

EMOTIONAL INTELLIGENCE AND ACADEMIC ACHIEVEMENT AMONG MALAYSIAN SECONDARY STUDENTS[#]

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Classrooms are always filled with youngsters displaying a wide range of concerns and behavioral problems that often make learning in the classroom difficult and ineffective. Students are often found to suffer from poor self-awareness, low self-esteem, lack of motivation, little self-discipline, poor peer interaction, an inability to express feelings effectively, and sometimes, a significant amount of emotional pain such as feeling sad, unhappy, anxious, frustrated, and angry. Based on the concept and model of Emotional Intelligence Quotient (EQ) by Mayer, Salovey, and Caruso (1997), the authors discuss how the mechanism of EQ can enhance students' emotional competency which in turn improve their learning in the classroom. Present study was conducted in 5 secondary schools in the state of Selangor, Malaysia, to examine students' overall level of EQ and the relationship between students' level of EQ and their level of negative affect (anxiety, anger, and frustration) towards specific school tasks and academic achievement. Research findings indicate that there is linear negative relationship between students' level of EQ and their level of negative affect towards specific school tasks, and positive linear relationship between EQ and academic achievement. Findings also indicate positive relationship between EQ and gender differences.

An earlier definition of emotions was suggested by Young (1975) as complex affective processes and states that manifest themselves in subjective feelings such as sadness, joy, anger, frustration, etc. Santrock (1998), defines emotion as "feeling or affect that involves a mixture of physiological arousal (fast heartbeat, for example) and overt behavior (a smile or grimace, for example). Emotions can be classified as positive and negative emotions (Pennebaker, cited in Santrock, 1998, pp. 360). Positive emotions, also known as Positive Affectivity (PA) refers to emotions that range from high energy, enthusiasm and excitement, to calm, quiet, and withdrawn. Examples of PA are joy, happiness, and

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laughter. Negative Affectivity (NA) involves emotions that are negatively toned, such as anxiety, anger, guilt, and sadness. These emotions are very important to the educative process as they drive attention, and consequently learning and memory (Greenberg & Snell, 1997).

The impact of negative emotions on academic performance can be examined through the relationship between emotion and learning processes. For instance, emotional maladjustment could result in inattention and poor memorization resulting in poor school work. According to Sharp (1975), the relationship between emotional maladjustment and school failure actually is a circular one. Emotional maladjustment affects children's ability to concentrate and to remember, resulting in poor school work which later increases the child's anxiety and frustration causing the child to be emotionally disturbed.

Apparently, anything that affects the child's emotional state is likely to affect his school performance. Anxious, unhappy, and angry youngsters do not make ideal students (Lewkowicz, 1999) and people who are caught in these states do not take in information efficiently or deal with it well (Goleman, 1995). The link between the child's emotional life and academic performance is clearly seen if we consider the question of anxiety. Over-anxiety can inhibit learning or hinder performance. Take the example of a child who is too anxious to pass an examination to please his parents who have high expectations on him/her. He/she might become so nervous thinking about the consequences of failing his parents that he/she may lose focus to the tasks he/she is attending to. On the other hand, a child who suffers from 'under-anxiety' is not anxious to learn and would not be concerned at his own failure or is not bothered whether he learns or not and he is unlikely to progress in school. Other negative affects that portray similar effects on learning are anger, frustration, and sadness. As attention and memorization are crucial in learning and influenced by emotional adjustment, the ability to regulate one's emotion can serve as a tool for adolescents to cope with negative affects when they encounter them in learning situations. Therefore, emotional regulation or emotional intelligence (EQ) plays an important role in students' academic performance above and beyond their cognitive ability. With this in mind, the importance of emotional development in education is included in the Malaysian National Philosophy of Education (NPE) as an important aspect besides intellectuality, physical, and spiritual well-being. The NPE is strictly followed by all parties who participate in the Malaysian system of education to make certain that the general goal of NPE to produce individuals who are intellectually, spiritually, emotionally, and physically balanced and harmonious is achieved.

Emotional Intelligence Quotient (EQ)

Emotional intelligence is a combination of the term emotion and intelligence. Mayer, Slovey, and Caruso (2000b) viewed emotions as one of the three fundamental classes of mental operations which include motivation, emotion, and cognition. The connection between emotion and cognition can be explained by the way emotion interacts with cognition. A person who is in good mood tends to think positively and productively and vice versa. As such, the term EQ implies that emotion and intelligence are interrelated and complementary giving rise to emotional intelligence (as cited in Mayer, 2001).

There are several views on EQ, thus giving rise to a number of EQ conceptual models. The popular ones are the ability theory of EQ originated by Mayer, et al. (1997) and the mixed-personality and socio-emotional definitions employed by Bar-On (1997) and Goleman (1998) respectively. These three models interpret EQ in different ways and they are overlapped to some degree with other concepts like emotions, cognition, and personality.

Mayer and his colleagues defined EQ as “a cognitive ability” and suggest that emotion and intelligence work hand in hand operating across both cognitive and emotional systems (see for example, Mayer & Salovey, 1997; Mayer, et. al., 2000a). According to Mayer and Salovey (1997), emotional intelligence involves “abilities to perceive accurately, appraise, and express emotions; to access and/or generate feelings so as to assist thought; the ability to understand emotions and emotional knowledge; and to reflectively regulate emotions as to promote emotional and intellectual growth” (p. 10). This definition implies that emotion and intelligence are inter related, emotion makes thinking intelligent and one thinks intelligently about emotions. This definition of emotional intelligence was then revised by Meyer et al. (2000b) and an overall and more formal definition was suggested as “...the set of abilities that account for how people’s emotional perception and understanding vary in their accuracy. More formally, we define emotional intelligence as the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others” (p. 401).

The mixed models of EQ have a different approach in defining EQ compared to the ability model. These models combine mental abilities such as emotional self awareness with other characteristics such as personal independence, self-regard, and mood. Bar-On’s (1997) model for example viewed emotional intelligence as “an array of non-cognitive capabilities, competencies, and skills that influence one’s ability to succeed in coping with environmental demands and pressures of

emotional intelligence” (Bar-On, cited in Mayer, et. al., 2000b). Then we have the Goleman’s definition of EQ which described EQ as the “abilities such as being able to motivate oneself; to control impulse and delay gratification; to regulate one’s mood and keep distress from swamping the ability to think; to empathize and to hope” (Goleman, 1995, p.36).

The ability model suggested by Mayer, et al. (1997) is used as the underlying theory of this study based on the suitability and relevancy to the research objectives besides the well-established instruments to measure EQ among adolescence. Based on this model, emotional abilities are divided into four major area of skills or four branches of emotional intelligence (see Appendix A). Below is a brief description of these four branches of emotional intelligence (Mayer & Salovey, 1997; Mayer, et al., 2000b).

- (i) **Perception and Expression of Emotion:** Ability to identify and express emotions in one’s physical states, feelings, and thoughts; express emotions in other people, artwork, language, etc.
- (ii) **Assimilating Emotion in Thought:** Facilitates thinking whereby emotions and emotional events assist intellectual processing.
- (iii) **Understanding and Analyzing Emotion:** Ability to understand and reason about emotions.
- (iv) **Reflective Regulation of Emotion:** Ability to stay open to feelings; detach from an emotion; monitor and regulate emotions reflectively in relation to oneself and others; ability to manage emotion in oneself and others.

The second branch for example concerns emotion acting on intelligence. It describes how emotional events assist intellectual processing like facilitating thinking. The third and the fourth branch enable students to employed emotional knowledge and regulate emotions to solve problems and process information effectively. At this level, students are said to have acquired emotional competence such as being able to manage their actions, thoughts, and feelings in adaptive and flexible manner across a variety of context including the learning context (Mayer, et. al., 2000b).

Emotional Regulation

Being the highest branch in the ability model of emotional intelligence (Mayer & Salovey, 1997; Mayer, et. al., 2000b), emotional regulation concerns the regulation of emotional arousal or processes

within oneself that facilitate a person's monitoring, evaluating, and changing his/her emotional reactions to maximize his/her efficacy (Saarni, 1997). With this understanding, students who obtained high scores in the overall emotional intelligence test in the present study are considered to have acquired the ability to regulate his/her emotion in general. Emotional regulation in the present study also involved investigation on subjects' ability to regulate their negative emotions towards academic tasks which were referred as negative academic affect.

Negative Academic Affect (NAA)

Negative academic affect refers to affects (anxiety, anger, and frustration) associated with school or academic tasks. Anxiety, for example, is an arousal that generates feelings like uneasiness and tension, and often characterized by varying degrees of fear and worry. It has a complex relationship with performance (Eggen & Kauchak, 1999). Relatively high anxiety improves performance on simple and well-practiced tasks but lowers performance on new or difficult tasks (Covington & Omelich, 1987). If the task is difficult and the anxiety is high, thoughts like "I won't be able to do it" will occupy the working memory space instead of devoting it to the tasks involved, and therefore lower performance on the tasks concerned. On the other hand, for simple tasks that require less memory space, this arousal will increase performance. The level of negative academic affect experienced by students reflects their ability to regulate emotions that are associated with school tasks.

Gumora (1999) investigated the connection between emotional regulation and academic achievement. In Gumora's (1999) study, Negative Academic Affect Scale (NAAS) was used to determine the emotional regulation among 103 young adolescence comprised of 51 boys and 52 girls (mean age: 12 years 1 month). Results showed that there was a significant association between student's ability to regulate anxiety, frustration, and anger experienced when performing school tasks. Other findings were significant connections between among students' grades, cognitive ability, academic competence, and aspects of temperament such as task orientation and mood. Overall results also revealed that students who had greater difficulty managing negative academic affect had a lower Grade Point Average (GPA), scored lower on the tests of cognitive ability, had lower perception on academic competence, and had less perseverance on tasks, and had a more negative general mood.

Lam and Kirby (2002) conducted a research to explore the impact of emotional and general intelligence on individual performance among 304

undergraduates (152 men, 152 women), ranged in age from 18 to 33 years. Multifactor Emotional Intelligence Scale (MEIS) was used to measure participants' overall EQ. Results showed that overall EQ and regulating emotions contributed to individual cognitive-based performance over and above the level attributable to general intelligence, and the relationship was positive.

The impact of EQ on school and learning was also mentioned by Schilling (1996) and she relates emotion to desire, and motivation which drive learning within school or without. Children who are emotionally competent have an increased desire to learn and to achieve.

Another study was conducted by Mayer, Caruso, & Salovey (2000) conducted on 503 adults (164 men, 333 women) with a mean age of 23 years (range: 17-70). Women were found to outperform the men on the 12 tasks of the Multifactor Emotional Intelligence Scale (MEIS) in all the scoring procedures. Other studies that yield similar results are studies conducted by Tapia (1998) and Sutarso (1998).

As the study of emotional intelligence is fairly new in the Malaysian classrooms, this study attempts to explore the fundamental issues of emotional intelligence such as the overall level of emotional intelligence among secondary students, and the relationship between EQ and academic achievement.

Specifically, this study addresses the following questions:

1. What is the overall level of EQ, academic achievement and level of negative academic affect among the students observed in this study?
2. Is there any significant relationship between gender and EQ?
3. Is there any significant correlation between students' level of EQ and their negative academic affect and academic achievement?
4. Is there any significant correlation between students' level of negative academic affect and self-rated academic competency?

METHOD

This study was conducted by using a descriptive survey design. Correlation analysis was used to determine the relationship between the variables. Three types of data were gathered namely, students' EQ level,

demographical information, and school achievement in terms of mid term examination results.

Sample

Participants for this study comprised 205 Form Four i.e., upper secondary level students (97 boys, 108 girls) from five secondary schools in Kuala Lumpur and Shah Alam in Malaysia with an average age of 16.5 years. An exploratory data analysis was done to see if the samples were representative. The test of normality for the EQ scores show that the samples came from a normally distributed population (Kolmogorov-Smirnov corresponding observed significant = .20, $df = 205$).

Instruments

Three instruments were used in this study to measure the desired findings. No major adaptations were made to fit into the background of the participants except for the language used in all these instruments (English) which were translated into the Malay Language which is the medium of instruction in all the secondary schools in Malaysia. Below is a brief description of the instruments used in this study. The instruments used were the following:

Adolescent Multifactor Emotional Intelligence Scale (AMEIS)

It is an ability test instrument developed by Mayer, et al. (1997) to assess adolescents emotional ability, and consists of eight emotional intelligence tasks that measure four branches of emotional intelligence as discussed earlier. Only four tasks were selected for this study following the suggestion made by the original authors as to increase the internal consistencies of the scales. The tasks are: Faces (48 items that measure ability to identify emotion); Synesthesia (60 items that measure ability in using emotion to generate sensation); Perspectives (20 items that measure ability in understanding emotion); Managing (24 items that measure ability to manage and regulate emotion). All the responses were scored by using continuum scales ranging from '1' to '5'. For example, scores for responses for item that requires the participant to locate how much 'anger' was expressed in Face 1 are between 1 to 5 (i.e., '1' for "Definitely not present", and 5 for "Definitely present". All the items were scored by using consensus procedure. On the face tasks for instance, if 30% of the respondents indicate '5' on the 'anger' response, then the score obtained by a participant who selects a '5' rating for this particular item is .30. The total scores for all the four tests reflect respondents' overall five levels of emotional ability ranging from 'very

low' to 'very high'. These ranges were determined based on the mean score and standard deviation obtained from the overall group scores in the tests. AMEIS was then translated into Malay language (*Bahasa Melayu*) which is used as the medium of instruction in the Malaysian school system. The translation was then checked and validated by two psychologists who have good command in both English and Malay language. The overall reliability coefficient of the translated version of AMEIS was found to be high ($r = .89$), with the following reliability index for each task: Task 1 (face): $r = .87$; Task 2 (synesthesia): $r = .79$; Task 3 (understanding): $r = .72$; Task 4 (managing): $r = .57$.

The Negative Academic Affect Scale (NAAS)

This scale was developed by Gumora (1999) to assess the negative affect associated with specific school tasks experienced by students. The NAAS ($r = .93$) consists of an item pool of 39 fill in the blank statements to measure the levels of anxiety, frustration, and anger experienced by students when performing school tasks such as participating in class discussions, doing mathematic problems, reading directions, concentrating in school work, doing homework, organizing information, identifying important points in reading assignments, talking to teachers, writing essays, doing Science experiments, receiving grade in tests, studying for test, and about performance in school. The items of NAAS are scored on a five-point Likert scale (i.e., 1 for 'Never'; 2 for 'Rarely'; 3 for 'Sometimes'; 4 for 'Often'; 5 for 'Always'). These scores are summed to yield a total score that will reveal students' level of emotional regulation in educational settings. High score indicates that the subjects are experiencing high level of negative emotions which means that their ability in emotional regulation is low. A sample item is as follows, "I ___ feel anxious participating in class discussions". NAAS was translated into the Malay language and tested again for reliability using the Cronbach's Alpha Reliability Test. Result showed that the translated version of NAAS still yield a very high reliability coefficients ($r = .91$).

Academic Competency Scale (ACS)

This is one of the six subscales of the Multidimensional Self Concept Scale (MSCS) developed by Bracken (cited in Gumora, 1999). MSCS can be used as an overall assessment of self concept or as an individual measure of any six scaled dimensions of self concept such as Social, Affect, Academic, Family, and Physical Competence Scales. ACS consisting of 25 items is the subscale for measuring students' self concept in the academic dimension. It is scored on a four-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. A sample item

is as follow, "classmates usually like my ideas." Ten out of twenty five items are negative connotations (for example: "learning is difficult for me") and they were reverse scored.

Procedure

This study was conducted in June, two weeks after the school mid term examination ended. A set of questionnaires and the emotional ability test instrument were distributed to 205 students from ten Form Four classes (2 classes from each school) during school hour. Students were briefed about the aims of the study, and were assured about the confidential treatment of their responses. Each class took about 1 ½ hours to complete the questionnaires and test. The questionnaires and the EQ answer sheets were collected at the end of the class. Students' mid term examination results were collected separately from the their Form teachers respectively three weeks after all the questionnaires and tests were completed.

RESULTS

To address the first question, "What is the overall level of EQ and negative academic affect among the students in this study?", the AMEIS and NAAS were analyzed. Table 1 summarizes the level of overall EQ, examination scores, and level of negative academic affect obtained by the respondents.

Table 1
Students' overall level of EQ, examination scores, and Negative Academic Affect (N = 205)

Level	EQ (%)	Exam (%)	NAA (%)
Very Low	17.6	-	-
Low	11.2	14.1	57.6
Average	20.0	71.7	41.0
High	17.6	14.1	.5
Very High	33.7	-	-
Total	100	100	100

Findings in Table 1 indicate that 28.8% (17.6%+11.2%) of the subjects are within very low and low category of their EQ level, 20% for the average category and 51.3% (17.6%+33.7%) are within the high and very high category. As for examination performance, 14.1% were found to be in the low category, 71.7% on the average and only 14.1% achieve in the high category. The level of negative academic affect was examined to see how much anxiety, anger, and frustration were experienced by students while engaging in school tasks.

Table 1 indicates that 57.6% of the respondents are within the low category while the rest are in the average (41%) and high category (1.57%). In general, the subjects in this study are found to be moderately high in their EQ; experience low level of negative affect related to academic tasks; and they are also average in academic achievement. These findings indicate that students in this study are able to regulate their emotions in general and in academic tasks specifically.

Table 2

Relationship between gender and EQ (N = 205)

Gender	Level of EQ					Total
	Very Low	Low	Average	High	Very High	
Boys	25.8%	12.4%	12.4%	16.5%	33.0%	100%
Girls	10.2%	10.2%	26.9%	18.5%	34.3%	100%

Note: Pearson Chi-Square = 12.79^a; *df* = 4 Significant (2-sided) = .012; Contingency coefficient = .25, *p* < .05

Data was further analyzed to check for possible relationship between boys and girls students with regards to their level of EQ (research question 2).

Results as indicated in Table 2 show that there is a significant but low correlation between sex differences and EQ level ($X^2_4, .05 = 12.79, p < .05$). 62.8% of the female students fall between the high (18.5%) and very high (34.3%) categories but only 49.5% of the males are within the high (16.5%) and very high (34.3%) categories. Overall, there is positive but low relationship between gender and EQ and girls seem to have a higher level of EQ compared to boys.

Table 3

Correlation between overall EQ and negative academic affect (NAA) and examination scores (N = 205)

Spearman Rho	EQ	NAA	Exam. Scores
EQ	1.00	-.136*	.187*
NAA	-	.100	-.176**
Exam Scores	-	-	1.00

Note: * = *p* < .05; ** = *p* < .01

To address the third question, Spearman Rho was run to examine the relationship between subjects' overall EQ and their negative academic affect and academic achievement as the distribution of the examination scores do not meet the normality assumption. As shown in Table 3, there is significant relationship between students' overall EQ level and examination scores ($r = .187, p < .05$) and Negative Academic Affect ($r = -.136, p < .05$). Correlations also emerge between negative academic affect and examination scores ($r = -.176, p < .01$).

These findings show that there is a positive relationship between students' level of EQ and their academic achievement, as well as level of negative academic affect. In summary, students with high EQ probably will experience a low level of negative academic affect associated with academic tasks. Results also indicate that there is a negative correlation between negative academic affects and examination scores, which means that students who are able to regulate their negative affects related to academic tasks probably will be better in their academic achievement.

Table 4

Correlation between negative academic affect and examination scores, and self-rated academic competence (ACS)

Pearson Correlation	NAA	ACS
NAA	1.00	-.427*

Note: $N = 250$ * = $p < .05$; ** = $p < .01$

Table 4 reveals the answer for the fourth research question. Negative Academic Affect correlates significantly with self-rated academic competence ($-.427, p < .01$). In short, students who are able to regulate their negative affects related to academic tasks have a more positive perception regarding their academic competency.

DISCUSSION AND SUGGESTION

Results of the current study indicated that students in the upper secondary school in Malaysia portray a moderately high level of EQ and emotional regulation related to academic tasks. As such they are less affected by negative affects such as anxiety, anger, and frustration in performing academic tasks in the classrooms. This may also explain their average performance in academic achievement. Malaysian National Philosophy of Education (1999) explicitly emphasizes the development of individuals in a holistic and integrated manner so as to produce

individuals who are intellectually, spiritually, emotionally, and physically balanced and harmonious. In relation to the national educational policy, the Malaysian Ministry of Education has implemented an integrated curriculum that incorporates the teaching of the national language, acquisition of knowledge, values, thinking skills, and religious studies across the curriculum. However, much focus is still needed to inculcate the emotional aspects of school children and adolescence as emotion plays an important role in the well-being of a person and achieving success in life. Besides, emotional intelligence is very much needed among Malaysian students who are exposed to various kind of stress and pressure in their daily life. This is evidenced by a report made by the National News/*Berita Nasional* (March, 2002) which stated that 35% of the students in Malaysia experienced emotional stress due to the increase academic tasks given to them in the classroom. This situation indicates that a more rigorous action should be taken by the Ministry of Education to include EQ as one of the major components in the national curriculum to ensure that EQ is given proper and important attention in classroom learning as well as in co-curriculum activities.

In the case of gender differences in relation to emotional intelligence, results of the current study indicated that girls have higher EQ level than boys. This supports the conclusion made by Mayer, et al. (2000) that there was significant relationship between gender and EQ. According to Mayer, et al. (2000), women and men perform about the same on most intelligence-related mental tests, but there are some regular differences in the profiles of the two groups particularly their performance related to tasks. For instance women are somewhat better on tasks of reading comprehension, perceptual speed, and associative memory, while men are found to be better in tasks related to mathematics and science knowledge. The fact that women are slightly superior to men in perceiving emotion has been known through tests of nonverbal perception such as Profile of Nonverbal Sensitivity (PON) which includes emotion (cited in Goleman, 1998). Another reason why girls show higher level of emotional intelligence compared to boys was due to the fact that girls receive significantly more education of emotions from their parents than do boys, and that make them more emotionally competent than boys (Schilling (1996). Boys are always perceived as a stronger person compared to girls and as a result their emotional needs are often neglected and more attentions are paid to the need of girls. Results in the present study suggest that boys, in fact need equal or more attention and care as girls do.

Results also indicate that students with high EQ, probably will experience low level of negative academic affect associated with

academic tasks. They are found to be able to regulate their negative emotions towards academic tasks, and obtain higher examination scores. Students with high level of EQ and ability to regulate emotions experience less negative affect towards academic tasks and tend to perform better in tests and examination and vice versa. For instance, the inability to regulate anxiety interferes with test performance of highly anxious students by distracting their attention away from the task they are involved with (Sapp, 1994) and results in lower performance. Test anxiety is a serious problem to school children because it could affect their test performance thus giving a false impression of their overall academic performance. Deffenbacher (cited in Lefrancois, 1988, p. 277) in his research reported that “worry significantly decreases both expectancy of performance and actual performance”, which means that students who are too anxious about test do not perform as well as those who are less anxious. Results in the present study support the findings about anxiety and imply that it is important for students to acquire the ability to regulate negative affect such as anxiety, fear, worry, frustration, etc. in order to improve their performance in academic tasks. As such it is suggested that teachers should always be aware of the emotional states of his/her students and if he/she comes across any students who experience a high level of anxiety, or being unhappy, worried, depressed or lacking concentration before engaging in school tasks or examinations, he/she should attempt to help them to lessen or overcome those negative feelings by enhancing their emotional competency in general and emotional regulation in specific.

Connections were also found between students’ level of negative affect in relation to perceived academic competence. This finding supports Gumora’s suggestion that students’ academic self-concept is associated with their ability to manage affects related to school tasks. Students who have the ability to regulate their negative affect associated with school tasks often perceive themselves as more academically competent and vice versa. It would be even more interesting if students’ actual academic competency to be examined in relation to emotional regulation.

CONCLUSION

This preliminary finding on students’ overall level of EQ and its relationship with students level of negative affect related to school tasks and academic achievement yields some basic assumptions about the important role of EQ in complementing the traditional intelligence to improve academic performance. Intellectual ability alone is no guarantee of academic success. Many bright students fail to reach their academic potential due to poor motivation, test anxiety, fear, frustration which

hinder learning and recall and impair the control of attention. On the other hand, students who are able to regulate their negative affect are said to be better and more effective in problem solving and processing information. Therefore EQ is important in the education setting, and learning to manage one's emotion is particularly important to students who are prone to negative affect such as anxiety, fear, anger, frustration (Eisenberg, Fabes, and Losoya, 1997). With a strong EQ, students will not only be successful in school but develop into well adjusted individuals in the society as well. As such the school curriculum and the teacher education curriculum need to include some input on EQ in order to develop well balanced and harmonious individuals as emphasized in the National Philosophy of Education.

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