CHAPTER III

REVIEW OF RELATED LITERATURE

Review of related literature is an important prerequisite of actual planning and execution of any research work. In order to benefit from previous research, a survey of related literature is imperative. “A summary of the writings of recognized authorities and of previous research provides evidence that the researcher is familiar with what is already known and what is still unknown and untested. Because effective research is based upon past knowledge, this step helps to eliminate the duplication of what has been done and provides useful hypotheses and helpful suggestions for significant investigation” (Best & Kahn, 2007, p.37). The availability and utilization of adequate source of related information enable the researcher to have a clear picture of various aspects of the problem area to carry out the work successfully.

The studies reviewed are arranged in the following sections.

3.1 Studies related to mathematics achievement.

3.2 Studies related to emotional intelligence

3.3 Studies related to locus of control

3.4 Studies related to rigidity.

3.1 STUDIES RELATED TO MATHEMATICS ACHIEVEMENT

Studies reviewed in this section are further subdivided into the following sub sections:

3.1.1 Studies Related to Mathematics Achievement and Locus of Control
3.1.2 Studies Related to Mathematics Achievement and Rigidity

3.1.3 Other Studies Related to Mathematics Achievement

3.1.1 Studies Related to Mathematics Achievement and Locus of Control

Sharma (1982) conducted a study to find out the effect of locus of control and test anxiety on performance of secondary school students following programmed instructional material in a segment of modern mathematics. Major findings were: (i) the performance of the students with high locus of control on the criterion test following programmed instruction material on Sets, Relations and Functions was better in comparison to the students with average and low locus of control, (ii) the performance of the students on the criterion test with low locus of control did not differ significantly from those with average locus of control, (iii) the students with high test anxiety showed better performance on the criterion test than those with average and low test anxiety, following programmed instruction material in a segment of modern mathematics (Sets, Relations and Functions).

Horak & Horak (1982) studied the influence of student locus of control and teaching method on mathematics achievement. The effects that locus of control has upon mathematics achievement were analyzed using inductive and deductive methods of instruction. The analysis revealed a significant interaction for the subtest of items testing lower-level understanding.

Goetzfried & Hannafin (1985) explored the effect of locus of control when using computer assisted instructional programmes on the accuracy and efficiency of
learning mathematical rules. Forty-seven seventh grade remedial mathematics students were randomly assigned to one of three conditions for learning a mathematics rule about dividing by two, three, and five adaptive control, learner control with advisement, and linear control. The results showed that there were no significant differences in mathematics achievement among the three groups.

Verma (1996) made an attempt to explore whether study habits and locus of control exert significant influence on academic performance of secondary school students in different courses. He found that study habits had significantly main effect on academic performance in Hindi, English and Social Science. Locus of control had significant main effect on academic performance in Mathematics, English, Hindi, General Science and Social Sciences. In case of interaction it was seen that at high level of locus of control, study habits did not appear to make any significant difference in mathematics or general science whereas at low-level locus of control, study habits produced differences in performance in both mathematics and general science. Low locus of control group of students had higher level of academic performance than high locus of control group in Mathematics, Hindi, English, General Science and Social Science.

Gregoire & Algina (2000) used theory on parenting styles as a theoretical framework to examine the relationship of aspects of school climate to the mathematics achievement, academic engagement and locus of control orientation of eighth graders. Hierarchical linear modelling techniques were used to examine the relationship between students’ and administrators’ perceptions of school climate and
students’ achievement, engagement, and control orientation. With students’ individual background characteristics as well as aggregated socio-economic status of the schools controlled, authoritarian school climates were associated with lower academic engagement and control perceptions for eighth graders, as well as more differentiating effects of prior grades on their mathematics achievement, a greater gender gap in academic engagement, and increased differentiating of students’ socio-economic status on their mathematics achievement and perceptions of control.

Abu-Hilal (2002) tested predictions for I/E (internal-external) frame of reference model and extended this model to include locus of control. A sample of upper elementary (n = 181) and junior high (n = 191) students in the United Arab Emirates participated in the study. Structural equation modelling analysis provided support to the external comparison predictions of the I/E frame of reference model for boys and to a lesser extent for girls. Relations among achievement, self-concept and locus of control were not the same across gender. Mathematics self-concept significantly predicted both internal and external locus of control only for girls. Verbal self-concept failed to predict internal and external locus of control, but verbal achievement did not have such effects.

Borman & Overman (2004) identified the individual characteristics that distinguished academically successful or resilient, elementary school students from minority and low-socio-economic status (SES) backgrounds from their less successful, or non-resilient, counterparts. Results supported the applicability of uniform individual-and school-level models of academic resiliency to all low-SES
students, regardless of their race. Greater engagement in academic activities, an internal locus of control, efficaciousness in mathematics, a more positive outlook toward school, and more positive self-esteem were characteristics of all low-SES students who achieved resilient mathematics outcomes.

Rubie, Townsend & Moore (2004) studied motivational and academic effects of cultural experiences for indigenous minority students in New Zealand. Children aged seven to ten from the indigenous Maori minority group in New Zealand participated in a yearlong cultural intervention designed to increase self-esteem and locus of control. The intervention incorporated good teaching practices linked to self-esteem and locus of control with principles of culturally relevant teaching. The study revealed that compared to matched children who did not participate in the intervention, the focus children had significantly more positive self-esteem and locus of control after the intervention than before. Parallel changes were apparent in a measure of scholastic aptitude, but not on measures of reading, mathematics and listening achievement.

Gill, Ashton & Algina (2004) hypothesized that dimensions of parenting styles-demandingness (academic press) and responsiveness (communal values)- predict students’ mathematics achievement, engagement, and locus of control. Findings indicate that students in responsive schools had smaller differences in mathematics achievement and internal control attributable to SES, suggesting that responsive schools may increase equity.
3.1.2 Studies Related to Mathematics Achievement and Rigidity

Jones (1974) investigated achievement and attitude changes of students, and attitude changes of teachers in open-space and closed-space classrooms. Two hundred students stratified on sex of elementary school were randomly selected from open-and closed-spaced high schools. Students were pre- and post-tested on reading comprehension, language usage, mathematics, science, and attitudes towards school, teachers, counsellors, administrators and subject areas. Teachers were pre- and post-tested with the Minnesota Teacher Attitude Inventory. Data were submitted to analysis of covariance, with significance level set at .05. There were no significant differences in English or Science achievement; students who had attended closed-space elementary school showed greater mathematics achievement in both high school situations. Several attitudinal differences were observed for subgroups of the student population; overall attitudes were positive in both treatment groups. Teacher attitudes were also positive. Teachers in open-space classrooms became more positive on rigidity and severity in handling pupils, while closed-space teachers became less so.

Dover & Shore (1991) studied giftedness and flexibility on a mathematical set-breaking task. Nineteen gifted students and eleven average students, age eleven, completed Einstellung Test Problems and were queried about their metacognitive knowledge. A three-way interaction among giftedness, speed, and flexibility was found, with metacognitive knowledge as the criterion. Mental rigidity of the students was assessed. The study revealed that regardless of speed, inflexible children had less metacognitive knowledge than flexible children.
Zhang (1996) in a seminar on mathematics education examined the present states of problem solving in school mathematics in China, Japan, and the U.S. The focus of the seminar was to explore classroom practices in problem solving and teacher training aspects of problem solving in school mathematics. Presentations contained various issues related to problem solving in school mathematics including ‘high achievement versus rigidity: Japanese students’ thinking on division of fractions’.

3.1.3 Other Studies Related to Mathematics Achievement

Clark & Grady (1978) conducted a study on Annehurst Curriculum Classification System (ACCS) variables as dimension of aptitude treatment interactions. The subjects were thirty-four fourth and fifth graders in three open space individualized mathematics classrooms. When only ACCS variables were the dimensions of the aptitude treatment interaction analysis, no significant interactions were found. When number facility was used as the aptitude and material classification treatment, there were significant disordinal interactions for the ACCS categories of experience and emotion-personality.

Gourikkutty (1993) conducted a study to ascertain ability correlates of secondary school mathematics achievement measures using Bloom’s Taxonomy with special reference to cognitive domain. Major findings of the study were: (i) the three techniques used in the study for exploring the association between different ability variables and cognitive mathematics achievement provided confirmed evidence of association between ability variables and different cognitive achievement variables,
although association varied from one structure to another, (ii) the significant correlations obtained among independent and dependent variables were visible in another form in the paired test of significance for the three achievement levels, and (iii) the cumulative effect of association of different variables is reflected as differing factor structures for the three achievement levels, all of which differ from factor structure for the total sample.

Allen & Carifio (1995) conducted a study on methodology for the analysis of emotional experiences during mathematical problem solving. The path or trajectory of one’s emotional experience reveals how well the individual copes with the frustration of problem solving by indicating how quickly recovery takes place.

Chen & Stevenson (1995) examined motivation and mathematics achievement of Asian-American, Caucasian American, and East Asian students. The study revealed that mathematics scores of the Asian-American students were higher than those of Caucasian-American students but lower than those of Chinese and Japanese students. Factors associated with the achievement of Asian-American and East Asian students included having parents and peers who hold high standards, believing that the road to success is through effort, having positive attitudes about achievement, studying diligently, and facing less interference with their school work from jobs and informal peer interactions.

Malpass, O’Neil & Hocevar (1999) investigated the effects of self-regulation, goal-orientation, self-efficacy, and worry, on high-stakes mathematics achievement of
mathematically gifted high school students. This study involving one hundred and forty-four gifted high school students found self-efficacy was positively related to mathematics achievement, was moderately and positively related to self-regulation, and was negatively related to worry. Also determined that learning-goal orientation is positively related to self-regulation and worry but not related to self-efficacy or high stakes mathematics achievement.

Brown & Murphy (2000) conducted a research in undergraduate mathematics education. Researchers in RUME (Research in Undergraduate Mathematics Education) require access to materials that are specific not only to their field, but also to the broader literature of mathematics education, learning theories, instructional strategies, alternative assessment techniques, cognitive development and human behaviour.

Stephen & Sue (2002) studied classroom and school factors affecting mathematics achievement. They used data from the Third International Mathematics and Science Study (TIMSS) to look at students, classroom and school factors influencing mathematics achievement in Australia and the United States. The study revealed that classroom differences account for about one-third of the variation in student achievement in the US and over one-quarter in Australia. Most of the classroom variation in both countries was due to compositional and organizational factors, and very little of it due to differences between teachers. This has important implications for policy regarding the improvement of mathematics achievement.
Stevens, Olivarez, Lan & Tallent-Runnels (2004) evaluated self-efficacy and motivational orientation across Hispanic and Caucasian students to predict variables related to mathematics achievement, including mathematics performance and students’ plans to take additional mathematics courses. Path models were analyzed for three hundred and fifty eight students in grades 9 and 10 who attended a West Texas high school and for the sample split by ethnicity. The findings indicate that similar motivational systems exist to predict mathematics achievement across ethnicity, however Caucasian students do not place as much emphasis on prior mastery experiences as do Hispanic students, suggesting that other factors are active in influencing their self-efficacy.

Meuschke (2005) examined the degree to which personal goal orientation, classroom goal orientation, and mathematics self-efficacy, moderated by help seeking predict achievement in remedial mathematics courses. Results showed that students’ perceptions of the classroom goal orientation, as well as their personal goal orientations and self-efficacy were found to influence help seeking behaviours. Maladaptive help seeking was found to moderate the relationship between personal mastery and achievement, classroom performance and achievement, and self-efficacy and achievement.

Dunlap (2005) identified the key components for assessing undergraduate mathematics programmes. These will be used to develop a tool that mathematics departments can apply with relative ease, which will provide an outcome in the form of advice specifically tailored to help them best respond to the varying needs of their
changing student population. This tool has been designed for smaller two- and four-year colleges in Midwest states. The first part of this tool consists of a set of questions that these mathematics departments should ask themselves so that they may ascertain whether they are meeting the needs of their students. The second part of this tool consists of a list of reforms. Once a mathematics department has established the answers to the questions from the first part of the tool, it can determine its weaknesses and match them with the reforms in the second part.

Engelbrecht, Harding & Potgieter (2005) studied undergraduate students’ performance and confidence in procedural and conceptual mathematics. The study revealed that students were more confident of their ability to handle conceptual problems than to handle procedural problems.

Hunsader (2006) found that mathematics ability and reading ability were both significantly related to the quality of students’ linguistic explanations of their problem solving processes, but gender was not. Boys consistently exhibited higher levels of self-efficacy, but girls were more accurate in their self-efficacy feelings. Reading ability was also found to be a significant predictor of the accuracy of students’ self-efficacy feelings, but mathematics ability was not.

Wachira (2006) conducted a study to examine factors related to the individual, family and school contexts on the mathematics achievement and attitudes of low socio-economic status students. Psychological factors included self-efficacy beliefs, student’s educational expectations and future aspirations, and effort in mathematics.
The study was longitudinal and the sample was drawn from students who participated in the first and second follow-up rounds of the National Educational Longitudinal Study of 1988-2000, a national study conducted by the national centre for educational statistics for the department of education. Correlational and multiple regression analysis were used to examine the relationships among these factors and students’ mathematics achievement and attitudes. The study revealed that the best predictor of mathematics achievement is prior achievement in mathematics. Significant predictors of student attitudes were self-efficacy beliefs, educational expectations and future aspirations and perceived teacher emphasis on the importance of mathematics.

King (2006) investigated attitudes as well as achievement factors that encourage or inhibit success in mathematics for females in higher education. The study concluded that the equity in mathematics teaching is not enough to insure equity in experience for female students; they have unique pedagogical needs in order to persist and succeed in mathematics.

Stevens, Olivarez & Hamman (2006) investigated the relationship between cognitive, motivational, and emotional variables across Hispanic and White students to predict mathematics performance. The findings indicate that self-efficacy, sources of self-efficacy, and emotional feedback were all stronger predictors of mathematics performance than general mental ability.

Rodd (2006) conducted a study on mathematics, emotions and special needs. The notion of “special needs” was used in a broad sense, encompassing specific
special educational needs as well as students with low attainment. The analysis indicates that the different frameworks offer some distinctive methods for research or ideas for interventions, either individually or within multi-lens approaches.

Nirmala, Raj, Sanders & Kumaran (2006) made an attempt to investigate into the factors, which may contribute to the academic achievement of students in mathematics and how the achievement might be optimized by manipulating those factors. The study revealed that many factors influence the academic achievement of students in mathematics at the higher secondary level. The study also observed that mathematics information processing skill, decision-making skill and attitude towards mathematics have made a significant contribution towards the academic achievement in mathematics.

Howell (2006) employed quantitative and qualitative methods to examine the nature of first-year undergraduate students’ experiences in learning mathematics with peers through interactions that have an academic focus and how participation in these experiences relate to students’ academic success in pre calculus and calculus courses and their retention in mathematics and science based programmes. Results of the study provided information about students’ learning experiences that can be valuable to the undergraduate mathematics and mathematics education faculty and university administrators who are interested in improving undergraduate mathematics education.

Schweincle, Meyer & Turner (2006) investigated the relationship between students’ motivation and teachers’ instructional practices. Results suggest that
emphasizing the balance of challenge and skill supporting self-efficacy and value for mathematics, and fostering positive affect can enhance student motivation in the classroom.

Graziano, Reavis, Keane & Calkins (2007) studied the role of emotion regulation in children’s early academic success using a sample of three hundred and twenty five kindergarteners. The results indicated that emotion regulation was positively associated with teacher reports of children’s academic success and productivity in the classroom and standardized early literacy and mathematics achievement scores. Emotion regulation and the quality of the student-teacher relationship uniquely predicted academic outcomes even after accounting for IQ.

Solomon (2007) studied functional learner identity in undergraduate mathematics. Analysis of interviews with first-year undergraduate mathematics students shows that undergraduate functionality in the sense of belief in oneself, as a learner is not necessarily associated with the identity of novice/apprentice, as might be predicted by a community of practice model. On the contrary, students who describe identities of heavily alignment can appear unworried by their lack of participation in mathematics, successful as they are in the more dominant local communities of practice.

**Major Trends Indicated by the Survey**

Studies of Steven, Olivarez & Hamman (2006), Graziano, Reavis, Keane & Calkins (2007) show a positive relationship of mathematics achievement with

3.2 STUDIES RELATED TO EMOTIONAL INTELLIGENCE.

Studies reviewed in this section are further subdivided into following sub sections:

3.2.1 Studies Related to Emotional Intelligence and Academic Performance

3.2.2 Studies Related to Emotional Intelligence and Locus of Control

3.2.3 Other Studies Related to Emotional Intelligence

3.2.1 Studies Related to Emotional Intelligence and Academic Performance

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

Woitaszewski (2001) investigated the contribution of emotional intelligence to the social and academic success of gifted adolescents. The results of hierarchical multiple regression analysis revealed that emotional intelligence did not contribute significantly to the social and academic success for gifted adolescents. These results suggest that Goleman’s argument about the significance of emotional intelligence may be overstated, at least when studying this sample of gifted adolescents.
Jaeger (2001) conducted a study to find out the relationship of three key variables in the graduate student learning process: emotional intelligence, learning style preference and academic performance. Although findings revealed positive relationship between initial and ending levels of emotional intelligence and academic performance, improvement in emotional intelligence was not a predictor of student academic success. Furthermore, the findings revealed a strong relationship between emotional intelligence and academic performance.

Maree & Ebersohn (2002) examined the possible meaning of the construct “emotional intelligence”. Two case studies of adolescent males were presented and indicated that emotional intelligence has a significant impact not only on the qualitative level of intelligence actualization but also on the quantitative level of intelligence measurement and scholastic achievement.

Raymond & Jan (2003) studied the relationship between emotional intelligence and academic achievement in college students. Results indicated that emotional intelligence is not a strong predictor of academic achievement regardless of the type of instrument used to measure it. The Mayer, Salovey, Caruso Emotional Intelligence Test (MSCEIT, an ability-based measure) and the Bar-on Emotional Quotient Inventory (EQ-i, a self report measure) were used to predict academic achievement. A construct validity examination revealed that the MSCEIT correlated highly with indices of cognitive ability but minimally with personality dimensions. In contrast, the EQ-i failed to correlate with indices of cognitive ability but correlated substantially with numerous personality dimensions.
Mathur, Dube & Malhotra (2003) studied emotional intelligence and its inter-relationships of attribution, taking responsibility and scholastic performance in adolescents. The results indicated inter-relationship between causal factors of attribution, taking responsibility and scholastic performance of subjects. Hence, all the causal factors of attribution and taking responsibility have inter-relationships. It can therefore be stated that all the variables have minor impact on scholastic achievement of the adolescents.

La Civita (2004) examined the relationship between emotional intelligence factors and academic achievement of at-risk community college students. Specifically, this study examined the relationship of the emotional intelligence factors of independence, problem solving, and stress tolerance with the Grade Point Averages (GPA) of at-risk community college students. The study revealed that the independent variables of independence, problem solving and stress tolerance were not significant in predicting academic achievement of at-risk community college students as measured by the dependent variable, the GPA’s of these students.

Mohanasundaram, Balasubramanian & Vijaya (2004) conducted a study on emotional intelligence and achievement of teacher trainees at primary level. The study revealed that there was no significant correlation between emotional intelligence and achievement in social science subject. The men and women teacher trainees do not differ in their emotional intelligence. The teacher trainees of co-education institutions are at a higher level than the teacher trainees of non co-education institutions in their emotional intelligence.
Hillary (2005) conducted a study to find out the influence of emotional intelligence on the academic achievement of higher secondary school students. The study revealed that the higher secondary school students with high level of emotional intelligence had higher academic achievement than those with low level of emotional intelligence. The study concluded that there was a substantial or marked relationship between emotional intelligence and the academic achievement of higher secondary school students.

Maya (2005) examined the relationship of emotional intelligence and teacher efficacy of science teachers on the academic achievement of students at higher secondary level. She found that the percentage of teachers with average emotional intelligence is more and those having low emotional intelligence is few. The study also revealed that the percentage of teachers with average teacher efficacy is more and those having low teacher efficacy is between that of good and average. While a substantial negative relationship between emotional intelligence of teachers and student achievement was found out, significant positive relationship between teacher efficacy and students’ academic achievement was also noticed.

Amelang & Steinmayr (2006) examined the incremental validity for tests of emotional intelligence for explaining the variance of performance criteria. Two studies were conducted to examine if emotional intelligence could predict achievement above and beyond intelligence and conscientiousness. By means of structural equation modelling, the data of both samples were separately tested for sex differences as well as for a validity increment of emotional intelligence. In both
samples, emotional intelligence could not explain any variance in the criteria beyond psychometric intelligence and conscientiousness. The tests for sex differences only showed sex-specific convergent validity of emotional intelligence in the student sample, providing useful information on the developmental aspect of emotional intelligence.

Lawrence, Ashford & Dent (2006) studied gender differences in coping strategies of undergraduate students and their impact on self-esteem and attainment. Results revealed significant differences between males and females in terms of engagement in coping strategies and academic attainment. Specifically, males exhibited greater ability to detach themselves from the emotions of a situation, whereas females were more inclined to demonstrate emotional inhibition or ‘bottling up’ of emotions and reported higher self-esteem. In addition, it was observed that females attained a significantly higher level of self-esteem than that of males.

Jaeger & Eagan (2007) explored the value of emotional intelligence as a means to improve academic performance. They stated that academic model of success in higher education often neglects the role of non-cognitive variables, including emotional intelligence. Their research addresses the value of emotional intelligence in predicting academic performance as measured by cumulative grade point average. The study concluded that the role student affairs professionals play in the non-cognitive development of students, specifically emotional intelligence, could enhance student performance inside and outside the classroom.
Srivastava (2007) conducted a study to find out the relationship between emotional intelligence and achievement in environmental studies. The study revealed that there was significant positive correlation between emotional intelligence and achievement in environmental studies. The study also revealed that emotionally intelligent students were more emotionally stable and sensitive to their environmental issues than their less emotionally intelligent counterparts.

Bardach (2008) investigated the association between middle school principals’ emotional intelligence and school success. The results indicate that a middle school principal’s emotional intelligence level is closely related to school success.

### 3.2.2 Studies Related to Emotional Intelligence and Locus of Control

Ford (1996) examined the role of psycho-social variables (emotional intelligence quotient, bicultural behaviours, locus of control, and social support) in facilitating academic resilience with one hundred and four African American male college students from urban areas, fifty of whom were classified “resilient”. The study concluded that only emotional intelligence quotient was a significant contributor to academic resilience.

Bowker, Bukowski, Hymel & Sippola (2000) examined impact of peer experience on seventh graders’ strategies for coping with peer hassles. They found that more aggressive adolescents perceived more control over hassles. More aggressive, unpopular adolescents used more negative strategies; more popular aggressive females used more problem-focused strategies. Withdrawn adolescents
perceived less control over peer hassles, used fewer negative and problem-focused strategies, and used more emotion-focused strategies.

Bridges, Margie & Zaff (2001) review the research literature on factors contributing to adolescent emotional well-being, focusing on generalized mood/affective status, emotion regulation and coping, and feeling about self, including self-esteem, self-efficacy, and locus of control. They concluded that there is consistency in individual differences in adolescent emotional well-being. There was a strong association between emotional well-being and positive environments that provide adolescents with a sense of belonging, acceptance, and support for autonomy.

Lamanna (2001) studied the relationship among emotional intelligence, locus of control and depression in selected cohorts of women. The results showed significant relationships among demonstrated emotional intelligence, locus of control and depression.

Hannigan (2003) made a study on the multidimensionality of the locus of control construct and found that bifocal individuals demonstrated greater emotional stability than individuals with an internal or external control orientation.

Declerck, Boone & De Brabander (2006) suggested that control perception follows from the brain’s capacity for self-regulation, leading to flexible and goal directed behaviours. To this account, a model is presented which spans several levels of analysis. On a behavioural level, control perception may be a corollary of emotion regulation, executive functions, and social cognition. On a neural level, these
self-regulatory functions are substantiated in part by the dorsolateral and ventral prefrontal cortex and the anterior cingulate cortex.

Kingston (2008) conducted a study to compare the emotional competence of first-year undergraduates enrolled in a high or low dropout rate (HDR and LDR, respectively) course at a newly established university within the U.K. The results indicate that typical HDR course participants have high self-esteem and a good level of interpersonal skills, but are controlled by their emotions and exhibit an external locus of control. Typical LDR course participants have low self-esteem and a good level of intrapersonal skills, but have developed the ability to control their emotions and exhibit an internal locus of control.

3.2.3 Other Studies Related to Emotional Intelligence

Spencer & Spencer (1997) in an analysis of more than three hundred top level executives from fifteen global companies underlined that six emotional competencies distinguished the stars from the average: influence, team leadership, organizational awareness, self-confidence, achievement drive and leadership.

Ediger (1997) suggested that emotions, feelings and values are vital for a person’s well-being and achievement in life. He also states that students who are aversive and think negatively cannot concentrate for a long time and have more difficulty in reaching their potential than others.

Richardson & Evans (1997) explored some methods for teaching social and emotional competence with a culturally diverse society. Their purpose was to help
students’ interpersonal, intrapersonal within and emotional intelligence, arguing that these intelligences are essential for personal accomplishment.

Nathawat (1998) highlighted the concept of EQ as indicator of life success. He was of opinion that the key to one’s success with EQ lies in handling the human environment around him and making a place for himself.

Goleman for the first time developed (1998) a framework of emotional competencies which determines the extent of emotional intelligence acquired by an individual. This framework consisted of five dimensions or domains such as self-awareness, self-regulation, motivation, empathy, and social skills. These five domains include twenty-five competencies. Goleman in his competency research in over two hundred companies and organizations worldwide suggests that about one third of the difference between the excellent and average performer is due to technical skill and cognitive ability of which two thirds is due to emotional competence.

Cherniss (2000) argued that the abilities associated with emotional intelligence are important for success in many areas of life. Furthermore, as the pace of change increases and the world of work make ever-greater demands on a person’s cognitive, emotional, and physical resources, this particular set of abilities will become increasingly important.

Fox & Spector (2000) tried to find out the correlations between general intelligence and various measures of emotional intelligence. They reported that
individuals with greater general intelligence are significantly less able to experience distress and discomfort in response to extreme distress in other people.

Smith (2001) explored a connection between emotion and behaviour by examining the connection between the construct of emotional intelligence and criminal behaviour. The study revealed that there was an association between race/ethnicity and interpersonal, intrapersonal and total emotional quotient inventory (EQ-i). An association was found between death of parent and interpersonal EQ-i. Intrapersonal EQ-i was associated with sexual abuse.

Batastini (2001) investigated the relationship between emotional intelligence and creative abilities of student leaders. The study revealed that there was a significant relationship between emotional intelligence and leadership. Further, the study showed a strong relationship between creativity and leadership.

Woods (2001) made an investigation of the relationships among emotional intelligence levels, Holland’s academic environments, and community college student’s internet use. The study revealed that those who spent more time on e-mail had a higher emotional intelligence in overall score. Additionally, the findings revealed that those who spent more time online had a more positive interact attitude and there is an existence of a digital divide along racial lines.

Derksen, Kramer & Katzko (2002) explored the relationship between general intelligence and emotional intelligence among a Dutch company sample. The study
concluded that general intelligence and emotional intelligence are psychometrically independent.

Kohan (2003) made an investigation of discriminant and concurrent validity of emotional intelligence. Concurrent analysis showed that emotional intelligence played a minimal moderating role in the experience of burn out.

Hampel (2003) studied the associations between emotional intelligence and relationship quality utilizing the Mayer, Salovey and Caruso Emotional Intelligence Test (MSCEIT). Results indicated some significant associations between emotional intelligence, as assessed by the MSCEIT, and relationship quality. However, these associations were small and not consistent.

Lanning (2003) conducted a study to find out the influence of faith practices and attitudes on the development of emotional intelligence in children aged 10-14. The results showed that there was no correlation between faith practices and emotional intelligence. Also a correlation between faith attitudes and emotional intelligence was not significant.

Arathi & Rathna (2004) conducted a study to find out the influence of family environment on emotional competence of adolescents. The results showed that family environment had significant influence on emotional competence of adolescents.

Devi & Mayuri (2004) made an attempt to examine the relationship between emotional intelligence and personality of adolescents. The study revealed that the total
emotional intelligence and total personality were significantly and positively related with each other. Most of the dimensions of personality like boldness, enthusiasm, excitability, leadership, maturity and mental health were positively and significantly related to the sub scales of emotional intelligence.

Thingujam (2004) stated that the type and quality of home as well as school environment was related to the development of emotional intelligence. The educational planners should take care of the improvement of environmental quality of schools. Further, he said that parent and teacher should not only encourage the child’s cognitive ability but also arrange the environment to make them emotionally competent.

Tiwari & Srivastava (2004) investigated developmental changes in emotional intelligence on a sample of primary school children. They were drawn from different schools following a 2 x 3 x 3 factorial design, consisting of two gender groups (male/female), three types of medium of instruction (Hindi, English, and Mixed) and three grades (third, fourth, and fifth). In addition, perceived environmental quality of home and school were also assessed. The results showed that gender had no significant main effect while medium of instruction and grade had significant main effects on all the three components of emotional intelligence i.e., expression and appraisal, regulation and utilization of emotions. It was noted that the children attending English medium schools scored higher followed by Hindi and mixed medium school children, respectively. The older children of fifth grade scored higher than fourth and third grade children. It was found that perceived environmental
quality of home as well as school was positively related to emotional intelligence scores.

Pandey & Tripathi (2004) investigated the developmental changes in emotional intelligence in a sample from five age groups (5-6 yrs, 8-9 yrs, 11-12 yrs, 14-15 yrs and 17-18 yrs). The results indicated that there was increase in emotional intelligence with age and girls were more proficient in managing and handling their own emotions as well as of others.

Bhattacharya, Dutta & Mandal (2004) made an attempt to examine the factor structure of the construct of emotional intelligence in India. From a pool of one hundred and thirty items drawn from various scales developed in Western countries, 49 items were selected that were subjected to principal component factor analysis followed by varimax rotation. Analysis yielded factors such as appraisal of negative emotions, appraisal of positive emotions, interpersonal conflicts and difficulties. Findings suggested that the construct of emotional inter-personal skills and flexibility, and goal-on warding intelligence involve appraisal and experience of emotion for self and inter-personal situations in valence-specific terms (positive-negative) in India.

Singh (2004) made an attempt to develop and standardize a measure of emotional intelligence. While writing the items, the study followed Goleman’s (1998) model of emotional intelligence competencies. Five dimensions: self-awareness, self-regulation, motivation, empathy and social skills were incorporated. Data were collected from managers from various functional areas and representing a
heterogeneous set of organization. The study revealed that five dimensions of emotional intelligence were positively correlated with organizational commitment, emotional expression and quality of life, suggesting concurrent validity.

Pant & Prakash (2004) stated that the emotional intelligence construct is not a unique ability in the Indian sample as measured by the Multi-factor Emotional Intelligence Scale (MEIS).

Sharma & Sharma (2004) explored the notion of emotional competence among a sample of adolescents by adopting a qualitative mode of inquiry. Open ended interview and classroom-based enactments as well as written exercises accompanied by group discussions were the main strategy for making sense of the perspectives of the children. The study enabled to discern the varied understanding and use of emotion in children’s everyday lives.

Sibia, Misra & Srivastava (2004) examined the notion of emotional intelligence in the Indian socio-cultural context. An attempt has been made to discern the indigenous notion of emotional intelligence based on the perspectives of people (parents, teachers and children) in the contemporary Indian society, where people exhibit a relational and context sensitive construal of self. Results indicate that the Indian view of emotional intelligence is context sensitive and focuses on the role of family and society in shaping one’s emotions.

Chapman (2005) made a cross sectional investigation of structural variance, social correlates, and relationship to established personality and ability taxonomies
with regard to emotional intelligence at mid life. The study showed no greater differentiation in the mid life sample either among dimensions of emotional intelligence or between emotional intelligence and personality and intelligence variables. Emotional intelligence appeared equally predictive of social variables in each samples.

Pradhan, Bansal & Biswal (2005) studied emotional intelligence and personal effectiveness. The study reported that there exists a positive relationship between emotional intelligence and personal effectiveness, and emotional intelligence enhances self-efficacy and personal effectiveness. The correlation analysis indicated that perceptiveness is significantly correlated with most of the dimensions of emotional intelligences except intuition, interpersonal connection and emotional awareness of others.

Shuler (2005) made an analysis of the emotional quotient inventory with regard to youth version as a measure of emotional intelligence in children and adolescents. The study concluded that various aspects of personality contributed more heavily to the prediction of overall emotional intelligence than did cognitive intellectual functioning.

Sobha (2006) made a study on emotional intelligence and frustration tolerance of adolescents. The emotional intelligence of adolescents is found to be positively and significantly related to frustration tolerance. The positive correlation reveals that people with a high emotional intelligence can tolerate setbacks to a greater extent.
Rural students are found to have a higher level of emotional intelligence and frustration tolerance than urban students.

Bindu & Thomas (2006) investigated the nature and extent of the relationship that exist among two cognitive variables, viz., intelligence and creativity, and two non-cognitive variables, viz., emotional intelligence and maladjustment among a sample of young adults (n = 90). The results revealed that the two gender groups differed significantly in the mean scores on the variables and also in their intercorrelations. Maladjustment was identified as the most important predictor of all the other variables, in the case of the male sample. Emotional intelligence played a significant role in determining overall creativity and maladjustment in the female sample. The relationship between intelligence and creativity was found to be stronger in the female group than in the male group.

Benson, Truskett & Findlay (2007) studied the relationship between burnout and emotional intelligence in Australian surgeons and surgical trainees. A series of regression analysis revealed that emotional control, emotional recognition and expression, and understanding of emotions were significant predictors of burnout. The study concluded that burnout remains a significant problem for the surgical profession, with the potential for considerable personal, psychological and societal impairment.

Kafetsios & Loumakou (2007) examined the association of trait emotional intelligence and emotional regulation with affect and satisfaction at work. The study
revealed that emotional regulation had unique predictive power for affect and job satisfaction for the younger age group. Among the emotional intelligence branches only general mood had consistent predictive value for affect at work. There was minimal evidence for emotional regulation being a mediator between emotional intelligence and affect at work in either age group.

**Major Trends Indicated by the Survey**

3.3 STUDIES RELATED TO LOCUS OF CONTROL

Studies reviewed in this section are further subdivided into following sub sections:

3.3.1 Studies Related to Locus of Control and Academic Performance

3.3.2 Other Studies Related to Locus of Control

3.3.1 Studies Related to Locus of Control and Academic Performance

Research that focuses upon the possible relationship between locus of control and achievement has continued unabated, though not in a manner that can generate firm conclusions.

The first investigation to relate locus of control with achievement behaviour was reported by Crandall, Katkovsky & Preston (1962). These investigators used a number of personality measures in the hope of predicting achievement behaviour as they were reflected in free-play activities, the Stanford Binet Intelligence Test and the California Achievement Tests. The predictor measures included a TAT measure of need for achievement, a scale for assessing manifest anxiety, the children’s own statements regarding their concern for intellectual attainment, expectations of intellectual success, intellectual achievement standards and the first form of the Intellectual Achievement Responsibility Questionnaire (IAR). Of all the measures employed by Crandall et al. (1962), the IAR proved to be the most strongly related to the time spent in intellectual free-play activity \( r = 0.70, p<.05 \) and to the intensity of striving in those activities \( r = 0.66, p<.05 \) among the boys. For the girls on the other hand, the coefficients of correlation were 0.01, and 0.00 respectively. In other words,
for boys the attribution of responsibility was of considerable importance for predicting achievement activity, while for girls, it was totally irrelevant. When performance on intelligence and achievement tests was correlated with the predictor variables a similar pattern of results was obtained. The IAR was significantly related to each test for boys (r = 0.52, p < .05 with intelligence; r = 0.51, p < .05 with reading achievement; r = 0.38, p < .05 with arithmetic achievement), but totally unrelated for girls (r = 0.00; r = - 0.03; r = - 0.13, respectively).

Hjelle (1970) studied internal-external control as determinant of academic achievement and found that no significant differences exist among internals and externals in academic performance in the context of conventional method of teaching.

Brown & Strickland (1972) found a significant relationship between internality and academic achievement. Stephen (1973), however, found externality was positively related to achievement.

Ollendick & Ollendick (1976) studied the interrelationship of measures of locus of control, intelligence and achievement in juvenile delinquents. The analysis of data revealed that with the effects due to intelligence partialled out, achievement did not significantly vary for the different levels of locus of control.

Pandey & Tewari (1979) examined the relationship between locus of control and achievement values of entrepreneurs. They found that achievement values and internal locus of control were positively related.
Bar-Tal, Kfir, Bar-Zohar & Chen (1980), in their study, reported that internal subjects have higher academic achievement, low level of anxiety, higher level of aspiration and SES.

Perna (1983) studied the relationship of internal locus of control, academic achievement, and IQ of emotionally disturbed boys. The study revealed that samples with a higher degree of internal locus of control made greater gains in academic achievement. Sample’s chronological ages and IQ scores did not affect their degree of internal locus of control.

Mishra (1983) conducted a study to find out the association of locus of control, creativity, and educational achievement of urban, rural and tribal children. The findings of the study were: (i) locus of control was significantly related to creativity and educational achievement; (ii) the internal locus of control subjects secured higher scores on creativity tests and educational achievements than the external locus of control subjects; (iii) the relationships between locus of control and creativity, as well as between locus of control and educational achievement were positive and statistically significant; (iv) the locus of control scores were used to measure for the urban disadvantaged children compared to those of the rural and the tribal children; (v) creativity is higher for the advantaged compared to those of the disadvantaged children both in the urban and rural set-up; (vi) the rural disadvantaged children seemed to be better than their urban and tribal counterparts in verbal creativity scores; (vii) the non-verbal creativity scores were higher for the tribal
children; and (viii) the advantaged children secured higher educational achievement scores than the disadvantaged children both in the urban and rural subcultures.

Rao & Moorthy (1984) studied the psychosocial correlates of locus of control among college students in India and found that significant sex differences exist in the variables, with girls being more external. They further pointed out that externally oriented subjects, in contrast to internals, tended to be low achievers, more anxious, psychologically morbid, neurotic, and had a low need for achievement.

Schumm (1987) examined relationships between student achievement, locus of control orientation, and attributions for success and failure in biology. The results revealed that ability/aptitude measures were the best predictors of achievement in biology at college level. However, locus of control orientation and attribution of success and failure were found to interact with other factors affecting student achievement.

Sharma & Chadha (1989) made a study to understand the nature of anxiety, locus of control, self-concept (perceived-ideal) and scholastic achievement characteristics of the individuals belonging to the government and public schools. The study revealed that the externals scored significantly higher than the internals on scholastic achievement. The relationship of locus of control with perceived self and ideal self were negative, while with scholastic achievement it showed a positive relationship. The high and low anxious groups also differed significantly on scholastic achievement.
Ferrari & Parker (1992) conducted a study of high school achievement, self-efficacy, and locus of control as predictors of freshman academic performance. Seventy-eight male and one hundred and forty one female college students completed self-report measures of social and general self-efficacy and academic locus of control midway through their first term in college. Fall semester credits completed and grade point average were criterion measures, while high school performance and personality variables were predictor variables. The results indicate that locus of control is a strong predictor of academic performance.

Mulbury (1995) conducted a study of locus of control and coping style as stress moderators in achievement oriented individuals. The results indicated a lack of relationship between the independent variables and the dependent variable. An external locus of control orientation was significantly related to higher stress scores and lower achievement orientation. Higher achievement orientation was positively related to the use of active coping styles. Male subjects were slightly but significantly more internally oriented in terms of locus of control than female subjects.

Basile (2001) studied achievement of accounting students relative to individual learning styles and locus of control with regard to internet based instructional technology. The results indicate that students achieve similarly in traditional and Web CT classes. There were no significant interaction between instructional design and students’ locus of control as well as instructional design, students’ locus of control and students’ learning styles.
Brogan (2003) made an analysis of the relationship between messages regarding standardized tests, locus of control, academic achievement and student motivation. The dimensions of locus of control (ability, effort, luck) are included in this study. Findings indicate that students recalled hearing more intrapersonal messages. Students also recalled more stress from interpersonal messages regarding standardized tests. Ability appears to be the best predictor when examining the frequency and stress associated with the recall of intrapersonal messages.

Lanouette (2003) examined the influence of using the instructional strategy of gaming and locus of control on the learner performance, learner effort, and attitude towards learning with a computer-based lesson. The results of the study found that learners using the instructional strategy of gaming did have higher performance scores and put forth more effort than learners who were in the non-gaming treatment group. Results also found that learners with external locus of control put forth more effort than learners with internal locus of control.

Marshall (2003) conducted a study to find out the impact of locus of control on the academic achievement of African American males. The main findings were (i) there was no significant difference between the Metropolitan Achievement Test (MAT) match test scores of internally and externally oriented African American male eighth grade students (ii) there was no significant difference between the MAT 7 reading test scores of internally and externally oriented African American male eighth grade students and (iii) there was no significant difference in the final mathematics
grade of internally and externally oriented African American male eighth grade students.

Howard (2004) conducted a study on the locus of control and academic achievement of middle school students in South East Georgia. The major findings of the study were (i) there were significant differences in the reading achievement of middle grade students according to locus of control; (ii) there were significant differences in the mathematics achievement of middle grade students according to locus of control; (iii) there were significant differences in the reading achievement of middle grade students according to locus of control by gender; (iv) significant differences were noticed in mathematics achievement of middle grade students according to locus of control by gender; (v) significant differences were observed in the reading achievement of middle grade students according to locus of control by race; (vi) significant differences were found out in mathematics achievement of middle grade students according to locus of control by race; (vii) significant differences were noticed in the reading achievement of middle grade students according to locus of control by socio-economic status; (viii) significant differences were observed in mathematics achievement of middle grade students according to locus of control by socio-economic status; (ix) significant differences were found out in the reading achievement of middle grade students according to locus of by family structure; and (x) significant differences were observed in the mathematics achievement of middle grade students according to locus of control by family structure.
Gupta & Sinha (2004) examined the effects of locus of control, and learning and performance goal-orientation on academic achievement among a random pool of three hundred students of first year of graduation courses from the age range of 16-19 years. Average of percentage of marks of the previous two public examinations was the index of academic achievement. The results indicated no significant effect to locus of control on academic achievement and a significant effect of learning as well as performance goal orientation. A significant three-way interaction revealed joint effect of the variables.

Angelika, John & Richard (2005) made an attempt to use a novel multidimensional locus of control instrument to investigate the relationship between locus of control, motivation, and academic achievement in three different types of school. The results support a multidimensional conceptualization of locus of control and utility of the multidimensional locus of control instrument. There were statistically significant differences between schools for motivation and achievement and also a mediating effect between locus of control and school type, suggesting that interactional models are required in investigations of motivation and achievement. Furthermore, moderate levels of locus of control and self-efficacy appear to be more adaptive than either extremely high or low levels.

Denise, Juanita & Frank (2006) conducted a study of academic achievement and retention in a sample of university first-year students with regard to locus of control. The results of the study indicated that first-year students who entered university with lower scores on the locus of control scale (internals) obtained
significantly higher Grade Point Average (GPA) than those who scored higher (externals) on this same scale. Pre-college scores also served as an effective predictor of student academic success as demonstrated by significantly higher cumulative GPAs at the end of the first-year. In addition, this study found that first-year students retained to their sophomore year demonstrated a statistically higher GPA than those who were not retained.

Chris, Linda, Mary & Elizabeth (2006) examined the sex role orientations endorsed by one hundred and eighty eight male and female students majoring in computer science – a degree programme in college where male students dominate. The relations among sex role orientation and academic achievement and social cognitive factors influential in career decision-making self-efficacy were explored. The study revealed that androgynous – and feminine-oriented students scored significantly higher on career decision-making self-efficacy as compared with undifferentiated students. No significant sex role orientation differences were found for academic achievement and general and career locus of control.

Maris & Virginia (2006) made an attempt to determine the motivational categories best predicting Future Time Perspective (FTP) extension in the context of the relational theory of motivation. The influence of the sex, locus of control, social class, and school ethos variables on FTP extension was also explored. A scale-measuring locus of control and the Motivational Induction Method (MIM) had been employed to obtain the data. Significant differences are found in FTP extension and locus of control in relation to school ethos.
Mentoor & Friedrich (2007) conducted a study on entrepreneurial education at South African Universities. The purpose of the study was to ascertain whether a traditional first-year university business management course with an entrepreneurial component can contribute to the entrepreneurial orientation of students. The major features of entrepreneurs and innovators are knowledge, skills and attitudes. The need for achievement, innovation, locus of control and self-esteem are the variables of attitude. The results of the study do not augur well for the improvement of the entrepreneurial orientation of students.

Cassidy (2007) in his study sought to establish the level of students’ self-assessment skill particularly “inexperienced” students and to examine the relationship between self assessment skill and learning style, student perceptions and academic locus of control and academic self-efficacy. Students were asked to evaluate and provide estimated marks for their own work. Students also completed measures of learning style, academic locus of control and academic self-efficacy. Comparisons of student estimated and tutor marks indicated a good level of self-assessment skill in the majority of students. No clear or convincing associations between self-assessment skill and perceptions of academic locus of control or academic self-efficacy were identified. Findings suggest that while self-assessment skill undoubtedly develops, becoming more effective during students’ academic career, inexperienced students do have the capacity for self-evaluation and should therefore be included in self-assessment activities.
Lee, Puig & Clark (2007) examined the relationship between high school students’ religiosity and bachelor’s degree attainment. The results indicate that high school students’ religiosity was significantly related to bachelor’s degree attainment when other variables (i.e., locus of control, self-concept, parental involvement, and prior academic performance) were controlled for.

Levy (2007) explored two main constructs: (1) academic locus of control; and (2) students’ satisfaction with e-learning. Results show that the academic locus of control appears to have no impact on students’ decision to drop from e-learning courses. Additionally, results of the study show that students’ satisfaction with e-learning is a key indicator in students’ decision to drop out from e-learning courses.

Marianne & Sven Ingmar (2007) examined self-theories, (theories of intelligence, confidence in one’s intelligence, internal attribution of failure, academic self-efficacy), specific control, and experiencing of stress by means of a questionnaire for nine hundred and fifteen Swedish high school students. Female students, especially in academic programmes, experienced greater stress and greater deficit of control than male students. Sequential regression analysis showed that final grades could be predicted to 28% from demographic variables, self-theories, and stress.

Jones (2008) conducted a study on one hundred and eighteen students who were placed into basic skill sections of college level English. The study suggests that students’ self-beliefs are important predictor of success in weak writers in first semester courses. The results indicate that locus of control is the most powerful predictor of success.
3.3.2 Other Studies Related to Locus of Control

Work by Battle & Rotter (1963) and Lefcourt & Ladwig (1966) report greater internality in the whites as compared to the blacks. The general role of culture has been examined by Jessor, Graves, Hanson & Jessor (1968), Hseih, Shybut, & Lotsof (1969) and Parsons, Schneider & Hansen (1970).

Joe (1971) found that externals, in contrast to internals, are more anxious, more aggressive, more dogmatic, more suspicious of others, less trustful, less confident and less insightful.

Fennelli (1972) found that females who were externals, reported more anxiety than those females who were internals. It was also found that females who accepted more responsibility for the outcomes of various tasks reported significantly less anxiety than females who accepted less responsibility.

Tyler & David (1975) conducted a study on locus of control differences between rural American Indian and the white children. They found that Indians would have a greater tendency than the whites to perceive that reinforcements are determined by factors external to themselves. They also found that older children would be more internal than younger ones.

Hanes & Wild (1977) studied locus of control and depression among non-institutionalized elderly persons. The result supported the hypothesis that depressives perceived themselves to lack personal control. In males, there was higher correlation between externality and depression than that in females.
Rappapport, Rappapport & Lambreth (1978) in a cross-cultural investigation found that females are more external than males when samples are large and not differentiated by country. However, no difference in males and females in locus of control was found in the American sample taken alone, where Rotter had standardized the instrument.

Ruth, Bonnie & William (1980) studied the relationship of general and specific internal-external beliefs to an interest in supernatural phenomena, namely astrological data. Forty-five male and eight female college students served as subjects. Results indicated that females were significantly more likely than males to believe in and to have knowledge about astrology.

Nassi & Abramowitz (1980) studied discriminant validity of Mirels’ personal and political factors on Rotter’s I-E scales. The results uphold the durability of Mirels’ earlier distinction between personal and political locus of control and are consistent with the recent efforts of interactional researchers to enhance behavioural prediction by tailoring the trait domain to the situational context.

Bhogayata (1986) studied the relationship amongst creativity, self-concept and locus of control. The study revealed that students with internal locus of control were more fluent, original and creative than the students with external locus of control. The main effects of self-concept and locus of control on creativity were significant, but their interactive effect on it was not significant.
According to Succuzzo (1987), locus of control is a personality characteristic that represents the extent to which an individual believes that events in his life are under his personal control. It is an expectation concerning the likelihood that one’s behaviours will lead to a desired outcome.

Long, Williams, Gaynor & Clark (1988) conducted a study to find the relationship of locus of control to lifestyle habits. The study contrasted the lifestyle habits of college students who were high and low on different dimensions of locus of control (internality, powerful others, and chance). The high internals, low powerful others, and low chance groups obtained significantly higher work and health scores than did their counterparts.

Achalamba & Kumar (1993) examined the relationship between locus of control and organizational role stress among professional-non-professional, male-female, and young-old college teachers. Major findings were: (i) the role of stress was negatively and significantly related to locus of control, (ii) there were significant differences between the high internal and low internal groups on their organizational role stress; the high internal group was lower than the low internal group on organizational role stress, and (iii) there were no significant differences between the professional and non-professional teachers and between male and female teachers on internality score. However, a significant difference was found between younger and older teachers on their internality score.
Shukla (1994) made an attempt to study the role of locus of control in attributing cause of success and failure among postgraduate students. Major findings were: (i) internals and externals (female students) did not affect the attributional process except for the experimenter attribution, (ii) the female subjects attributed significantly more in effort condition on self responsibility, effort and memory attributions in comparison to chance condition, (iii) female students felt responsible to their memory for chance and effort condition, (iv) male subjects also attributed significantly more in effort condition on self responsibility, effort and memory attributions in comparison to chance condition, (v) female subjects attributed more in success condition to all internal factors in comparison to failure condition, (vi) male subjects attributed more in success condition to all six internal factors—self responsibility, effort, behaviour, memory, motivation and interest in comparison to failure condition, (vii) there was no significant difference in all the nine attributional categories having internal and external control of the male subjects, (viii) female subjects attributed to success and failure in a significant way on the following six attributional categories—self responsibility, effort, behaviour, memory, motivation and interest, (ix) male subjects attributed their outcome (success/failure) more to their effort, behaviour, memory, motivation and interest in a significant way, and (x) the locus of control showed that male and female subjects did not affect the attributional process in the same pattern.

Howard (1996) conducted a study to find the relationship of internal locus of control and female role models in female college students. The study suggests that the
subjects who identified role models had stronger internal locus of control than the
subjects who did not identify role models, that locus of control was a changeable
variable, that internal locus of control increased over the first-year of college in the
role model group (positive effect), and that internal locus of control decreased over
the first-year of college in the non-role model group (negative effect).

Hazard (1997) conducted a study to find out the effect of locus of control and
attitudes toward intelligence on study habits of college students. The results showed
that study skills training did improve students’ self-reported use of proper study habits
and participation in study skills training was associated with higher first semester
Grade Point Average (GPA). Locus of control did not influence the act of
volunteering for study skills training or subsequent participation, but at post-test, there
was a strong relationship between locus of control and first semester GPA.

Thurber & Sigman (1998) examined predictors and sequel of homesickness in
two hundred and ninety three boys of 8 to 16 years, who spent two weeks at an
overnight camp. They found that the ‘homesick disposition’ and a little prior
separation together account for 69% of the variance in self-reported homesickness.
Interpersonal attitudes and perceived control predicted 70% of the variance as
negative emotion.

Tatum (2001) conducted a study of self-concept, stress-coping resources and
locus of control in early adolescent African-American and white students. The
findings indicate that there were no significant differences in the self-concept,
academic confidence, social confidence, family support, peer acceptance and locus of control for the African-American and white students. The two groups were found to be more alike than different.

Noble (2001) studied the role of locus of control, self-efficacy, and goal setting habits in a self regulatory system with regard to better understanding of concept skills in leadership. Results showed that locus of control and self-peer rating agreement plays a key role in determining how feedback is interpreted.

Schmit (2001) studied locus of control orientation of international students within the Arizona Community College systems. The study revealed that European students exhibited a more internal locus of control orientation and Asian and African students were more external.

Stuart (2001) made an investigation of psychological adjustment, and adjustment to college among international students from the Caribbean Black University. The results of one-way ANOVA yielded no significant differences between the internal locus of control group and external locus of control group on psychological adjustment or on overall adjustment to college, locus of control was found to be a significant predictor of adjustment to college. The relationship between age and psychological adjustment was not found to be significant.

Manger, Eikeland & Asbjørnsen (2002) evaluated effects of a school based social cognitive training programme on 14- and 15-year old students’ locus of control. The study revealed that girls in the training condition developed higher internal locus
of control, while neither boys in the training condition nor girls or boys in the comparison condition alerted their locus of control.

Jacobson (2003) examined the influence of locus of control and career self-efficacy on the development of career maturity for college students with disabilities. The college students that responded to this study demonstrated high levels of career self-efficacy, career maturity, and an internal locus of control regardless of gender, ethnicity, academic level disability status, age of onset of disability, or the use or non use of campus disability support services.

Streets (2004) made a study on hope, locus of control and coping strategies in African-American female college students. He suggested that locus of control orientation was significantly and negatively correlated with dispositional hope scores. No relationship was found between locus of control orientation and socio-economic status. The study concluded that ‘high hope’ women set goals, contemplated about positive people, and talked to their advisor as tactics for coping with stressors.

Hand (2004) studied the optimal levels of optimism, perceived locus of control, hope, and degree of adversity experienced in life, in the development and maintenance of psychological resilience. Analysis of the data revealed unexpectedly strong loading of age and gender in the predictions of both control and optimism.

Beitel, Ferrer & Cecero (2004) conducted a study on psychological mindedness and cognitive style. The results indicated that psychological mindedness is positively associated with ambiguity tolerance, whereas it is inversely related to
external locus of control and magical thinking. These findings suggest a cognitive style profile for psychological mindedness that includes flexibility, a sense of personal agency, and a propensity for realistic thinking.

Joshi (2005) studied classroom morale in relation to types of school, locus of control and creativity. The main findings were: (i) the F-ratio for the combined interaction between type of school, locus of control and creativity has been found to be significant indicating that all the three variables when taken together for boys influence the classroom morale, (ii) the interaction between English medium schools, internal locus of control and low creativity has been found to be significantly higher than that of the Hindi medium schools, internal locus of control and low creativity while opposite is the case for high creativity, (iii) the interaction between types of school, locus of control and creativity has been found to be not significant while the locus of control independently has influence on the classroom morale for girls, and (iv) the interaction between English medium schools, external locus of control and creativity has been found to be significantly higher than the interaction between Hindi medium schools, external locus of control and low creativity for girls.

**Major Trends Indicated by the Survey**

Researches that focus upon the possible relationship between locus of control and achievement have continued undiminished, though not in a manner that can generate firm conclusions.

Studies of Brown & Strickland (1972), Pandey & Tewari (1979), Bar-Tal,

3.4 STUDIES RELATED TO RIGIDITY

Studies reviewed under this section are further subdivided into the following sub sections:

3.4.1 Studies Related to Rigidity and Academic Performance

3.4.2 Studies Related to Rigidity and Locus of Control

3.4.3 Other Studies Related to Rigidity

3.4.1 Studies Related to Rigidity and Academic Performance

Watts & Whittaker (1966) compared highly committed members of the Free Speech Movement (FSM) at Berkeley with the student population at large on three socio-psychological foci: general biographical data, religious orientation, and rigidity-flexibility. Questionnaires were administered to one hundred and seventy two FSM members selected by chance from the ten to one thousand two hundred who entered and “sat-in” the Administration Building at the University of California on
December 2, 1964. A comparative sample of one hundred and forty six student respondents, selected randomly from the student directory, was obtained by mail. Results indicated that the sat-ins were younger and more homogeneous in age, had parents who were more academically elite (Ph.D. and M.A degree holders), and comprised a larger population of females than that of the cross-sectional group. No differences appeared in academic achievement (accumulative grade point average) or in birth order and number of siblings. It was found that the FSM members were less influenced by formalized religion than the cross-sectional group representing the student body and that they were also less rigid, as measured by a twenty-seven item scale of rigidity-flexibility.

Jensen (1968) employed simple and complex learning and problem solving situations with mentally retarded children and adults. In the Rotation Discrimination Complex and the Size-Discrimination Simple experiments, upper and lower test achievement subgroups were subjected to two basic types of visual discrimination at different levels of task complexity. Significant improvement in differentiation by the posterior intrinsic system was achieved by training retardates with a mental age of at least 5½ years. Both groups solved a simple problem but with no improvement in differentiation. On the Distance-Discrimination Complex boys did significantly worse than girls at the more difficult position. Distance perception was maturational and related to mental rather than chronological age. Incorrect responses were made with reference to a rigid, orderly space of parallels and perpendiculars.
Lipton (1968) analyzed the social and cognitive rigidity of teachers in grades three through six and compared the reading achievement of one hundred and fifty-nine of their students, and reports a significant correlation between low teacher cognitive rigidity and high student reading achievement gains but no significant relationship was noticed between social rigidity or combined social and cognitive rigidity and reading achievement gains.

Troyer (1969) studied conceptual and factual educational set of teacher and learner on performance in the Biological Sciences Curriculum Study (BSCS). The population consisted of thirty teachers and one thousand seven hundred and seventy-three students studying the BSCS “Yellow Version”. The Educational Set Scale was used to categorize teachers and students as possessing a factual or conceptual educational set, the Philosophic–Mindedness Scale to categorize teachers as high or low in flexibility, and the BSCS yellow Version first quarterly test was used as a measure of student achievement. Items of the quarterly test were classified into factual and conceptual items. Correlational analysis and analysis of variance indicated that conceptual students achieved significantly higher than factual students on both factual and conceptual questions that student achievement was significantly higher under a conceptual teacher, and lower under a more flexible teacher, and there was a significant positive correlation between teachers’ scores on the Educational Set Scale and the Philosophic-Mindedness Scale.

Stewin & Bicknell (1970) conducted a study on the value of selected measures of personality characteristics as predictors of college achievement. The aim of the
investigation was to determine whether the most effective prediction of achievement of freshman college could be obtained through using raw scores from the Dogmation Scale, Gough–Sanford Rigidity Scale, California F Scale, and the Canadian Opinionation Scale or through using a set of factor scores extracted from a combination of the above four as predictors of grade point average. The study concluded that only raw scores for the four psychological tests are significantly related to academic achievement of college freshmen. The three factors, which were extracted, may be of some interest in relationship to student activism.

Trueba (1975) examined two kinds of objections to bilingual education. The Philosophical objection is whether the use of a foreign language in the U.S. educational system can be justified and the practical objection is the usefulness of bilingual education in increasing educational achievement. The apparent success, so far of bilingual education is pointed out in response to the second on type of objection, and diachronic studies are called for to determine the actual effectiveness of bilingual education in academic and social achievement. Bilingual education is termed the single and the most important effort of modern American education to break with ethnocentric rigidity.

Bredemeier (1976) urges teachers to expose themselves to peer criticism to insure adequate modelling for students. A view of education as an ongoing experiment is advocated to guard against authoritarian rigidity. However, teachers are cautioned to take student evaluations of relevancy primarily as statements of the students’ stage of development rather than of the validity of the course content.
Achievement of the above goals is seen to require revision of the roles currently adopted in educational institutions.

Ho (1976) examined the extent to which popular stereotyped cultural beliefs were incorporated by individuals and investigated the psychological implications of belief stereotype in a variety of personality, attitudinal, and intellective functions. The results showed that belief stereotype was positively correlated with authoritarianism, rigidity, dogmatism, conformity, culturcentrism, traditionalism, prejudice against women, and compulsive study orientation, but negatively correlated with academic performance, second-language skills, and verbal intelligence.

Brady-Ciampa (1981) conducted a study on academic performance and underlying personality predispositions of provincial vs. regional graduate students. Findings indicate that no significant differences resulted from the analysis of the Gough-Sanford rigidity scale results, but the California F-scale produced enough data to warrant examining each of its nine subscales independently.

Leestma & Bennett (1987) made a comprehensive report of education in Japan based on two years of research. It is matched by a simultaneously – released counterpart Japanese study of education in the United States. Reasons for Japanese successes include: clear purposes rooted deeply in the culture, well-defined and challenging curricula, well-ordered learning environments, high expectations for student achievement, strong motivation and effective study habits of students, extensive family involvement in the mission of schools, and high status of teachers.
Problems and criticisms are noted, including inattention to variations in students’ abilities and needs, rigidity and uniformity of the system, and insufficient concern for development of creative and independent thinking.

Chapin & Vito (1988) studied patterns of family interaction style, self-system processes and engagement with school work. The results showed family disengagement to be the quality of family functioning which most clearly distinguished adolescents who appeared to be at-risk for academic failure from those who were not at risk. Family rigidity and both chaotic family functioning and family enmeshment also appeared to have negative influences on adolescents and on their school functioning.

Mintrop (2002) investigated the effect of probation on individual performance motivation, organizational processes, and patterns of instruction in schools that were on probation for low achievement in Maryland and Kentucky. Studies of individual learning and organizational development show that problem in the control of the eleven schools provided unfavourable conditions for learning new and ambitious performance based pedagogy. For many teachers, the state assessments did not provide meaningful tools for the self-evaluation of their teaching. On the organizational level, probation fostered rigidity and compliance with external obligations to the detriment of organizational learning and internal dialogue. While large numbers of teachers in the eleven schools viewed themselves as highly competent professionals, 70% to 80% of the observed lessons in Maryland did not show evidence of elaborate level teaching at all.
3.4.2 Studies Related to Rigidity and Locus of Control

Houtz (1980) studied problem solving and personality characteristics related to differing levels of intelligence and ideational fluency. Eighty gifted children were administered divergent thinking and problem solving tasks, as well as measures of tolerance for ambiguity, locus of control, and self-esteem. The four comparison groups varied in intelligence quotient and ideational fluency. Results emphasized the consistency among cognitive and affective dimensions of divergent or creative thinking.

Nystrom (1982) investigated relationships between one hundred and fifty five managers’ personalities (rigidity, intolerance of ambiguity and locus of control) and their leadership perceptions (initiating structure, consideration, and least preferred co-worker). The study found that only two of the twenty-four differences between means exhibited statistical significance, providing little support for a relationship between managers’ personalities and leadership perceptions.

O’Neal (1983) studied personal and professional characteristics of student teachers and co-operating teachers and their relation to supervision. Conferences between twenty student teachers and their cooperating teachers were analyzed. At the beginning, middle, and end of the student teaching experience, five instruments (the Educational Preference Scale, Teacher Concerns Questionnaire, Rigidity-Flexibility Index, Internal-External Locus of control and the Self-Perception Inventory) were self-administered by the participants. Findings indicated that cooperating teachers dominated the conferences and that teaching was discussed most often, with both
participants making highly specific statements dealing with methods and materials. Cooperating teachers with high scores on the personality measures indicated concerns with the cognitive domain and tended to make specific statements during conferences. Student teachers reporting high flexibility were likely to focus on the objectives of a lesson rather than methods, materials, or execution.

Stuessy (1984) formulated a model for the development of scientific reasoning in adolescents largely upon the basis of Piagetian theory. Potential determinants of scientific reasoning were: experience, age, locus of control, rigidity/flexibility, field independence-dependence (FID), intelligence quotient (IQ), and sex. Age & IQ were stronger determinants of scientific reasoning that were FID and experience. An indirect effect of locus of control on scientific reasoning through the FID variable was also supported.

Harding & Lachenmeyer (1986) conducted a study of family interaction patterns and locus of control as predictors of the presence and severity of anorexia nervosa. Overprotection, enmeshment, and rigidity and locus of control were contrasted in terms of their relative effectiveness in predicting both the presence or absence and severity of the disorder. The best predictor of both measures was locus of control.

Reinicke (1986) studied cultural adjustment of international students in the United States. Common symptoms of culture shock (irritability, loneliness, depression and rigidity) have been identified. An individual’s use of stable/unstable,
global/specific, and internal/external attributions can affect his adjustment to a new culture. Depression across cultures and locus of control are possible factors influencing culture shock. The personal quality of self-concept has been found to have a clear relation to the attributional category of internal/external helplessness.

Treven & Potocan (2005) found that individuals vary considerably in their ability to manage stress. Self-perception, locus of control, type A or B behavioural patterns and flexibility or rigidity, all appear to influence stress management abilities.

### 3.4.3 Other Studies Related to Rigidity

Schaie & Strother (1968) conducted a study to find out the effect of time and cohort differences on the interpretation of age changes in cognitive behaviour. The Test of Behavioural Rigidity (TBR) and the Primary Mental Abilities Test were administered to one thousand sixty samples obtained by stratified-random sampling of the membership of a prepaid medical plan. The study concluded that cross-sectional studies tend to overestimate decrement on unspeeded tasks due to the effect of increasingly favourable life experience or genetic improvement in the species.

Paffard (1968) was of the opinion that ability to think creatively stimulates the student’s intellectual curiosity, frees him from the rigidity of social class values, religious dogma and enables him to attain self-knowledge and emotional stability.

Hassan (1978) made a study of ethnocentrism, prejudice and related personality factors in Hindu and Muslim College students. Prejudices of both groups had significant positive correlation with anxiety, authoritarianism and rigidity. The
study showed no significant differences between Hindus and Muslims in rigidity and authoritarianism, but the Muslims had a higher level of anxiety.

Kirby, Nettlebeck & Goodenough (1978) conducted a study of cognitive rigidity in the aged and the mentally retarded. The results showed that mentally retarded samples had greater difficulty in changing than did the non-retarded samples. Older persons had greater difficulty to change between different categories of identification.

Nirmaladevi (1984) studied the influence of authoritarianism, rigidity and their interaction on verbal paired associate learning. The major findings of the study were: (i) there was a significant positive relationship between authoritarianism and rigidity. (ii) there was no relationship between rigidity and the number of trials taken to learn a first list for W-W and N-N paired associates. (iii) there was a significant positive relationship between rigidity and the number of trials taken to learn a second list for W-W and N-N paired associates. (iv) there was a significant negative relationship between rigidity and the number of first list responses recalled for W-W and N-N paired associates. (v) there was a significant positive relationship between rigidity and the number of second list responses recalled for W-W and N-N paired associates. (vi) there was no significant difference between the high authoritarian-high rigidity and the low authoritarian-low rigidity group in the number of trials taken to learn a first list of W-W and N-N pairs associates. (vii) there was a significant difference between the high authoritarian-high rigidity group and the low authoritarian-low rigidity group in the number of trials taken to learn a second list. (viii) there was no
significant difference in the high authoritarian-low rigidity group in the number of responses recalled in the first list and (ix) there was a significant difference in the high authoritarian-high rigidity and the low authoritarian-low rigidity group in the number of responses recalled in the second list.

Gray, Raymond & Seretny (1986) made a study of lateral preference as a predictor of cognitive rigidity. The results indicate that although patterns of lateral preference held little value in predicting whether a problem would be solved correctly, more left-oriented patterns of preference for visually guided tasks were significantly related to the use of rigid solutions.

Blaske (1989) found that assaultive offenders’ family relations evidenced rigidity and low cohesion, and peer relations showed aggression. Sex offenders and their mothers reported neurotic symptoms and peer relations of sex offenders showed low levels of emotional bonding.

Bhargava (1989) studied anxiety and conflicts taken in relation to rigidity-flexibility and level of aspiration. The study concluded that anxiety was related to rigidity and unrealistic goal setting, but conflict was not related to either of the variables related.

Olson & Johnson (1991) studied individual differences in self-presentation style. They identified three major groups among subjects: consistents, flexible impression managers and rigid impression managers. Results indicate that individuals’ behaviour corresponded to their reported styles.
Williamson (1991) examined individual characteristics, family relations and stress/social support of fifty maltreated adolescents and their mothers. The finding showed that adolescent neglect was associated with extra familial difficulties and social isolation. Physical abuse was linked more with rigidity in family relations, poorer maternal understanding of child development, and adolescent externalizing behaviours. Sexual abuse was related to maternal emotional problems and adolescent internalizing behaviours.

Crowley (1993) found that students perceived teachers as helpful when they engaged in specific aspects of teacher–student communication and flexible academic and behavioural programme implementation. They perceived teachers’ rigidity and use of discipline as unhelpful.

Panek, Partlo & Romine (1993) studied behavioural rigidity between traditional and non-traditional college students. The findings indicated significant differences between the groups on personality-perceptual rigidity and the composite rigidity quotient, with the non-traditional students scoring as less rigid (more flexible). Results argue against the belief that non-traditional students find it difficult to adjust readily to new situations and tasks and that rigidity increases with age. Further, within both groups of students’ women scores are more flexible than those of men.

Greene (1994) stated that current school restructuring challenges passivity and rigidity and provides new openings in experience, which creates good contexts for art education and aesthetic education.
Dulaney & Ellis (1994) examined the relationship between cognitive rigidity and cognitive inertia with a total of fifty-two children and adults with mental retardation and fifty non-retarded individuals. The findings provide some support for the theory that there are age-related inherent structural differences leading to greater rigidity in older adults.

Hayslip (1994) made a cross-sectional comparison of irrational beliefs and depression symptoms among younger and older adults. The results showed that in young adults, cognitive belief factors “externality/control” and “dependency/emotionality” were associated with affective and cognitive aspects of depression. Among older adults, cognitive belief factors “cognitive-emotional rigidity/depending” was uniquely associated with affective and somatic depression symptoms.

Wright (1996) examined emotional and cognitive elements that underlie racial intolerance, along with its theoretical underpinnings. It is believed that five factors shaped the evolution of intolerance: (i) prejudice, which includes the desire for rigidity in the social order; (ii) racial identity, or the way in which a child constructs a view of self as a racial person; (iii) worthlessness, or self-loathing; (iv) distrust arising from the breaching of expected interactions; and (v) cultural world view, or the way a child makes sense of everyday things. It is argued that racial intolerance manifests itself in a variety of self-defeating and psychologically harming ways for children. Such children are insecure and uncertain about the value of cultural difference.
Freman (1997) studied behavioural inhibition and the attribution of public speaking anxiety. The study revealed that behavioural rigidity and inhibition are significant, additive predictors of audience-perceived speaker state anxiety.

Ferrari & Mautz (1997) found that dimensions of perfectionism might be predicted with different measures of cognitive-behavioural rigidity. The results of multiple regression analysis indicated that attitudinal flexibility and motor cognitive rigidity were significant predictors of self-oriented perfectionism while attitudinal flexibility alone was the significant predictor of socially prescribed perfectionism. No measures of rigidity were a significant predictor of other-oriented perfectionism.

Mahalik, Cournoyer, De Franc, Cherry & Napolitano (1998) studied the relationship between men’s gender role conflict and use of psychological defenses. The finding showed that men experiencing greater rigidity about being successful, powerful, and competitive, expressing emotions, and expressing affection to other men use more immature and neurotic psychological defenses.

Carris, Sheeber & Howe (1998) conducted a study of family rigidity, adolescent problem solving deficits, and suicidal ideation. The study revealed that family rigidity had an indirect effect on adolescent suicidal ideation through its effect on adolescent problem solving deficits.

Cindy & Schaie (2001) conducted a study of perceived work environment and cognitive style. The test of behavioural rigidity was used to measure cognitive style. The findings of the study indicate significant mean level differences in perceived
work environment based on gender, age and type of occupation. Hierarchical regression analysis indicated that perceived work environment predicted concurrent cognitive style beyond demographic variables.

Hume (2001) made a study on magazine format with regard to trade security and rigidity for flexibility. He has the view that magazine format is more flexible, creative, and well thought through.

Hefferman (2003) in his study developed a complementary theory of path dependence based on rigidity resulting from the choice of management system within the firm. Rules-following behaviour introduces rigidity, which can lead to inefficient path dependence within a firm. An empirical look at the automobile industry explores the idea of rules-following behaviour inducing path dependence development and the potential for change despite inefficient path dependent behaviour.

Burlow, Jolley, White & Galbraith (2003) studied rigidity in children’s drawings and its relation with representational change. They found that procedural rigidity levels did not predict preschoolers’ performance when asked to change their representation and that preschoolers could change rigid sub procedures on familiar topics when asked. When possible performance aids were removed, no relation between procedural rigidity and representational change was found.

Butcher et al. (2004) studied maternal rigidity in infancy and level of intelligence at school age in children born pre-term. The results of multiple regression analysis indicated that maternal rigidity measured in the first year of the child’s life,
was not associated with mental performance at three or fourteen months. At 7½ years, however, it was strongly associated with cognitive development, contributing uniquely to performance IQ.

Hollenstein, Granic, Stoolmiller & Snynder (2004) investigated rigidity in parent-child interactions and the development of externalizing and internalizing behaviour in early childhood. The study revealed that rigidity in parent-child interactions is associated with externalizing and internalizing behaviour in early childhood and that this association is relatively independent of any specific content of the interactions.

Daz-lefebvre (2004) was of the opinion that too many of our brightest and most capable students are sometimes caught in a system that places too much emphasis on linguistic, word smart intelligence or mathematical, number smart intelligence. Students at all levels of academic readiness from developmental to honours are affected by the rigidity of this way of thinking.

Brand & Glasson (2004) made a study to explore the development of belief systems as related to racial and ethnic identities of pre service teachers as they crossed cultural borders into science teaching. The study revealed that racial and ethnic identity, developed in early life experiences of pre service teachers, provided clarity on the rigidity of their beliefs about diversity and how they viewed science teaching.

Brandhorst (2004) was of the opinion that one of the greatest challenges to a peace education curriculum is preparing young people to deal with conflicts over
issues central to identity. These kinds of conflicts can threaten beliefs derived from authority and, accordingly, may be characterized by cognitive rigidity. Specifically, teaching critical-rational logical thinking about identity conflicts may create public backlash. Attempts to activate empathic concern across their cultural divisions are exceedingly difficult.

Trautner et al. (2005) studied rigidity and flexibility of gender stereotypes in childhood. The findings showed that the period of rigidity was short-lived whether rigidity began early or late or whether the level of rigidity was high or low.

Ciarrochi, Said & Deane (2005) studied the link between rigidity, stressful life events and mental health in an undergraduate population. They investigated whether all aspects of rigidity are harmful. The study revealed that the desire for simple structure was associated with less hopelessness, whereas the intolerance of uncertainty was associated with more depression, anxiety stress, suicidal ideation, and hopelessness. In addition, the intolerance of uncertainty magnifies the adverse effect of stressful life events on depression, anxiety and hopelessness. The intolerance of uncertainty was more strongly related to the negative indices of well-being than to the positive index of life satisfaction.

**Major Trends Indicated by the Survey**

Lipton’s (1968) study shows no significant relationship between social rigidity or combined social and cognitive rigidity and reading achievement gains. Ferrari & Mautz’s (1997) study shows motor cognitive rigidity and attitudinal flexibility are significant predictors of self oriented perfectionism. Schaie’s longitudinal research
(Schaie, 1994; Schaie, Dutta & Willis, 1989) reflects a positive relation between flexibility and intelligence. Ho’s (1976) study shows a positive relationship of rigidity with belief stereotype of individuals. Ho’s study shows a negative relationship of academic performance with belief stereotype of individuals.

OUTCOME OF THE REVIEW

The above review of related literature enabled the investigator to develop a wide perspective of the nature of interaction of the variables concerned by the present investigation. It helped the investigator to frame the hypothesis and design the appropriate tools for the present investigation. The independent variables were selected on the basis of thorough review of related literature and studies. The studies related to emotional intelligence show inconsistency in the relationship between emotional intelligence and achievement. A literature review of the relationship between locus of control (generalized and specific expectancies) and achievement, Bar-Tal & Bar-Zolar (1977) states that 31 of 36 studies reviewed indicate a significant relationship between locus of control and academic achievement with internals having higher achievement than externals. The studies related to rigidity show the controversies surrounding several fundamental aspects of rigidity. Dover & Shore (1991) report that inflexible children had less metacognitive knowledge than flexible children. Zhang (1996) in a seminar on mathematics education discussed various issues related to problem solving in school mathematics, including ‘high achievement versus rigidity’. It may be noted that the study of mathematics achievement of degree students is of vital importance in the present educational set-up of Kerala. This itself argues for the need for a study of this kind.
References


