



THE EFFECT OF MONTESSORI AND TRADITIONAL METHODS OF EDUCATION ON EMOTIONAL INTELLIGENCE OF CHILDREN

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Abstract:

The Montessori Method of education is becoming more popular in Indian cities in the recent decades. The parents, educationists and policy makers are keenly interested in the overall development of their children or stakeholders. Since its inception, the Montessori Method of education is adopting several procedures based on its basic principles of cognitive, social and emotional development of the children. Although every principle of Montessori education is not followed in the Indian Montessori schools, the schools are adhering to several of them. The present article adopted comparative analyses to determine the effect of Montessori and traditional method of education on emotional intelligence of the school children. A total sample of 1082 children between the age group of 12 – 16 years was selected from the schools of Montessori and traditional education. The data were collected using the Bar-on, (1997, 2000) Emotional Intelligence scale with Likert response patterns ranging 1 to 5. The obtained data was subjected to 't' test analysis and it was evident in the result findings that the children of Montessori method of education has significantly higher emotional intelligence than the children of traditional method on the total and as well on all dimensions of emotional intelligence. This highlights the education intervention method having strong bearing on emotional development of the children. Further, the findings related to gender effect provides inconclusive results both with Montessori and traditional children.

Keywords: emotional intelligence, Montessori, traditional education

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1. Introduction

Maria Montessori (1870-1952) is a scientist who earned the first female physician title in Italy. In 1907, Montessori left her practice and chair at the University, opened a school for impoverished children in the San Lorenzo section of Rome, and named it "Case Dei Bambini" or "House of Children" (Aytac, 1981). It was here that she began to formally implement her ideology based on the principle that every human being is created with a unique potential that needs to be discovered, developed and applied at an early age. The children belonged to poor families where both parents had to work and had no care for the children. Most of the children were between the ages of 3 and 6 years. This first "Children's House" was the seed of the Montessori Method of teaching/learning.

Dr. Montessori observed the children carefully as any scientist would while conducting scientific observations. The children who were labeled as "unteachable" were taught reading and mathematics by Dr. Montessori. She also had these children tested along-side the "normal" children. To everyone's surprise, the "defective" children's scores were as high as or higher than the scores of the "normal" children. The children were able to successfully complete Italy's standardized public school exams (The International Montessori Index, 2006). After seeing the results of her method of teaching on the "defective" children, Maria Montessori wanted to test her method of teaching/learning on "normal" children.

Montessori believed that children were not a blank slate and that the traditional learning methods such as recitation, memorization and conditioning failed to develop necessary life skills and individual abilities. She described traditional students as, *"butterflies mounted on pins, each fastened to their place spreading the useless wings of barren and meaningless knowledge which they have acquired"* (Shute, 2002).

Currently, there are more than 5,000 schools in the U.S. using some type of Montessori-based curriculum to teach children from infancy to eighth grade (Bower, 2006), including 300 public schools and some high schools use the Montessori program. These public and private institutions cater to the educational needs of inner-city children, wealthy neighborhoods, rural and urban magnet programs, at-risk children, learning disabled populations, early childhood schools and child care facilities (Lopata, Wallace & Finn, 2005).

Hence, the Montessori education is a 100-year-old method of schooling that was started initially with impoverished preschool children. In the second half of the 20th century, Montessori education became a world force of education. Montessori education is practiced in an estimated 20,000 schools worldwide, including in India (but

latter restricting education method up to higher secondary schools), serving children from infancy to eighteen years old.

1.1 Emotional Intelligence

Goleman (1995) defines emotional intelligence as *“the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions both in ourselves and in our relationships”*. Two researchers, Salovey and Mayer (1990) put forward the definition of EI much before Goleman in 1995, stating that emotional intelligence involves the *“abilities to perceive, appraise, and express emotion; to access and/or generate feelings when they facilitate thought, to understand emotion and emotional knowledge; and to regulate emotions to promote emotional and intellectual growth”*. Goleman (1995) outlines five emotional competencies – self and other awareness, mood management, self-motivation, empathy and management of relationships – are basic to emotional and social learning. The first three competencies represent emotional aptitudes, while numbers four and five pertain to social interaction skills.

The following ten competencies of emotional intelligence were studied in the present research.

1. **Self-regard:** Self-regard is the concern for one’s own interest or concern for oneself or it is a respect or a sense of one’s own dignity or worth.
2. **Interpersonal Relationship:** It refers to reciprocal social and emotional interactions between two people in the environment.
3. **Impulse control:** Is an ability to control one's emotions and behavior in the face of temptations and impulses.
4. **Problem Solving:** It is thought process involved in solving a problem or it is a strategy used to solve a difficult situation.
5. **Emotional Self-awareness:** It is an accurate self-assessment, where we are able to give a realistic evaluation of our strengths and limitation or it is the ability to recognize our own emotion and their effects.
6. **Flexibility:** Flexibility is an ability to adapt to different circumstances.
7. **Reality Testing:** It is an individual’s objective evaluations of the external world and the ability to differentiate adequately between it and the internal world.
8. **Stress Tolerance:** Stress tolerance is an ability to tolerate stress.
9. **Assertiveness:** It is a style of behaviour to interact with people while standing up for our rights or it is the courage to be ourselves and show the world who we really are: our likes and dislikes, our thoughts, feelings and short comings.

10. **Empathy:** It is the capacity to recognize or understand another state of mind or emotion. It is often characterized as the ability to in some way experience the outlook or emotions of another being within oneself.

2. Review of Literature

In the later 1960's and early 1970's, a number of studies included Montessori as one of several programs to which preschoolers were randomly assigned in order to assess the effectiveness of various programs for low income students (DiLorenzo, Salter & Brady, 1969; Karnes et al., 1983; Kohlberg, 1968). Montessori programs showed superiority on some measures (Lillard & Else-Quest, 2006).

Studies of Montessori education's impact on development are rare (Walsh & Petty, 2007). The few studies that exist present a mixed picture, with some showing better outcomes than other programs (Besancon & Lubart, 2008; Dohrnamm, et al., 2007; Lillard & Else-Quest, 2006; Miller & Bizzell, 1984) and others showing similar outcomes (Krafft & Berk, 1998; Lopata, Wallace & Finn, 2005). In a study by Castellanos (2003) different methods of teaching and different educational philosophies were examined to see if they affected children's self-esteem, self-efficacy, aggressive behaviour and pro-social behaviour. Elementary school children from a Montessori program were compared with children from a traditional program. The grades ranged from 2nd to 6th and all the children had attended the same program since at least the age of five. They were found to have lower levels of both verbal and physical aggression when compared to children in a traditional classroom. As the Montessori children developed greater skills at working in a group, their levels of verbal and physical aggression continued to decrease. Their ability to work in a group was also related to higher levels of both self-efficacy for academic achievement and self-efficacy for learning.

Increasingly, educators and psychologists understand that children's emotional learning should be given serious consideration and promoted in schools (Elias et al., 1997). The school setting is arguably one of the most important contexts for learning emotional skills and competencies (Mayer & Salovey, 1997). Under, such a framework, Mayer and Geher (1996), for example, hypothesized that educating those who are low in emotional competencies to improve their abilities to recognize, express, and regulate their feelings better may be possible.

Some claim that emotional intelligence (EI) is positively related to academic achievement and productive experience in the world (Elias et al., 1997). The idea that students' emotional and social problems can be addressed through school-based intervention programs became popular among educational reformers during the 1990s.

Mayer and Salovey's model is distinct from other mixed models, which define and measure EI as a set of self-perceived skills, competencies, and measure EI as a set of self-perceived skills, competencies, and personality traits, including optimism and self-esteem (Bar-On, 1997, 2006; Boyatzis, 2006; Goleman, 1995). In general, studies have shown that EI ability is related to greater empathy (Ciarrochi, Chan, & Caputi, 2000), less negative interactions with friends (Brackett, Mayer, & Warner, 2004), high quality relationships, less conflict and antagonism with friends (Lopes et al., 2004; Lopes, Salovey, & Straus, 2003).

One area of recent interest has been the impact of social and emotional competency on academic achievement. Early discussions on the relationship between emotional intelligence and achievement in various educational contexts were quick to claim a strong association (e.g., Elias et al., 1997; Goleman, 1995; Pasi, 1997). Although many educators were quick to develop or adapt intervention programs for EI (e.g., Elias et al., 1997), little was known about the efficacy of these types of interventions (Mayer and GeherG., 1996). Labouvie-Vief, DeVoe, and Bulka (1989) found that emotional maturation is matured during the pre-adult years. The researches like Bretherton, Fritz, Zahn-Waxler, and Ridgeway (1986) states that an outburst of emotion develops from external (i.e. associated with actions, physical processes) to internal situation (i.e. associated with memories, wishes, and other inner states). Therefore, it would be expected that when students are in school their intrapersonal skills will be more developed and would be more predictive of academic performance.

The body of literature reviewed above highlights the importance of Montessori education on cognitive as well as social-emotional development of various sample groups. However, there are some mixed results related to gender effect on emotional intelligence of the children. Hence, the present research makes a careful effort to categorize and compare the Montessori and traditional children on aforesaid variables.

3. Method

After designing the study, a preliminary study was conducted on 139 children of Montessori and traditional education selected from schools of Dharwad district, Karnataka, India. The questionnaires were translated from English to Kannada and the reliability was tested. The data yielded significant level of reliability for the Montessori children with values of .90 for emotional intelligence test, whereas for the traditional children the obtained reliability score was .81. These values are found to be highly significant. The main research was pursued after incorporating necessary changes and reducing the difficulty level of the tests. The main research hypothesized that the

children with Montessori Method of education have very high emotional intelligence than the children of traditional education. The study area includes co-education Montessori and traditional schools located in Dharwad, Belgaum and Bangalore districts of Karnataka State, India. The schools included in the Montessori group were KLE International High School and Love Dale High School of Belgaum city, Janata Shikshana Samiti and RLS Montessori School of Dharwad city, and Vibgour High School of Bangalore city. In the traditional group, the schools included were KLE GA High School of Belgaum city, KE Board High School, Pavan High School, RLS High School of Dharwad city and Priya Darshini High School of Bangalore city.

3.1 Study Sample

The present research included of total 1082 school children of Montessori and traditional education. Of them, 549 children were from Montessori education and 533 children were from traditional education background. The total number of male and female children in the Montessori education group was 287 and 262 respectively, whereas in the traditional education group it was 275 and 258 respectively.

Table 1: The sample characteristics of Montessori and traditional children

| | | Total Sample Size (N=1082) | |
|-----------------|--------|-----------------------------|------------------------------|
| Characteristics | | Montessori Children (N=549) | Traditional Children (N=533) |
| Gender | Male | 287 | 275 |
| | Female | 262 | 258 |

2. Montessori Children

The Montessori children comprise of the children studied in Montessori Method of education at least from their grade first to grade seven. For the traditional group the sample was selected from the schools which offer education purely with traditional method. The children took admission for Montessori and traditional program at later stage or change in education program was excluded from the study. Thus, the select schools under Montessori and traditional education are catering to the educational needs of the students with Montessori and traditional program up to grade seven.

Montessori and traditional education children in the present study comprise of the 3rd phase of age group between 14 to 16 years based on the assumption that children who attended Montessori program at least from the 2nd phase between 6 to 12 years of age attain their emotional development at the larger extent than the same age children

of traditional education. The mean age of the children of Montessori and traditional education were 14.93 and 14.80 years respectively.

2.2 Assessment Tools

Emotional Quotient Inventory tool is a self-report questionnaire (Bar-on, 1997, 2000) with 66 items measuring ten different component of emotional intelligence i.e., self-regard, interpersonal relationship, impulse control, problem solving, emotional awareness, flexibility, reality testing, stress tolerance, assertiveness and empathy. There are five response categories such as not true, seldom true, sometimes true, often true and true. A total score on emotional quotient inventory can be obtained with adding of the scores on all items. According to the test author, the Emotional Quotient Inventory was found to have high degree of reliability. The average Cronbach's alpha coefficient was high for all the subscales, ranging from 0.68 to 0.86 with an overall average internal consistency coefficient of 0.76. The test-retest reliability values range from 0.78 to 0.92. The convergent and the divergent validity were found to be 0.57 and 0.12 respectively. Moreover, the criterion group validity was established as 0.81. These values indicate that the tool is highly valid.

2.3 Analytic Technique

Mean and SD were calculated for each of the sample groups. The raw scores were converted into standard T scores and parametric analysis using 't' test was carried out to determine the significant effect of Montessori and traditional education and the gender on emotional intelligence. The result presented in the table 02 provides the baseline on the results of Montessori and traditional method of education on the aforesaid variables.

3.2 Results

Table 2: Means, Standard deviations and 't' values of the children of Montessori and traditional education on emotional intelligence

| Dimensions of Emotional Intelligence | Montessori Children (N=549) | | Traditional Children (N=533) | | t Value |
|--------------------------------------|-----------------------------|-------|------------------------------|-------|----------|
| | Mean | S D | Mean | S D | |
| Self-regard | 57.07 | 01.99 | 42.71 | 09.71 | 33.92*** |
| Interpersonal Relation | 56.14 | 01.83 | 43.68 | 10.98 | 26.20*** |
| Impulse Control | 57.39 | 01.52 | 42.39 | 09.29 | 37.30*** |
| Problem Solving | 55.46 | 02.26 | 44.38 | 11.63 | 21.89*** |
| Emotional Awareness | 57.41 | 01.68 | 42.37 | 09.23 | 37.49*** |
| Flexibility | 57.77 | 01.36 | 42.00 | 08.65 | 42.18*** |
| Reality Testing | 58.19 | 02.04 | 41.56 | 07.63 | 49.20*** |
| Stress Tolerance | 57.44 | 02.71 | 42.33 | 08.91 | 37.94*** |
| Assertiveness | 57.77 | 02.06 | 42.00 | 08.50 | 42.21*** |
| Empathy | 55.95 | 02.82 | 43.87 | 10.99 | 24.90*** |
| Total Emotional Intelligence | 57.69 | 02.63 | 42.08 | 08.50 | 41.00*** |

*** p<.001 level

Emotional intelligence results in relation to education method have been depicted in the Table 2. On the total emotional intelligence, the children of Montessori (Mean=57.69, SD=2.63) education method have higher emotional intelligence than traditional education children (Mean= 42.08, SD 8.50, $p < 0.001$). This result implies that Montessori education have significant effect on development of emotional intelligence than the traditional education. On the self-regard dimension of emotional intelligence the children of Montessori education scored higher (Mean=57.07, SD=1.99) than the children of traditional education (Mean= 42.71, SD 9.71, $p < 0.001$). This indicates that the Montessori children have higher self-regard than the traditional school children. The Montessori children are found to be concerned for one self and experience a sense of one's own dignity and worth as compared to the traditional children.

The results of present study also indicate that the children of Montessori education have more favourable interpersonal relations than the children of traditional education. The 't' value on interpersonal relations is very highly significant (M = 56.14, M = 43.68 respectively, $t = 26.20$, $p < 0.001$). On the impulse control, the obtained mean scores of the children of Montessori education is high compared to the children of traditional education (57.39 and 42.39, $t = 37.30$ $p < 0.001$). The above results imply that the Montessori children have high control on their impulsivity than the traditional

children. The traditional children react immediately at situations, and they try to influence other individuals instantly and very often negatively, whereas the Montessori children have control over such behaviour.

It was also found that the Montessori children have higher problem solving ability than the traditional children. The mean scores of the children of Montessori and traditional education (55.46 and 44.38, $t = 21.89$, $p < 0.001$) differ very significantly. Problem solving ability is a sign of high emotional intelligence. The Montessori children are found to have high problem solving ability and an ability to make judgment in the problem situations. On the emotional awareness dimension, the mean scores of the children of Montessori education is higher than the children of traditional education (57.41 and 42.37, $t = 37.49$, $p < 0.001$). This result implies that the Montessori children are found to be highly aware of their own emotions and emotions of others, make realistic evaluations of their strengths and limitations than the traditional children.

On flexibility to adapt to different situations there is significant difference between the children of Montessori and traditional education, the results favoring the Montessori children (Montessori Mean = 57.77 & Traditional Mean = 42.00, $t = 42.18$, $p < .001$). This shows that in the different circumstances the Montessori children are flexible and adapt very easily. Reality testing is ability for objective evaluation of external world. The result of present study shows that the children of Montessori education are found to have high ability for reality testing than the children of traditional education. The mean scores of Montessori school children are higher followed by traditional school children (58.19 and 41.56, $t = 49.20$ $p < .001$) and the result suggest that there is a significant difference between the groups.

Stress tolerance is the characteristic of emotionally intelligent individual. One who lacks on this ability is prone for higher stress even for a moderate or low level of stress. Findings of the present study reveal that the children of Montessori education have high stress tolerance than the children of traditional education (57.44 and 42.33, $t = 37.94$, $p < .001$). On the assertiveness dimension the obtained high scores favoring the Montessori children and scores are presented respectively (57.77 and 42.00, $t = 42.21$, $p < .001$) and there is very high significant difference between both the groups. This implies that the Montessori children are found to be expressive assertively their likes and dislikes, thoughts, feelings and short comings.

On the last dimension of emotional intelligence – empathy, there is significant difference between the children of Montessori and traditional education. The empathy is found to be higher among the Montessori children (55.96 and 42.08, $t = 41.00$, $p < .001$). This suggests that the Montessori children have high capacity to understand others'

state of mind, and are capable of experiencing feelings and emotions of other individuals putting oneself in their position.

The overall findings of the present study on emotional intelligence ascertain that the children of Montessori education have higher emotional intelligence than the children of traditional education. This is in accordance with the assumptions of the present study and the results of earlier research studies. For example, the study by Mills (2006) evaluated the effectiveness in teaching students to be emotionally intelligent. The Bar-On Emotional Quotient Inventory was used to measure the long term effects of their Montessori approach. The results show significantly higher levels of emotional self-awareness and happiness in students who had attended Montessori School for at least three consecutive years. Other studies have shown better socio-emotional outcomes for children attending Montessori middle schools than controls in demographically-matched conventional middle schools (Rathunde & Csikszentmihalyi, 2005).

Table 3: Means, Standard deviations and ‘t’ values of the male and the female children of Montessori and traditional education on emotional intelligence

| Dimensions of Emotional Intelligence | | Sample Groups (Total n=1082) | | | | | |
|--------------------------------------|------|---------------------------------|------------------------------|-----------|-----------------------------|-------------------------------|-----------|
| | | Montessori Male (n=116) | Montessori Female (n=316) | ‘t’ value | Traditional Male (n=116) | Traditional Female (n=289) | ‘t’ value |
| Self-regard | Mean | 48.82 | 51.30 | 2.92** | 49.64 | 50.38 | 0.85 |
| | SD | 11.54 | 07.78 | | 10.20 | 09.78 | |
| Interpersonal Relation | Mean | 49.41 | 50.64 | 1.44 | 49.59 | 50.44 | 0.98 |
| | SD | 10.97 | 08.78 | | 09.63 | 10.37 | |
| Impulse Control | Mean | 49.76 | 50.26 | 0.58 | 49.24 | 50.81 | 1.80 |
| | SD | 11.00 | 08.78 | | 09.56 | 10.40 | |
| Problem Solving | Mean | 49.55 | 50.49 | 1.09 | 49.50 | 50.53 | 1.19 |
| | SD | 10.94 | 08.84 | | 09.97 | 10.01 | |
| Emotional Awareness | Mean | 49.56 | 50.48 | 1.08 | 49.97 | 50.03 | 0.06 |
| | SD | 11.09 | 08.63 | | 09.89 | 10.13 | |
| Flexibility | Mean | 49.66 | 50.37 | 0.83 | 50.05 | 49.94 | 0.12 |
| | SD | 09.89 | 10.12 | | 09.98 | 10.03 | |
| Reality Testing | Mean | 49.82 | 50.20 | 0.45 | 50.04 | 49.96 | 0.09 |
| | SD | 08.78 | 11.19 | | 09.54 | 10.47 | |
| Stress Tolerance | Mean | 49.97 | 50.03 | 0.06 | 50.32 | 49.66 | 0.75 |
| | SD | 07.53 | 12.15 | | 10.07 | 09.92 | |
| Assertiveness | Mean | 49.90 | 50.11 | 0.25 | 49.50 | 50.53 | 1.18 |
| | SD | 10.03 | 09.97 | | 09.79 | 10.21 | |
| Empathy | Mean | 48.98 | 51.11 | 2.50** | 49.07 | 51.00 | 2.23* |
| | SD | 11.86 | 07.30 | | 10.10 | 09.92 | |
| Total Emotional Intelligence | Mean | 49.12 | 50.97 | 2.17* | 49.70 | 50.32 | 0.71 |
| | SD | 12.61 | 05.80 | | 09.94 | 10.06 | |

* p< .05 level

** p< .01 level

The results related to gender effect on emotional intelligence of the Montessori children have been presented in first part of the Table 03. On the total emotional intelligence, there is significant effect of gender on the Montessori children. The mean scores obtained by female children are higher than male children and scores are given respectively (50.97 and 49.12, $t = 2.17$, $p < 0.05$). This shows that the female Montessori children have higher emotional intelligence than the male Montessori children. The above table also shows that on two dimensions – self-regard and empathy – there is significant difference between the male and the female Montessori children, the results favoring the female children. The obtained mean scores on self-regard for the female children are higher than the male children (51.30 and 48.82, $t = 2.92$, $p < 0.01$). The Montessori female children are significantly more empathetic than the Montessori male children.

The overall results of Montessori children on emotional intelligence in relation to gender provide inconclusive findings. On the interpersonal relation, impulse control, problem solving, emotional awareness, flexibility, reality testing, stress tolerance and assertiveness there is no significant effect of gender on the Montessori children.

Even the results presented in the second part of the Table 3 reveal that the gender has no significant effect on emotional intelligence of the traditional children. Excluding the empathy, found to be more among the female children than the male children (49.07 and 51.00, $t = 2.23$, $p < .05$), on the total emotional intelligence as well as on its other dimensions – self-regard, interpersonal relation, impulse control, problem solving, emotional awareness, flexibility, reality testing, stress tolerance, and assertiveness – there is no significant effect of gender on the traditional children. This result implies that when the education is controlled for any one method the gender has no significant effect on emotional intelligence of the children.

Bracket, Mayer, and Warner (2003) studied emotional intelligence and its relation with daily activities. The findings showed that females got meaningfully higher scores than males in emotional intelligence, but emotional intelligence is a more distinguished predictor in men's life. In a study by Mayer and his colleagues (2001) determination of psychic-kinetic features of emotional intelligence structure has been focused. Their analysis indicated overall emotional intelligence and conception factors, cognition and conception and emotion management factor. Females had better performance than males. Siaruchi and his colleagues (2004) studied emotional intelligence of boys and girls, in this study emotional intelligence had overlapping with self-respect and hidden anxiety. The girls were meaningfully higher than the boys in overall emotional intelligence, emotion understanding skill, and emotion regulation and emotion utilization at .05 level of significance. Although Goleman (1995) considered males and

females to have their own personal profiles of strengths and weaknesses for emotional intelligence capacities, Dutta. J., Chetia. P., and Soni. J.C. (2015) found insignificant difference between male and female students in their emotional intelligence. Studies conducted by Mayer, Caruso and Salovey in 2001 and Mayer and Geher in 1996 indicate that women score higher on measures of emotional intelligence than men.

4. Conclusions

From the results, it is evident that the Montessori children are superior in emotional intelligence than the traditional children. It is also evident that the effect of gender on emotional intelligence is inconclusive. The Montessori female children have higher self-regard and empathy towards others than the male children. Among the children of traditional method, also it was evident that excluding the empathy, on remaining all competencies of emotional intelligence the gender has no significant effect. We need further verification related to the effect of gender on emotional intelligence of the children.

Increasingly, educators and psychologists understand that children's emotional learning should be given serious consideration and promoted in schools (Elias et al., 1997). The school setting is arguably one of the most important contexts for learning emotional skills and competencies (Mayer & Salovey, 1997). In the process of emotional learning, the individual develops the aptitudes, skills, attitudes and values necessary to acquire emotional competence. Emotional education may be provided through a variety of diverse efforts such as classroom instruction, extracurricular activities, a supportive school climate etc. Under such a framework, Mayer and Geher (1996), for example, hypothesized that educating those who are low in emotional competencies to improve their abilities to recognize, express and regulate their feelings better may be possible. Parker et al., (2004) found that various EI dimension were predictors of academic success. They used a mode of Emotional Intelligence (Bar-On, 1997, 2000) that consisted of four related abilities: intrapersonal abilities, interpersonal abilities, adaptability and stress management. Consistent with expectations, the successful group scored higher than the less-successful group on several dimensions of EI: intrapersonal abilities, adaptability and stress management. Students with higher levels of these abilities appear to be better able to cope with the social and emotional demands of making the transition to a post-secondary environment than students scoring low on these abilities.

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