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Emotional Intelligence: A Review of Researches

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Abstract:

If we can add any domain with ones emotion then he will definitely gate more success and also he can do more creative work. EI is a young theory, still at an early stage in development and hypothesis testing, theory-building proceeds through successive testable claims, resulting in more refined theories that are evidence-based. Therefore, it is important to consider all the evidence. In spite of great recognition of emotional intelligence till now some researcher and educationist says that emotional intelligence affect only success in business and corporate world but it seems that emotions affect all our performance and abilities. Analysis of studies indicates that several important variables, e.g. creativity, academic achievement, achievement in mathematics and socio-demographical and environmental variables are significantly related with Emotional Intelligence. There is a need to researcher and educationist to give more attention on emotional intelligence to link with student learning outcomes. And some more studies could be done with variables like curiosity, values, culture, achievement motivation etc. This paper will provide researchers, educationist, policy makers, school administrators, teachers and counsellors a better view about the process and application of Emotional Intelligence.

Key words: Emotional intelligence, creativity, Academic performance and academic achievement, Mathematical Abilities, Socio demographical and Environmental variables.

The present paper is based on an analysis of Ph.D. theses, research paper, master dissertation, research articles and books. The research review represents an attempt to ferret out and focus upon various factors and processes that affected by emotional intelligence. Also this paper gives an analysis of the process that researcher used in their studies.

Most important organ of human body is his brain. In the last decade of 20th century exciting new discoveries about the brain confirmed what many of us already knew there is an emotional brain. There is a place, the limbic system where our emotions originate. It is separate from the rationale brain or the neocortex but the both are connected and develop together. This shows that our power to reason and our feelings are intended to be used together.

A few Researches show that the emotional part of the brain develops before the neocortex. Because of the brain's basic design, all information goes into our emotional centre and then to our thinker centre. Emotions come before though and behaviour. Our feelings fine up the engine that drives our enthusiasm, energy, competitiveness and creativity. Nothing great was ever accomplished without the power of emotions behind it. Emotion involves everything that is going on-memory, thinking, imagination and even perception of our surroundings. Carlson & Hatfield (1992) defined emotions as feeling states with physiological, cognitive, and behavioural components. Duckett (2002) asserted that emotional intelligence can be learned at any stage in life.

Researches on Emotional Intelligence in Major Fields

1- Emotional Intelligence and Academic Performances
2- Relationship of Emotional Intelligence to Creativity
3- Mathematical Abilities and Emotional Intelligence
4- Relationship of Emotional Intelligence to Socio-Demographical and Environmental Factors

Emotional Intelligence and Academic Performances

In recent time, the human mind added a new dimension which is now being held responsible for more success than intelligence. The term is called emotional intelligence (EI) and is measured as Emotional Quotient (EQ). Over the past several years, the term emotional intelligence has received much attention as a factor that is useful in understanding and predicting individual's performance at work, at home, at school etc., (Katya and Swasthi 2005). A number of studies have concluded that emotional intelligence and related traditional measures of intelligence and human performance are as more predictive of academic and career success than intelligence quotient (IQ) tests and other measures of scholastic aptitude and achievement (Nelson and Low 2003). Research findings emphasized the necessity of including emotional skills development programs designed to improve student achievement and academic success. Elias et al.(1991) concluded that the teaching emotional and social skills is very important at school, it can affect academic achievement positively not only during the year they are taught , but during the years that fallow as well, teaching these skills has a long-term effect an achievement.

According to a report from the National Centre for Clinical Infant Programs, the most critical element for a student's success in school is an understanding of how to learn. (Emotional Intelligence, 193.) The key ingredients for this understanding are:

- Confidence
- Curiosity
- Intentionality
- Self-control
- Capacity to communicate
- Ability to co-operate and to work in a team

Research of brain-based learning suggests that emotional health is fundamental to effective learning. It is the ability to

use emotions effectively and productively. Since the publication of the initial research in 1990, innovative schools and educational organizations have begun integrating emotional intelligence into their educational programs. It is becoming increasingly clear that these skills are one of the foundations for high-performing students and classrooms. For example, in a 2004 study of 667 high school students, James Parker and team gave students an emotional intelligence assessment and compared those scores to their yearend grades; he found that EQ and academic performance are strongly related.

EI is a way of recognizing, understanding and choosing how we think, feel and act. It shapes our interaction with others and our understanding of ourselves, it defines how and what we learn, it allows us to set priorities; it determines the majority of our daily actions (Freedman 1997). Research suggests it is responsible for us much as 80% of the success in our lives. Petrides et al. (2004) examined the relationships among EI, cognitive ability, and academic performance in a British sample of 650 Grade 11 students. They found that EI moderated the relationship between academic performance and cognitive ability. Elder (1997) pointed out that emotions have a significant role in student's ability to learn content well, thus emotions can facilitate learning.

Academic Achievement has been studied by various researchers in relation to Emotional Intelligence, Barton (1972), Hatzes (1996), Pool (1997), Finnegan (1998), Boyce (2001), Stottlemoeyer (2002), Thi & Kirby (2002), Vela Jr. (2003), Abdullah (2004), Drago (2004), Vig. (2004) have found that Emotional Intelligence is a significant factor for Academic Achievement, hence raising their level of academic achievement by enabling them to manage their emotions well and acquire the ability to regulate their fear, worry, frustration.

In his study Miglani, (2002) found a significant relationship between emotional ability and academic performance in Abohar. Oyesojl et al. in their study found significant positive relationship between emotional intelligence

and academic achievement; and between parental involvement and academic achievement. James et al. (2004) in their study the relationship between emotional intelligence and academic achievement in high school found that academic success was strongly associated with several dimensions of emotional intelligence. Ellis (2004) has also indicated relationship between EQ and academic achievement. Dargo, Judy M. (2004) have examined the relationship between EI and academic achievement in non-traditional college-students. Because student differ in cognitive ability. Result demonstrated that EI is significantly related to student GPA scores, Student cognitive ability scores, and student age. Additionally, student anxiety was related to certain EI abilities. No significant relationship, however, was found between and achievement motivation, overall, results suggested that academic achievement is related to student's EI ability to recognize, use and manage their emotions. This suggested the need to incorporate EI curriculum in to college degree programs to help students increase their EI.

Oyinloye (2005) attributes the problem of poor academic achievement to low level of emotional intelligence among secondary school students. He believes that "students who lack emotional intelligence show some adjustive challenges or in some ways fail to handle effectively the demands of school work. Such students might be said to have little or no emotional intelligence and may not be capable of attaining personal goals which include high academic achievement." It is apparent that the primary focus of education is academic performance that has been measured using traditional Intelligence tests or other forms of standardized examination, and schools cannot ignore or neglect the development of emotional domains and other personal factors contributing to the success of students (Nelson and Low, 2003) Educators need to build high-achieving, productive and healthy students, which can be achieved through a balance in the cognitive and emotional domains of learning. On account of this, Epstein (1998) and Le Doux (2002) suggest that both the cognitive and the emotional domains of

student's academic development should be the primary goal for educating students.

Emeke et al. (2006) in their study of creativity, locus of control and emotional intelligence as correlates of academic achievement among adolescents in Senior Secondary School, they found that creativity and emotional intelligence significantly correlate with improvement in academic achievement. Farooq (2003) reported that students with high emotional intelligence showed better academic performance than the students with low emotional intelligence. A similar finding among the Nigerian university students by Adeyemo (2007) revealed significant correlations between emotional intelligence and academic self-efficacy with academic achievement. Sünbül and Aslan (2008) equally reported relationship between emotional intelligence and academic achievement there is a significant body of research indicating that EI and other non-traditional measures are just as predictive of success as traditional IQ tests (Low, Lomax, Jackson & Nelson 2004; Low & Nelson 2005; Stottlemyer 2002). Nasir and Masur (2010) found that emotional intelligence significantly predicted academic achievement

In his study Dubey, R. (2008) found that the students of art and science stream do differ from one another on emotional intelligence. Thus it can be inferred that whether the students study humanities or science, it hardly makes any difference in their emotional intelligence. Arts stream students with high and low level of emotional intelligence have equal achievement. There is no significant relationship between emotional intelligence and achievement among arts and science stream students. There is no relationship between emotional intelligence and achievement in various subjects. Barchard (2003) in his study "Does emotional intelligence assist in the prediction of academic success". It was found that emotional intelligence measures are in no way helpful in predicting the academic success of the students. The cognitive ability measure and personality domain measure and for better in predicting

the academic success.

Aremu et al. conducted a study, which revealed that both emotional intelligence and parental involvement could predict academic achievement. Similarly, there were significant positive relationship between emotional intelligence and academic achievement; and between parental involvement and academic achievement. Carmen et al. (2009) conducted a study "Can emotional and social abilities predict differences in progress at secondary school?" The main results suggest that academic ability is not the only predictor of educational achievement and that emotional intelligence has a very important effect on learning. This is supported by research from the United States (Catalano et al. 2004) and Australia (Bernard 2006) which has shown that interventions to improve the emotional and social skills of adolescents do result in improved educational outcomes, suggesting that the relationship is a causal one

Jordan et al. (2010) indicated that for both males and females, intrapersonal ability had little relationship with academic achievement, while adaptability had the strongest relationship with achievement in all subjects. Gender differences were particularly pronounced for science, for which stronger relationships were observed with all EI components for males. In addition, apparent only for males was a negative relationship between stress management and science. These findings offer support for the current inclusion of a personal and emotional element in the primary school curriculum, and indicate that such training is likely to help males more than females to make a successful transition from primary to secondary school. Additionally, research findings at the doctoral level showed significant relationships between academic performance and the skills of emotional intelligence for both high school and college students during transition in South Texas University (Stottlemyer 2002; Vela 2003). These studies suggested that learning and applying EI skills directly impacted the success of students during the critical transition

period from high school to college and beyond and yet the influence of emotional intelligence on the academic achievement of UWI students had not been investigated. After reviewing research studies about emotional intelligence in relation to university students, Also Abraham (2006) concluded that training in appropriate emotional skills is necessary for career success and fulfilment. Further support for the relationship between EI and academic achievement has been demonstrated with university students (Lam & Kirby 2002; Wong, Day, Maxwell, & Meara 1995). Gumora and Arsenio (2002) reported that emotion regulation, one aspect of EI was a significant predictor of academic achievement. In addition, Lam and Kirby (2002) reported that, in an undergraduate sample, overall emotional intelligence, emotional perception, and emotional regulation, as measured using the Multifactor Emotional Intelligence Scale (MEIS; Mayer, Caruso, & Salovey 2000), accounted for increased achievement and cognitive-based performance.

The study by Nwadinigwe, I.P. and Azuka-Obieke, U. (2012) revealed that there is a positive relationship between emotional intelligence skills and academic achievement such that developing emotional intelligence skills of a student will lead to the enhancement of his/her academic achievement. Thus, there is the need to inculcate the development of emotional intelligence skills into the school curriculum. This is considered important because of its impact in improving the academic achievement of students. The findings of this study may assist stakeholders in the education sector in developing a better understanding of the effects of emotional intelligence on the academic achievement of senior secondary school students. Dr Grace A. Fayombo (2012) conducted a study, results were significant indicating that both emotional intelligence and gender predicted academic achievement but emotional intelligence was a better predictor of academic achievement than gender. Research supports this view, as trait EI dimensions (intrapersonal abilities, adaptability and stress

management) have been shown to predict academic success among university students (Lam and Kirby 2002; Parker, Summerfeldt, Hogan and Majeski 2004b) and among younger adolescents (Parker et al. 2004a).

There is also a growing realisation that transitions through education from school-college-career are challenging and difficult, especially for minority, first generation and non-traditional college students and that emotional intelligence influences variables in students' achievement and retention during transition period. For instance, Nelson and Low (2004; 2005); Nelson, Low & Vela (2005) reported this among high school graduates in the first year of college in Texas universities and colleges. Likewise, Parker, Summerfeldt, Hogan and Majeski (2004) found that emotional intelligence is a predictor in identifying academically successful and academically unsuccessful students during transition period.

The massive survey was conducted by Roger Weissberg, who directs the Collaborative for Academic, Social and Emotional Learning at the University of Illinois at Chicago – the organization that has led the way in bringing SEL into schools worldwide. This is the big news contained in a completed meta-analysis of 668 evaluation studies of SEL programs for children from preschoolers through high school. The data show that SEL programs yielded a strong benefit in academic accomplishment, as demonstrated in achievement test results and grade-point averages. In participating schools, up to 50 percent of children showed improved achievement scores and up to 38 percent improved their grade-point averages. SEL programs also made schools safer: incidents of misbehaviour dropped by an average of 28 percent; suspensions by 44 percent; and other disciplinary actions by 27 percent. At the same time, attendance rates rose, while 63 percent of students demonstrated significantly more positive behaviour. In the world of social science research, these remarkable results for any program promoting behavioural change, SEL had delivered on its promise. A recent meta-analysis (Durlak &

Weissberg 2005) encompassing 379 school-based prevention and youth-development interventions, targeting children between 5 and 18 years of age, that promote one or more SEL competencies reported that these interventions produced a range of positive benefits for participants. These included enhanced personal and social competencies, decreased antisocial behaviour and aggression, and fewer serious discipline problems and school suspensions. They also indicated that students who participated in SEL programs compared to nonprogram peers liked school more, had significantly better attendance records, had higher grade point averages, and ranked at least 10 percentile points higher on academic achievement tests. Zins, Weissberg, Wang, and Walberg (2004) reviewed the research findings on how SEL programming improves school attitudes, behaviours, and academic performance. Findings consistently emphasize the roles of both social and emotional competence and school climate in improving students' school success. They demonstrate that student self-awareness and confidence motivate them to try harder and that improved motivation, goal-setting, stress management, organizational skills, and problem solving enable them to overcome obstacles to improve their performance. Moreover, caring relationships between students and teachers and partnerships between teachers and families promote greater student commitment to, engagement in, and connection to school.

A study entitled "Role of Intelligence and Creativity in the Academic Achievement of Students" was conducted by Tatlah et al. (2012). The study was designed to investigate the influence of Emotional Intelligence and creativity on the academic achievement of Business Education Students using Ex- post facto research design. Findings from the study revealed that; emotional intelligence and creativity when combined, jointly predicted the achievement of Business Education Students. It is recommended among others that emotional intelligence and creativity skills should be taught as

a separate course with the aim of enhancing students' achievement and positive attitude towards learning. This support the work of Olatoye, Akintunde and Yakasi (2010) that emotional intelligence and creativity are good predictors of achievement of polytechnic students.

Farah Malik and Sultan Shujja (2013) in their study found that significant positive correlation between academic achievement and emotional intelligence. High and low achievers showed significant differences on overall emotional intelligence; no gender differences were found in both groups for total EQ score but on interpersonal and stress management scales; gender differences within groups were significant. Children from public schools were high on EQ than private schools but low on academic achievement.

A study conducted by Michel Hansenn and Jessica Legrand (2012) "Creativity, emotional intelligence, and school performance in children". Results showed that children school performances were predicted by creativity. However EI had no influence on performance. These findings question the recent spread of EI training programs within elementary schools.

In contrast to these reports of significant relationship between academic achievement and emotional intelligence, Newsome, Day, and Catano (2000) reported that EI, as measured by Emotional Quotient Inventory (Bar-On, 1997) was not related with academic achievement. In addition, when exploring the impact of emotional intelligence in student population, Woitaszewski (2000) reported that EI was not found to be an important predictor of academic success for adolescent students. Some studies have also found that EI is not a strong predictor of academic achievement regardless of whether ability or trait EI measures are used (Newsome et al., 2000; O'Connor Jr. and Little, 2003; Woitaszewski and Aalsma, 2004).

Relationship of Emotional Intelligence to Creativity

Emotional intelligence is also the ability to quickly reduce

stress, ability to recognize and manage your emotions, ability to connect with others using nonverbal communication. The ability to use humour and play to deal with challenges. The ability to resolve conflicts positively and with confidence. Positive or hypomanic moods increase awareness and enhance breadth and flexibility of thinking. People put in a positive mood produce more original word associations (Isen et al. 1985) and perform more successfully on tests of creative ability (Estrada et al. 1994; Isen et al. 1987) than people put in negative or neutral mood states. Furthermore, students who score higher on trait hypomania describe themselves as unique and creative and report engaging in more artistic or fantasy activities (Eckblad & Chapman 1986; Schuldberg 1990).

In the past two decades, neuroscience and cognitive science research have provided increasing evidence that correlates creativity with academic, social, and emotional intelligence. May (1975) has maintained that creative processes aren't irrational but are 'super-rational', bringing the intellectual, volitional and emotional functions into play together. He believes that the creative thinking represents the highest degree of emotional health and the expression of normal people in the process of actualising themselves. Adams (1986) connected the barriers to creativity with four subtitles: perception, emotional, cultural, environmental, and mental. Evans (1991) defined emotional barriers as they restrict the independence to change and research ideas. They prevent the communication of ideas; also they are psychological barriers that prevent novelty. . Creativity is closely bound up with an individual's personality and emotional life: there is more involved than just 'thinking skills'.

In a study by Chaturvedi (1997) found that highly creative persons are more warm hearted, intelligent, emotional stable, excitable, enthusiastic and self controlled. Goleman (1998) asserted that people with high emotional intelligence skills calm and clear, their minds quickly and easily open the way for insight, intuitive and creative ideas. He concluded that

emotional intelligence is a master aptitude and a capacity that profoundly affects all other abilities.

When exploring the role of emotional intelligence in creativity in the book emotional intelligence in everyday life: In a scientific inquiry, by Ciarrochi, Forgas, & Mayer (2001), reported that 'Positive moods are believed to facilitate creative idea generation, whereas negative moods focus attention and facilitate analytic processing (such as reviewing a financial spreadsheet). Generating an emotion to solve a problem, energise a group, or calm yourself prior to a big meeting or interview is a skill that can be learnt.' Adepoye (2003) said that any time people need to be creative they tend to be in an emotional state.

Russ has developed a model to explain the relationship between creativity and psychological processes. This model suggests that the following three elements are involved:

1. Personality traits, such as self-confidence, being able to tolerate ambiguity, curiosity and motivation
2. Emotional processes, such as emotional fantasy in play, pleasure in challenge, involvement in tasks and tolerance of anxiety
3. Cognitive abilities, such as divergent thinking, ability to 'transform' thinking (for example, by being able to reorder information or shift thinking 'sets'), sensitivity to problems, breadth of knowledge and judgement. For example, a child may not choose to engage in creative thinking because she lacks self-confidence and does not believe that she has anything of value to offer. Or maybe she becomes anxious when given an open-ended task with several possible solutions. Through observation and conversation, an adult can work out what is causing the child's difficulties and encourage her to work through them.

As with creativity, the "emotional tone of the person solving problems" affects insight (Sternberg & Davidson, 1995, p. xi). Metacognition and cognitive strategies, such as persevering,

address the attitudes and habits of mind involved in insight (Gagné, Briggs, & Wager 1988; Sugrue 1994). Motivation and fear of failure influence risk taking and persevering (Legg 1990). Tardiff and Stemberg (1988), the definitions that focus on creative person include cognitive characteristics, emotional qualities, and experiences during one's development. Positive emotions can then enhance creativity by increasing flexibility and breadth of thinking (e.g., Estrada, Isen, & Young 1994; Isen 1999; Isen, Daubman, & Nowicki 1987; Isen, Johnson, Mertz, & Robinson 1985). Barbara Fredrickson in her broaden-and-build model suggests that positive emotions such as joy and love broaden a person's available repertoire of cognitions and actions, thus enhancing creativity. Various meta-analyses, such as Baas et al. (2008) of 66 studies about creativity and affect support the link between creativity and positive affect.

Arora, R.K. (1992) found that higher creative and intelligent group was significantly highest in emotional stability. Landau, Erika, Weissler, Kineret (1998) in their study examined the relationship among emotional maturity, intelligence, and creativity in 221 gifted children at a special school in Israel. Emotional maturity was defined as the strength and courage to actualize individual abilities within the frame of social demands. Highly intelligent and emotionally mature children were more creative than less emotionally mature gifted children. Survey Saberi (2000) has concluded that increasing the emotional intelligence of school administrators increase their creativity. Also George J.M., and Zhou J., (2002) as well as Amabile et al. (2005) examine the relationship between creativity and emotional intelligence. There researches have revealed a specific influence of creativity to emotional intelligence. It was noticed, that in order to avoid a negative experience in situations, individuals explain their negative moods as the necessity to find a creative decision (George and Zhou, 2002).

In a study entitled "Emotional Intelligence and Emotional Creativity" conducted by Zorana Ivcevic, Marc A.

Brackett, and John D. Mayer, (2007), It was hypothesized that the relationship between EI and EC corresponds to the relationship between cognitive intelligence and creative ability. Therefore, EI and EC were expected to be two distinct sets of abilities. Intercorrelations and confirmatory factor analyses supported the hypothesis. Furthermore, it was hypothesized that EC, but not EI, would correlate with behavioural creativity. Self-report measures of EC significantly correlated with laboratory and self-reported creativity measures in both studies, while ability measures of EC only correlated with self-reported artistic activity. EI was uncorrelated with creative behaviour. Also Gustello and Hanson and Schutte et al. didn't observe any significant relationship between emotional intelligence and creativity.

In his study Singh, I. (2010). Concluded that creative student are more intelligent, motivate, controlled and stress free personality than non-creative student. Olatoye et al. (2010) Conducted a study "Emotional intelligence, creativity and academic achievement of business administration students" concluded that an emotionally intelligent student in the polytechnic system is likely to be creative but not likely to be a high academic achiever. Polytechnic management should also ensure a creativity and emotionally intelligent-friendly school environment.

In their study M. J. Sanchez-Ruiz et al. (2011) investigated the association between two creativity indicators: Divergent Thinking (DT) and Creative Personality (CP), and key aspects of cognitive ability, personality (Big Five), and trait emotional intelligence (trait EI or trait emotional self-efficacy). Cognitive ability was found to bear little relationship to either index of creativity. In contrast, strong relationships were demonstrated between personality traits, including trait EI, and creativity, some of which varied significantly across subject domains. Results suggest that future research will have to pay particular attention to individual differences in the affective parts of the personality realm that are comprehensively

captured by the construct of trait EI.

A study was conducted by Dadvar (2012) to identifying of relation between EQ and creativity of girl high school students and obtained significant and positive relation between EQ and creativity of students. Furthermore Ramezan Jahanian (2012) conducted a study "The Relationship Between Students' Creativity and Emotional Intelligence in Technical and Vocational Colleges" obtained results indicates that with the correlation of 99%, there is a significant relationship between the students' creativity and their emotional intelligence in their understanding of their own and others' emotions, emotional control, social skills and their optimism. Vijaykumar and Govindaraju (2012) in his study found that there is a positive relationship between creativity and emotional intelligence. Tatlah et al. (2012) conducted a study, The study established a direct positive relationship between emotional intelligence and creativity. This implies that an emotionally intelligent student is likely to be creative. This is in line with the conclusion of Cooper and Sawaf (1997) and Akinboye 2003. Mortazavi et al. (2012) in his Research findings shows that there is a positive and significant relationship between emotional intelligence and its components (managerial self-consciousness, social consciousness and relationship management) with creativity. M.K. Fakhri (2012) indicated that there is a positive relationship between general health and emotional intelligence and creativity.

According to researchers, positive emotions increase the number of cognitive elements available for association (attention scope) and the number of elements that are relevant to the problem (cognitive scope). On the other hand, some theorists have suggested that negative affect leads to greater creativity. A cornerstone of this perspective is empirical evidence of a relationship between affective illness and creativity. In a study of 1,005 prominent 20th century individuals from over 45 different professions, the University of Kentucky's Arnold Ludwig found a slight but significant

correlation between depression and level of creative achievement. In addition, several systematic studies of highly creative individuals and their relatives have uncovered a higher incidence of affective disorders (primarily bipolar disorder and depression) than that found in the general population. As should be clear from the above discussion, emotional intelligence provides a basis for the kind of creative thinking and problem solving necessary in mastering a skill and developing the capacity for intellectual reasoning. In addition, the capacities enumerated as part of emotional intelligence allow creative thinking to be utilized in interpersonal relationships in the sense of facilitating the capacity for empathy, perspective-taking, putting aside one's own needs in the face of a greater situational need, the ability to "read" the context of a situation and the making of appropriate choices.

Mathematical Abilities and Emotional Intelligence

Mathematics is an important subject in secondary school because it is associated with more academic and career opportunities (Akinsola and Tella 2003). The emotions of a person are an important factor in the development of abilities in any activity including mathematics. A joy in creation. a feeling of satisfaction from intense mental work and emotional enjoyment of the process heighten a person's mental tone, mobilizing his powers and free him to overcome difficulties.

There is a connection between emotion and cognition. Mayer, Salvey and Caruso (2000) viewed emotions as one of the three fundamental classes of mental operations which included motivations, emotion and cognition. There in the notion that having positive quality emotion and feelings helps students to achieve and give their best potential in the classroom (Fazura & Ghazals 2003).

The theoretical analysis of Mandler (1984) and the practical analysis in mathematics classrooms suggest that beliefs, attitudes and emotions should be important factors in

research on affective domain in mathematics education. The table given provide a brief outline of these major construct.
The affective domain in mathematics education

Category	Example
Beliefs	
About Mathematics	Mathematics is based on rules
About Self	I am able to solve problems
About Mathematics Teaching	Teaching is telling
About the Social Context	Learning is competitive
Attitudes	Dislike of Geometric proof
	Enjoyment of problem solving
	Preference for discovery learning
Emotions	Joy (or frustration) in solving
	Non routine problems
	Aesthetic responses to mathematics

The emotional reactions of students have not been major factors in research on affect in mathematics education. This lack of attention to emotion is probably due in part to the fact that research on affective issues has mostly looked for factors that are stable and can be measured by questionnaires. To phrase this observation in another way, most research in the past has looked at products, not at process, and it beliefs and attitudes rather than emotions. However, there have been a number of studies that have looked at the process involved in learning mathematics, and these studies have sometimes paid attention to the emotions. Certainly the current trend toward detailed studies of a small number of subjects allows the researcher to be aware of the relationship between the emotions and cognitive processing such awareness was not possible in traditional large-scale studies of attention factors.

Reports of strong emotional reactions to mathematics do not appear in the research literature very often. An

important exception is the work of Buxton (1981). His research deals with adults who report their emotional reactions to mathematical task as panic. Their reports of panic area accompanied by a high degree of physiological arousal, this arousal is so difficult to control that they find it disrupts their ability to concentrate on the task. Research on emotional responses to mathematics has been conducted, but it has never played a prominent part in research on the affective domain in mathematics. A major problem has been the lack of theoretical framework within which to interpret the role of the emotions in the learning of maths. Mandler's (1984) theory should help to provide such a framework.

An attempt was done by Bindu, Nair and Dharmangadan (2007), to identify how certain cognitive (viz., non-verbal intelligence and creativity) and personality variables (viz. emotional intelligence, and maladjustment) could synergistically discriminate individuals into high or low group of mathematically creative students. 90 post graduate students (30 males and 60 females) of arts (20), science (11), Humanities (27), and Management (32) faculties of University of Kerala who volunteered to participate in the study constituted the sample. The age of the subjects ranged from 21 to 24 years. The results suggested that the discriminate function that could separate the mathematically creative group from the less mathematical creative counterparts included non-verbal IQ (the most potent discriminator), followed by overall emotional efficacy and general creativity.

In their study Ogundokun & Adeyemo (2010) revealed that emotional intelligence was potent predictor mildly associated to academic achievement while achievement test on English language and mathematics were used as measures of academic achievement. Rusgianto (2011) in his study found that there are positive relationship between: (a) reasoning and mathematics achievement; (b) emotional intelligence in social interaction and mathematics achievement. Together, there is a positive relationship between reasoning, and emotional

intelligence in the social interaction with mathematics achievement. Mavroveli and Sanchez-Ruiz (2011) recently showed a significant relationship between trait EI and math scores in children aged 3 years but not in older pupils (4–6 years). Azuka Benard Festus (2012) in his study found that there was a significance low positive relationship between the emotional intelligence of senior secondary school students and their academic achievement in mathematics. The result also indicated that there was a significant low positive relationship between the emotional intelligence of SS2 male students, SS2 female students, urban school students, and rural school students and their academic achievement in mathematics. It was therefore concluded that apart from cognitive factors, emotional intelligence of students also affect their academic achievement in mathematics. It is recommended that there is need to include emotional intelligence curriculum in schools.

Agnoli et al. (2012) in his study found interaction between trait EI and cognitive ability in predicting academic performance. In particular, trait EI was positively associated with better language performance in children characterised by low or medium cognitive ability, but not in pupils characterised by high cognitive ability. Moreover, results showed that trait EI had a unique power to predict math performance. Similarly, the analyses showed an interaction between emotion recognition ability and cognitive ability in predicting both language and math performance. In contrast (Petrides et al. 2004) have found that trait EI, while having no influence on Maths and Science performance. Tariq (2012) in his study "Mathematical literacy role of gender and emotional intelligence." Concluded that Interventions aimed at improving EI may have the effect of improving learning strategies and performance in maths.

Odicta (2012) conducted a study entitled "Emotional Intelligence in Relation to the Mathematics Performance of College Students". Results of the study revealed that majority of the respondents were females; were middle child siblings in the family whose fathers and mother did not reach college

education; attended average class size and whose Math classes were mostly held early afternoon. Further, the study found that respondents' emotional intelligence tended to be on the average level while their mathematics performance was found good. Results also indicated that Mathematics performance of college students was affected particularly by the interpersonal and the stress management dimensions of emotional intelligence. In the dimension of adaptability, it was shown that the only child category of sibling tended to have higher level of adaptability than the other group. Respondents assigned in smaller class size and had classes scheduled in late morning performed higher in math than the other group of respondents.

Sharei et al. (2012) conducted a study, the main purpose of this study is to investigate of the relationship between emotional intelligence and metacognitive capabilities with the ability of mathematical problem solving in the students. The results showed that there is a positive and strong correlation between metacognitive capabilities and mathematical problem solving. This results are consistent with other research (for example: Kazemi and et al. 2012, 2010; Panaoura and et al. 2003, 2005; Lucangli and Cornoldi 1997; Schoenfeld 1985; Gooya 1992). And the result also showed that there is positive and significant correlation between emotional intelligence and mathematical problem solving, although this correlation is poor(r=0.206). Regarding gender specificity of the students, the findings represent meaningful difference between males and females in three variables; in fact, the performance of male students was better than females in metacognitve capabilities and problem solving, but the score of female students was higher than males in emotional intelligence skills. The results of this study reveal that, national education system of any country must consider a specific and noticeable position to develop learners non-cognitive variables, such as metacognitive capabilities and emotional intelligence skills at all educational levels.

Relationship of Emotional Intelligence to Socio-Demographical and Environmental Factors

In order to investigate socio-demographic and environmental variables we have focused on age, gender, ethnicity, and socio-economic status Home environment, location, parent's education etc. Emotional intelligence refers to a set of acquired skills and competencies that predict positive outcomes at home with one's family, at work and in the society (Akinboye 2003). Emotional intelligent individuals are often described as well adjusted, warm, genuine, persistent, and optimistic (Mayer & Salovey 1997; Salovey and Mayer 1990). Goleman (1998) also reported that emotional intelligence is the strongest indicator of human success.

We use the term Emotional Intelligence (EI) to refer to the mental processes involved in the recognition, use, understanding, and management of one's own and others' emotional states to solve problems and regulate behaviour (Mayer & Salovey 1997; Salovey & Mayer 1990). Emotional intelligence is a multi-dimensional concept that links emotion and cognition to improve human interactions.

Daniel Goleman (1998) asserts that no gender differences in EI exist, admitting that while men and women may have different profiles of strengths and weaknesses in different areas of emotional intelligence, their overall levels of E.I. are equivalent. However, studies by Mayer and Geher (1996), Mayer, Caruso, and Salovey (1999), and more recently Mandell and Pherwani (2003) have found that women are more likely to score higher on measures of emotional intelligence than men, both in professional and personal settings. The home environment and family process provide a network of social, physical, and intellectual forces. Home environment is important in terms of ensuring the child to overcome the emotional barriers (Parke et al. 1992; Thompson 1994). Verma & Larson (1999) have studied the negative emotional states of adolescents we related to school stress and inversely related to

family and peer variables. These factors may contribute to adolescent emotionality. Significance inverse correlations between rates of negative emotions and mental health indicated that frequent negative emotions among adolescence should not be dismissed as normative.

M. Nasir and S. Iqbal conducted a study to examine the relationship of demographic factors with emotional intelligence (EI) of university students. The relationship of selected demographic factors including gender, age, location of residence, household income and parents' education with emotional intelligence was examined. . Results indicated a significant correlation between emotional intelligence and some of the demographic factors. The model of demographic factors was found significant predictor of Emotional intelligence of university students. Petrides and Furnham (2000) investigated gender differences in actual and self-estimated scores on trait emotional intelligence of 260 participants from three British universities. The results indicated that males' self estimates of emotional intelligence were significantly higher than those of females. However, no significant difference was found on total measured trait emotional intelligence or any of its factors except one, named "social skills", on which women scored higher than men.

Bridges et al. (2001) in their study reported a strong association between emotional well-being and positive environment that provide adolescents with a sense of belongingness, acceptance and support for autonomy. Reiff et al. (2001) examined the relationship of gender, learning disabilities and emotional intelligence in college students. The results indicated that male students differed significantly from female students only on interpersonal scale out of the five composite scales of EQi. On the other hand, Mandell and Pherwani (2003) found a significant difference in EI scores of male and female managers in the study of relationship between emotional intelligence and transformational leadership style. Tiwari and Srivastava, (2004) found a positive relationship

between EI (as assessed by an abridged version of the SSRI, a trait EI measure) and perceived environmental quality of home and school, for example, living/working area, noise, support by parents/teacher, using an Indian sample of school children.

A study conducted by Harrod and Scheer (2005) on 200 youths of ages 16-19, emotional intelligence showed significant positive correlation with parents' level of education and household income. The study further revealed a significant difference between the scores of males and females on emotional intelligence, with females reporting higher emotional intelligence level. The study did not show relationship of emotional intelligence with age and location of residence. The overall model proposed in the study explained 18% variance in emotional intelligence. Shanwal (2005) found higher emotional intelligence in primary students belonging to rural areas than those belonging to urban areas. He also reported higher emotional intelligence in female students. Katyal and Awasthi (2005) showed females with slightly higher emotional intelligence scores, however, the difference was not statistically significant but only indicative of the trend. In another study Katyal and Awasthi (2006) found significant relationship of emotional intelligence with type of family, parents' educational qualification and mother's occupation, however, no significant relation of EI was found with monthly income, birth order and father's occupation. Fariselli et al. (2006) examined the relationship between emotional intelligence and age, showing a slight but significant positive correlation between them (r= .135).

Emotional Intelligence has been studied in relation to various demographic factors like age, gender, education, locale by Salovey & Mayer (1990), Dalip Singh (2001), Harrod (2005), Katyal (2005). The factors reported significant on Emotional Intelligence are age and gender.

A study conducted by Ozabaci (2006) entitled "Emotional Intelligence and Family Environment". The results of the study indicate that there was a relationship between EQ

and family cooperation. Sanwal (2002) in his study "A study of correlations and nurturance of emotional intelligence in primary children" found that identification and assimilation of emotion components co-vary more with socio-cultural and environmental factors, like number of family members and occupation of the father. Rural children found to be high in emotional intelligence than his counterparts urban children.

In his study Singaravelu (2007) found no significant difference in male and female student teachers, however, the difference in EI was found with respect to locality of residence. In a study to investigate relationship between demographic characteristics and emotional intelligence of workers in selected organizations, Adeyemo (2008) found a significantly high emotional intelligence in female workers, however, no significant relationship was found between age, marital status, educational qualification and EI. Balci-Celik and Deniz (2008) investigated the difference in the EI levels of Turkish scouts and scouts from other countries with regard to age and gender. They found no difference in emotional intelligence of boys and girls, neither there was any difference found in emotional intelligence with regard to age. Vijaykumar and Govindaraju (2012) found no significance gender difference in Emotional Intelligence.

Naghavi & Redzuan (2011), writes an article "The Relationship between Gender and Emotional Intelligence". The article reviews empirical studies which emphasized on the relation between gender and emotional intelligence. Emotional quotient (EQ) is a set of abilities such as conception, emotion appraisal and expression, emotion management and regulation and emotion utilization of emotion. As emotional intelligence is acquisitive and of social origin, parents and children thus expose their emotions in an expressive way to one another, either consciously or unconsciously in their interactions. It seems that further to individual differences of boy and girl, the expectations of society and people around, especially parents, are different in terms of children's sexuality. Culturally, girls

are mostly expected to be more expressive of feelings, whereas abstaining from feelings expression in boys is strengthened as a manly model. The research showed that emotional intelligence is meaningful associated with gender differences. The article is divided into several sections. The review is started with the definition of emotional intelligence and this is followed by a review on the emotional intelligence, as well as the effects and interaction of gender differences. Then, an overview of the paper is included a demonstration of the influence of gender differences on emotional intelligence is also given. Finally, as conclusion it is important to realize that girls are higher than boys in emotional intelligence, but high emotional intelligence in boys is a better predictor for achievement.

Conclusion and Suggestions for Future Research and Application

Learning is an emotional process. If doubt, recall the excitement felt when we finally succeeded in working a really difficult problem or finished a major paper. Remember the dread of entering an exam room when you weren't sure about the material. If there is no emotion, there probably isn't much learning going on. Consider the nodding heads in the typical large lecture. An emotion is a physiological response to a situation that is too important to leave to intellect alone, such as danger, painful loss, persisting toward a goal despite frustrations, bonding with a mate, building a family. To ensure emotional development, the concept of emotional intelligence should be included in school curricula. In this era of competition, the level of achievement has become key factor for progress in personal, educational and social life of an individual. Emotional intelligence can help us to make our impulse quite level so that we can face these competitions and improve our achievement. Above studies are clearly showing the significant relationship between emotional intelligence and academic achievement.

Mathematics abilities is received by students through hard and diligent works, their learning with control of good emotion can indicate by high intelligence and influential of anyone to think, the force them to use certain way of thinking, follow the principle refers to the certain rules that has basis in accordance with the reasoning ability. If the students use the right way in learning mathematics, they will get the high achievement of mathematics. Mathematical creativity is an essentially amoral cognitive skill that can serve any purpose as determined by one's own sense of moral and ethical behaviour, as well as one's emotional needs whether conscious or unconscious. Therefore, emotional intelligence is crucial for the utilization of this skill in a healthy and productive way. Emotional intelligence in social interaction of students through of empathetic, and skill interaction with their friends, and coordination relationship of interaction in learning within following mathematics instructional process in classroom as the requirement for students to reach success in learning. It was therefore concluded that apart from cognitive factors, emotional intelligence of students also affects their mathematical abilities. There are also many studies which are showing the relationship of Emotional Intelligence with socio-demographical variables. As should be clear from the above discussion, emotional intelligence provides a basis for the kind of creative thinking and problem solving necessary in mastering a skill and developing the capacity for intellectual reasoning. In addition, the capacities enumerated as part of emotional intelligence allow creative thinking to be utilized in interpersonal relationships in the sense of facilitating the capacity for empathy, perspective-taking, putting aside one's own needs in the face of a greater situational need, the ability to "read" the context of a situation and the making of appropriate choices.

Above studies shows implications for teachers, administrators and student's community in order to strengthen the emotional Intelligence among adolescents in turn it is

indirectly tuning their divergent and convergent thinking in a right manner so that creativity can be fostered to the fullest of their ability. Researches done in the field of EI indicates its significant contribution in success in human life. Emotions are basic, primeval forces of great power and influenced designed by nature to enable the organism to cope with circumstances which demand the utmost effort for survival or success or to add colour and spice to our living. Infant human beings have an incredibly rich and complex emotional life that provides value to our experiences, motivation to our actions, and a dimension of communication beyond spoken words. Emotional maturity helps children to adjust in the environment. The children may be encouraged to tolerate, to understand, to express and to build confidence. Self control should be developed among school children. They may be taught to cope with fears and angry feelings. Therefore, development of EI should be the aim of education.

And there is no doubt that there should be emotional literacy classes in schools or by reforming the curriculum in such a way that the requisite emotional skills can be taught to them while teaching other subjects like Maths, English. Teachers may help the students to develop self- awareness, empathy, art of resolving conflict and cooperation. Teachers should freely and frankly talk about feelings with students. For that, Emotional literacy programmes must be included in the training programmes of teacher-trainees. This would strengthen the ties among parents, teachers and taught. We have seen that studies also suggests a relationship between Emotional Intelligence and Environmental and socio-demographical variables so the parents should make efforts to build emotional competences in children, so that they can better fulfil their various roles in life.

Education based on emotional intelligence can provide more peace and less stress, more joy in dealing with us and with others, can help to retrieve a sense of balance and harmony when conflict becomes cooperation, the

overwhelming concern, the anxiety may not be mastered and so obvious it will help to get good academic success. Emotional intelligence is the ability to emotionally adapt optimally to a range of situations, understand others and work within the group, which gives individual optimism and confidence.

The modern concept of emotional intelligence is in itself a youthful one. Much work has yet to be done to discover exactly what emotional intelligence encompasses and how it would be most effectively applied. Future research on emotional intelligence might focus on the following areas:

- The extent to which emotional intelligence can be taught. As evidence exists both for and against the ability for emotional intelligence competencies to be developed, it is important that future research determine the extent that such learning may occur before an organization invests considerable funds into a development program. Perhaps hiring on the basis of emotional intelligence may prove to be more effective then attempting to develop its levels after the fact.
- The relationship between emotional intelligence and personality. More research is needed to determine the exact connection of emotional intelligence and personality constructs and if certain models or measures of emotional intelligence are accounting for additional variance in performance or behaviour over and above that of personality factors. Research should consider the usefulness of constructs and measures which may only replicate or rename ideas which are already established.
- The effectiveness of emotional intelligence programs. Several programs touted to increase the emotional intelligence of participants, which are available on the market, are yet to be evaluated. Program evaluation research is necessary in order to determine which programs are effective in general and in specific settings and situations.

- The role of emotional intelligence in the Public Service. Although a substantial amount of research has been conducted on the role of emotional intelligence in private business, there is a lack of research examining emotional intelligence in the public service sector.
- Some more studies must be done to see the relationship of Emotional Intelligence and Domain of Mathematics, like Mathematical Creativity, Mathematical aptitude etc.
- There is a need for research studies that will link emotional intelligence with students learning outcomes and others student related variables like curiosity, values, culture, achievement motivation etc.
- There is hardly any cross panel analysis study in the area of Emotional Intelligence to know cause and effect relationship with other variables.

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