

# The Influence of Types of Race among Engineering Students towards the Level of Emotional Intelligence (EQ) Scores

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## Abstract

Emotional intelligence (EQ) has been increasingly accepted as one important aspect in achieving high performance in work besides Intelligence Quotient (IQ). This study concentrates on the comparison of EQ levels between major races in Malaysia (Malay, Chinese, Indian and others) among Engineering & Architecture Faculty students, UKM. To start the study, this paper reports the level of EQ scores where the results were obtained at the entry level; when they first enrolled into their courses and also at exit level. The EQ levels were determined using the Malaysian EQ Inventory (MEQI) test which is developed by a group of UKM researchers with the funding from Ministry of Science and Technology. The number of respondents according to each batch is as the following: Entry level - Batch 1, n= 319 (2007/2008); Batch 2, n= 146 (2008/2009); Batch 3, n= 166 (2009/2010); Batch 4, n= 130 (2010/2011) and Exit level – Batch 5, n= 99 (2006/2007). All race groups scored between 74% and 83.6% averagely for all batches. Between the recorded four major groups, the Malay group recorded the highest EQ scores in all domains throughout all five batches. However, the differences between the scores of each types of race are small and this result generally shows the types of race do not have any significant influence on EQ levels of the students. Interestingly, all races score the highest and lowest on the similar domains. To validate this inference, other sets of students' EQ scores should be measured and when they have spent a considerable amount of time at the university before any focused programs and initiatives are developed to elevate the EQ level of the students involved.

*Keywords:* Emotional intelligence, entry level, exit level, engineering students, race comparison;

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## 1. Introduction

High level of intelligence quotient (IQ) is much related to produce high performance in work as it measures the level of mental abilities. IQ is generally defined as the scores from the result of a test that rates cognitive ability of the subject as compared to the general population. A person with high IQ level is considered to have the ability to solve problems and understand concepts in great manner. However, life is more than being excellent at work. Many other elements constitute a healthy, fulfilling life beside high mental capability. One element which has received increasing amount of attention is emotional intelligence (EQ). When IQ is normally associated with scientists and prodigies, EQ is more discussed as the results for outstanding corporate leaders, successful entrepreneurs and great politicians. EQ depicts the ability, capacity, skill, or self-perceived ability to identify, assess, and manage the emotions of one's self, of others, and of groups (Goleman, 1995).

High skills of communication, conflict management and dealing with emotions are part of high EQ qualities and undoubtedly contribute towards developing a great personality of an individual. Unlike IQ, EQ continues to develop with life experiences and relates to leadership potential which some quoted to be the barometer of excellence on virtually any job. The outcomes of EQ development also contain many elements such as reduced stress- for individuals and therefore organizations- by moderating conflict; promoting understanding and relationships; and fostering stability, continuity, and harmony. Therefore, EQ becomes an interesting element to be linked with the academic performance of students at tertiary education where their upbringing and their experience from spending a substantial number of years at their previous academic institutions may gradually affect their EQ development. Some may argue that academic performance just rely on IQ level which measure intelligence, however, when EQ

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provides the foundation of appraisal and expression in the self and appraisal of emotion in others, the ability to use the intelligence is affected as well. In the education system where outcome based- learning is widely practiced, assessment method of courses which emulates the combination of cognitive, affective and psychomotor domains are commonly used in measuring the students' overall performance.

EQ models and concepts development and frameworks are discussed widely in the literature. The term "emotional intelligence" was first used by Salovey and Mayer (1990) where they concluded that emotional intelligence consists of three categories of adaptive abilities: appraisal and expression of emotion, regulation of emotion and utilization of emotion in solving problems. The first category is further divided into verbal and non-verbal components and as applied to others is broken into non-verbal perception and empathy. The second category is explained as regulation of emotions in the self and regulation of emotions in others. The third category, which can be seen to be related to students' course assessment, includes the components of flexible planning, creative thinking, redirected attention and motivation. This model not only concentrates on the emotions agenda, but also the impact of the utilization of emotion.

Some specific-ability models address the ways in which emotions facilitate thinking. For example, emotions may prioritize thinking (Mandler 1975) or allow people to be better decision makers (Lyubomirsky et al. 2005). The concepts behind these models support the idea that EQ is able to develop an individual into a successful leader and manager which is very desirable in working environment. Therefore, the focus to increase students' EQ during tertiary education can help to prepare the students into being marketable graduates.

To look beyond the education base, EQ can prepare the students into experiencing successful, happy life. There are other models in EQ stresses the varying degrees mix in other scales of happiness, stress tolerance, and self-regard (Bar-On 1997); adaptability, (low) impulsiveness and social competence (Boyatzis & Sala 2004, Petrides & Furnham 2001); and creative thinking, flexibility, and intuition versus reason (Tett et al. 2005). This is a crucial issue as the pressure of fulfilling and achieving the highest requirement in academic can be overwhelming, the students must equip themselves with the adequate level of skills in managing and controlling the pressure appropriately.

This particular study focuses on how culture can affect EQ level on students. As Malaysia is composed of many races, the multi-cultural differences issue is always being linked to certain habits of successful individuals or even outstanding organizations. Culture is usually described as the shared patterns of behaviors and interactions, cognitive constructs, and affective understanding that are learned through a process of socialization. Damen, L. (1987) gives a deeper insight of definition:

"Culture: learned and shared human patterns or models for living; day- to-day living patterns. these patterns and models pervade all aspects of human social interaction. Culture is mankind's primary adaptive mechanism" (p. 367).

For comparing culture, the race of the students is monitored. This study believes that a race hold an exclusive culture which practices unique way of imposing behaviors and interactions which may have significant contribution into EQ development. The purpose of this study is to examine the EQ level of three main races in Malaysia among students and seeks to address which domain experiences the highest score for each type of race.

## **2. Methodology**

This study concentrates on the use of Malaysian EQ Inventory (MEQI) test to look at the relationship (effectiveness) of the domains encapsulated in the EQ model in measuring EQ level of undergraduate students in Engineering & Architecture Faculty, UKM. To start the study, this paper reports the level of EQ scores where the results were obtained at the entry level; when they first enrolled into their course and also exit level, at the course completion or graduation stage. A comparison is conducted between five batches of UKM engineering and architecture students which bring to the total of 860 students. The tests are conducted among 1st year students which are from four academic sessions: 2007/2008, 2008/2009, 2009/2010 and 2010/2011. In addition, one batch is included representing the exit level which were first enrolled to their course during academic year of 2006/2007. This batch had graduated in September 2011 and took the test by answering questionnaires on-line soon before convocation. From the total of 359 students graduating, 99 students took the test which brings to the 27.58%

response rate. The number of respondents according to each batch is as follows: [Entry level - Batch 1, n= 319 : (2007/2008) ; Batch 2, n= 146 :(2008/2009); Batch 3, n= 166 : (2009/2010) and Batch 4, n= 130 : (2010/2011)]. For Exit level – Batch 5, n= 99: (2006/2007).

MEQI is a product from a group of UKM researchers (Noriah et al., 2003) which develop the model to incorporate Malaysian values and characteristics. Their findings validated the existence of the five domains suggested by Goleman (1995) which includes self-awareness, self-regulation, self-motivation, empathy and social skills. However, the UKM researchers suggest that the five domains are not adequate to describe emotional intelligence among the Malaysian individuals. Therefore, they propose two additional domains, spirituality and maturity into development of a new model, named as MEQI. It addresses the traditional culture of Malaysians that values the respect to the elderly and embraces spirituality in many aspects of their life.

This study is carried out to use MEQI as the tool to assess the EQ of the engineering students. This is as an effort to examine what domain is lacking amongst the students and what can be done to elevate the low domains. So far, the academic performance of the students is not linked to any EQ study, therefore there is no record of EQ levels of the related students. This study is at the early stage, therefore its sole objective is assess all EQ domains during course enrollment and course completion. Each student took the test online and the results were obtained in terms of scores relative to the seven domains. Under each domain, there are sub-domains as listed in Table I below.

TABLE I: Sub-domains of MEQI model

Domain	Sub-domain	Domain	Sub-domain
1) SELF AWARENESS	emotional awareness accurate self assessment self confidence honesty	4)EMPATHY	understanding others helping others leveraging diversity service orientation
2)SELF REGULATION	self control trustworthiness responsibility adaptability innovation	5)SOCIAL SKILLS	developing other's potential political awareness caring influence conflict management leadership
3)SELF MOTIVATION	achievement drive commitment initiative interest		change catalyst building bonds collaboration and cooperation team capabilities communication
6)SPIRITUALITY			
7)MATURITY			

### 3. Results and discussion

For the entry level, the results are shown in Figure I, Figure II, Figure III and Figure IV. As for the exit level, Figure V is illustrated as below.

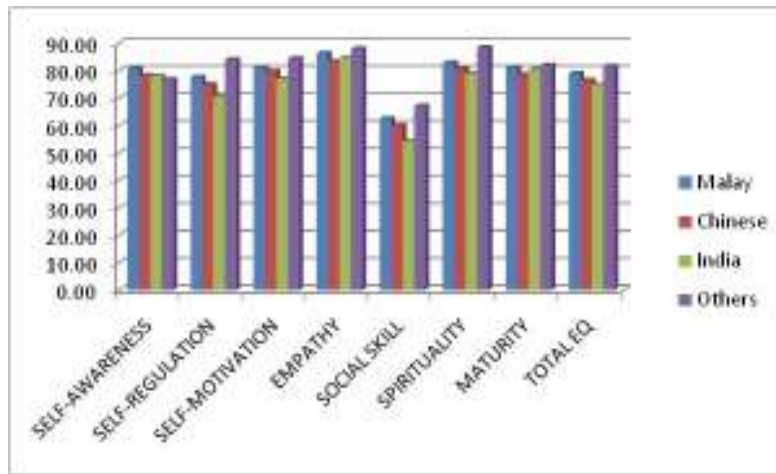


Figure I: Results of each domain at entry level according to the main races for batch 2007/2008

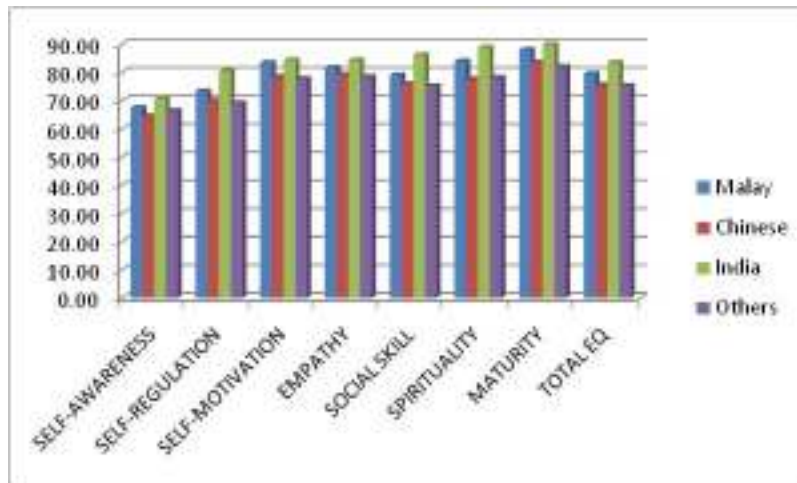


FIGURE II: Results of each domain at entry level according to the main races for batch 2008/2009

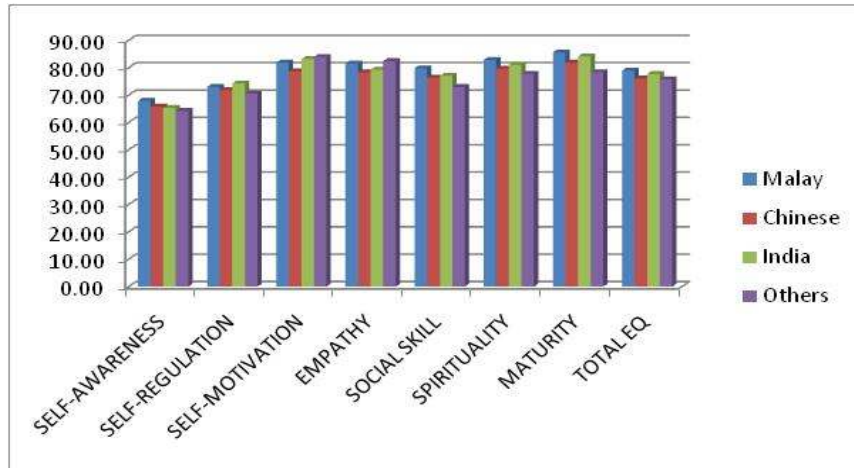


FIGURE III: Results of each domain at entry level according to the main races for batch 2009/2010

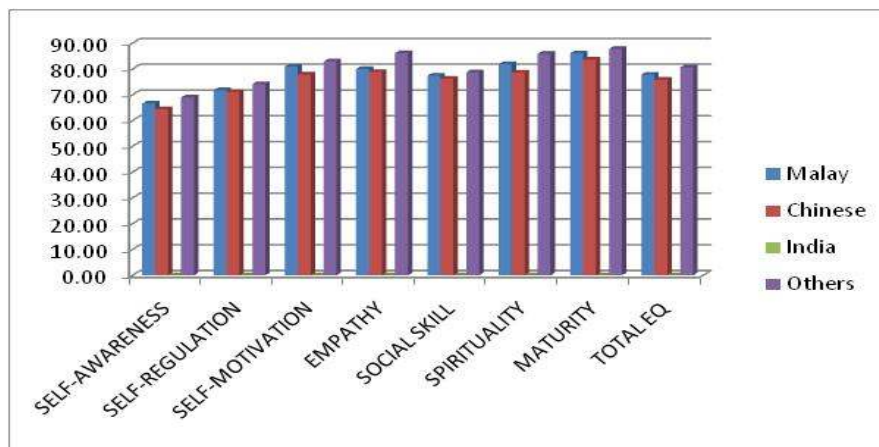


FIGURE IV: Results of each domain at entry level according to the main races for batch 2010/2011

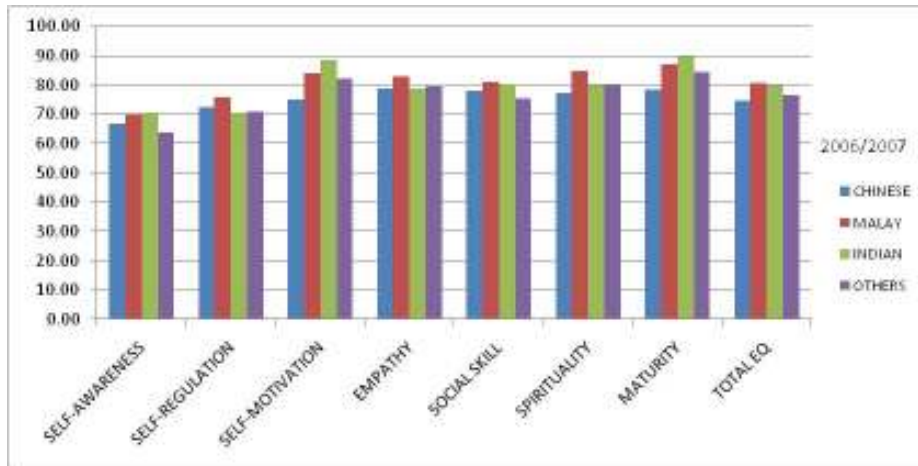


FIGURE V: Results of each domain at exit level according to the main races for batch 2006/2007

It can be observed that, in overall, Malay shows highest for all the seven domains for most batches tested. However, the differences with the other races are not significant. The overall analysis sway more towards the pattern of the scores related to the race: lowest score is achieved at the same domain for all races and the correlation is the same for the domain that achieved the highest scores. This fact is obvious in Figure I where all races score the highest for Maturity domain and lowest for Social Skill domain; Figure II (highest: Maturity , lowest: self awareness), Figure III (highest: Maturity , lowest: self awareness) and Figure V (highest: Maturity , lowest: self awareness). Therefore, it can be concluded that type of race do not have significant effect on the the EQ level of the students. To validate this inference, other sets of students' EQ scores should be measured and when they have spent a considerable amount of time at the university before any focused programs and initiatives are developed to elevate the EQ level of the students involved.

To get a placement into the engineering and architecture degree courses, each student need fulfill high requirement of qualifications. Even though they come from excellent academic background, when these students scored domain Self-awareness the lowest which is less than 70%, it reveals that there is a potential for the students in improving the level of their emotions and self-confidence. This analysis is based on the score interpretation constructed by MEQI where scores between 61-80% indicates that the domain could be the strength one should look for. However, as the range is belongs to the lower range, there will be some effort required to enhance this competency. This domain which is scored the lowest by the new students can be related into not having the definite expectation towards entering new environment of education system, social interaction and facilities offerings. This situation needs intervention, as the ability to know individual own emotional abilities is an important factor before one is able to manage himself or herself, as well as, other people around.

#### **4. Conclusion**

By manipulating MEQI test, general EQ levels can be determined among new and completing students and the results can be used in developing modules in helping to increase the level of any weaker domains. The modules can be designed in terms of incorporating certain skills into each of the assessment methods for every course run in the faculty. The skills include conflict management, interpersonal communication, empowerment in communication and public speaking. Even though these skills can be considered secondary to the primary objective of any tertiary education which is to carried out academic knowledge transfer, it is vital for the students to develop high EQ level so that they are more desirable in the job market as they would project high leadership and managerial skills. However, this study should be extended by acquiring data of the academic performance at the end of every academic session to discover whether is there any correlation between EQ level and the result of the students' academic achievement. Moreover, the effectiveness of each initiative into increasing the level of EQ according to each of the domain encapsulated in the model should also monitored closely.

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