in science compared to those taught with traditional instructions.

Siva Prasadh (2005) studied social integration and achievement of residential school students and found that there exists significant positive relationship between academic achievement and social integration among pupils of residential schools.

Moriana et al (2006) while studying the influence of extracurricular activities on academic performance of 222 students from 12 different schools (9 public and 3 private schools) indicated that the group involved in activities outside the school yielded better performance, especially those that participated in study related activities, tutoring support or private classes and those that participated in mixed activities (both sports and academic).
Polasek and Kolcic (2006) conducted a study on 204 final year medical students coming from urban and rural backgrounds. Students from rural and remote backgrounds were the commonly involved in extracurricular activities, such as membership in student organizations and various hobbies.

Kumar and Arockiasamy (2010) conducted a study on a sample of 1000 students selected randomly from the higher secondary schools of three educational districts namely Thuckalay, Nagercoil and Kuzhithurai of Kanyakumari revenue district. Findings revealed that private school students had higher value perception of co-curricular activities than the government school students. Where as insignificant relationship was found between values of co-curricular activities as perceived by higher secondary students and their academic achievement with regard to their sex, native place, school category, school locality and family nature.

It is indicated from this review that there has been no similar study aimed at studying adolescent’s learning outcomes in relation to their emotional intelligence, metacognition and personality traits. A few researchers, however, have made attempts in this direction, but the present investigation carries distinction and novelty over the previous researches.

2.5 HYPOTHESES

Hypothesis is a tentative generalization or a proposition, the validity of which is to be tested. In the present investigation, the following hypotheses were framed on the basis of the review of the related studies and the objectives of the present study:

$H_{01}$ There exists no significant relationship between academic achievement and emotional intelligence of adolescents.

$H_{02}$ There exists no significant difference between the coefficients of correlation of adolescents having low and high emotional intelligence in relation to their respective academic achievement.

$H_{03}$ There exists no significant relationship between academic achievement and metacognition of adolescents.

$H_{04}$ There exists no significant difference between the coefficients of correlation of adolescents having low and high metacognition in relation to their respective academic achievement.
H₀₅ There exists no significant relationship between academic achievement and dimension-I (activity-passivity trait) of personality of adolescents.

H₀₆ There exists no significant difference between the coefficients of correlation of adolescents having low and high activity trait of personality in relation to their respective academic achievement.

H₀₇ There exists no significant relationship between academic achievement and dimension-II (enthusiastic-non enthusiastic trait) of personality of adolescents.

H₀₈ There exists no significant difference between the coefficients of correlation of adolescents having low and high enthusiastic trait of personality in relation to their respective academic achievement.

H₀₉ There exists no significant relationship between academic achievement and dimension-III (assertive-submissive trait) of personality of adolescents.

H₀₁₀ There exists no significant difference between the coefficients of correlation of adolescents having low and high assertive trait of personality in relation to their respective academic achievement.

H₀₁₁ There exists no significant relationship between academic achievement and dimension-IV (suspicious-trusting trait) of personality of adolescents.

H₀₁₂ There exists no significant difference between the coefficients of correlation of adolescents having low and high suspicious trait of personality in relation to their respective academic achievement.

H₀₁₃ There exists no significant relationship between academic achievement and dimension-V (depressive-non depressive trait) of personality of adolescents.

H₀₁₄ There exists no significant difference between the coefficients of correlation of adolescents having low and high depressive trait of personality in relation to their respective academic achievement.

H₀₁₅ There exists no significant relationship between academic achievement and dimension-VI (emotional instability-emotional stability trait) of personality of adolescents.

H₀₁₆ There exists no significant difference between the coefficients of correlation of adolescents having low and high emotional instability trait of personality in relation to their respective academic achievement.
H₀17 There exists no significant relationship between non academic achievement and emotional intelligence of adolescents.
H₀18 There exists no significant relationship between non academic achievement and metacognition of adolescents.
H₀19 There exists no significant relationship between non academic achievement and dimension-I (activity-passivity trait) of personality of adolescents.
H₀20 There exists no significant relationship between non academic achievement and dimension-II (enthusiastic-non enthusiastic trait) of personality of adolescents.
H₀21 There exists no significant relationship between non academic achievement and dimension-III (assertive-submissive trait) of personality of adolescents.
H₀22 There exists no significant relationship between non academic achievement and dimension-IV (suspicious-trusting trait) of personality of adolescents.
H₀23 There exists no significant relationship between non academic achievement and dimension-V (depressive-non depressive trait) of personality of adolescents.
H₀24 There exists no significant relationship between non academic achievement and dimension-VI (emotional instability-emotional stability trait) of personality of adolescents.
H₁25 Significant mean difference exists between academic achievement of male and female adolescents.
H₁26 Significant mean difference exists between academic achievement of rural and urban adolescents.
H₁27 Significant mean difference exists between academic achievement of adolescents of government and private schools.
H₁28 Significant mean difference exists between academic achievement of adolescents of arts and science stream.
H₁29 Significant mean difference exists between non academic achievement of male and female adolescents.
H₁30 Significant mean difference exists between non academic achievement of rural and urban adolescents.
H₁31 Significant mean difference exists between non academic achievement of adolescents of government and private schools.
H32 Significant mean difference exists between non academic achievement of adolescents of arts and science stream.

H33 Significant mean difference exists between emotional intelligence of male and female adolescents.

H34 Significant mean difference exists between emotional intelligence of rural and urban adolescents.

H35 Significant mean difference exists between emotional intelligence of adolescents of government and private schools.

H36 Significant mean difference exists between emotional intelligence of adolescents of arts and science stream.

H37 Significant mean difference exists between metacognition of male and female adolescents.

H38 Significant mean difference exists between metacognition of rural and urban adolescents.

H39 Significant mean difference exists between metacognition of adolescents of government and private schools.

H40 Significant mean difference exists between metacognition of adolescents of arts and science stream.

H41 Significant mean difference exists between male and female adolescents on dimension-I (activity-passivity trait) of personality.

H42 Significant mean difference exists between rural and urban adolescents on dimension-I (activity-passivity trait) of personality.

H43 Significant mean difference exists between adolescents of government and private schools on dimension-I (activity-passivity trait) of personality.

H44 Significant mean difference exists between adolescents of arts and science stream on dimension-I (activity-passivity trait) of personality.

H45 Significant mean difference exists between male and female adolescents on dimension-II (enthusiastic-non enthusiastic trait) of personality.

H46 Significant mean difference exists between rural and urban adolescents on dimension-II (enthusiastic-non enthusiastic trait) of personality.
H.47 Significant mean difference exists between adolescents of government and private schools on dimension-II (enthusiastic-non enthusiastic trait) of personality.

H.48 Significant mean difference exists between adolescents of arts and science stream on dimension-II (enthusiastic-non enthusiastic trait) of personality.

H.49 Significant mean difference exists between male and female adolescents on dimension-III (assertive-submissive trait) of personality.

H.50 Significant mean difference exists between rural and urban adolescents on dimension-III (assertive-submissive trait) of personality.

H.51 Significant mean difference exists between adolescents of government and private schools on dimension-III (assertive-submissive trait) of personality.

H.52 Significant mean difference exists between adolescents of arts and science stream on dimension-III (assertive-submissive trait) of personality.

H.53 Significant mean difference exists between male and female adolescents on dimension-IV (suspicious-trusting trait) of personality.

H.54 Significant mean difference exists between rural and urban adolescents on dimension-IV (suspicious-trusting trait) of personality.

H.55 Significant mean difference exists between adolescents of government and private schools on dimension-IV (suspicious-trusting trait) of personality.

H.56 Significant mean difference exists between adolescents of arts and science stream on dimension-IV (suspicious-trusting trait) of personality.

H.57 Significant mean difference exists between male and female adolescents on dimension-V (depressive-non depressive trait) of personality.

H.58 Significant mean difference exists between rural and urban adolescents on dimension-V (depressive-non depressive trait) of personality.

H.59 Significant mean difference exists between adolescents of government and private schools on dimension-V (depressive-non depressive trait) of personality.

H.60 Significant mean difference exists between adolescents of arts and science stream on dimension-V (depressive-non depressive trait) of personality.

H.61 Significant mean difference exists between male and female adolescents on dimension-VI (emotional instability-emotional stability trait) of personality.
H_{62} Significant mean difference exists between rural and urban adolescents on dimension-VI (emotional instability-emotional stability trait) of personality.

H_{63} Significant mean difference exists between adolescents of government and private schools on dimension-VI (emotional instability-emotional stability trait) of personality.

H_{64} Significant mean difference exists between adolescents of arts and science stream on dimension-VI (emotional instability-emotional stability trait) of personality.

H_{65} There will be no significant interactional effect of gender, locale, type of school and subject stream on academic achievement of adolescents.

H_{66} There exists no significant interactional effect of gender, locale, type of school and subject stream on emotional intelligence of adolescents.

H_{67} There exists no significant interactional effect of gender, locale, type of school and subject stream on metacognition of adolescents.

H_{68} There exists no significant interactional effect of gender, locale, type of school and subject stream on dimension-I (activity-passivity trait) of personality of adolescents.

H_{69} There exists no significant interactional effect of gender, locale, type of school and subject stream on dimension-II (enthusiastic-non enthusiastic trait) of personality of adolescents.

H_{70} There exists no significant interactional effect of gender, locale, type of school and subject stream on dimension-III (assertive-submissive trait) of personality of adolescents.

H_{71} There exists no significant interactional effect of gender, locale, type of school and subject stream on dimension-IV (suspicious-trusting trait) of personality of adolescents.

H_{72} There exists no significant interactional effect of gender, locale, type of school and subject stream on dimension-V (depressive-non depressive trait) of personality of adolescents.

H_{73} There exists no significant interactional effect of gender, locale, type of school and subject stream on dimension-VI (emotional instability-emotional stability trait) of personality of adolescents.