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DEVELOPMENT OF A SELF-RATED MALAYSIAN EMOTIONAL INTELLIGENCE SCALE

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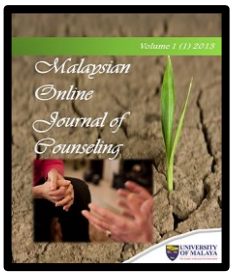
ABSTRACT

This study aims to develop and validate a self-rated emotional intelligence scale for Malaysian population based on the Mayer and Salovey's framework of emotional intelligence. A total of 405 students in three Malaysian public universities participated in this study. Factor analysis and reliability analyses were carried out to determine the construct validity and internal consistency of the Self-Rated Malaysian Emotional Intelligence Scale (SRMEIS). The factor analysis showed four major constructs emerged, in accordance with Mayer and Salovey's domains of EI with factor loadings more than 0.4. The reliability analysis resulted in a cronbach's alpha value of 0.922 for SRMEIS. The domains of Emotional Perception and Expression, Emotional Facilitation of Thinking, Emotional Understanding and Emotional Management yielded cronbach's alpha value of .859, .868, .683 and .893 respectively. These findings confirm the validity and reliability of SRMEIS as a self-rated psychometric instrument to measure EI.

Keywords: *Emotional intelligence, measurement, validation, reliability analysis*



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INTRODUCTION

Emotional intelligence (EI) has become a worldwide phenomenon in the field of psychology since Jack Mayer, a psychology professor at the University of New Hampshire and Peter Salovey, a psychologist at Yale introduced it through academic writings in 1990(Salovey, & Mayer, (1990). Daniel Goleman further popularized the concept of emotional quotient through his books, *Emotional Intelligence* in 1995 and *Working with Emotional Intelligence* in 1998. Following this, the notion of EI has drawn both the academicians' and public interests. Many research has since been conducted to explore the connection of EI with various variables that depict the quality of life such as stress management ability (Ziedner et al, 2006; Forushani &Besharat, 2011; Indoo & Ajeya, 2012) , relationship quality (Mayer & Salovey, 1990; Myers &Tucker, 2005; Lopes, Salovey & Strauss,2003), and psychological wellbeing (Ciarrochi & Scott, 2006; Fakhri, 2012; Esmaeili &Jamkhaneh 2013). Along with the growth of EI research, many EI measures have also been developed such as Multifactor Emotional Intelligence Scale (MEIS Mayer, Caruso, & Salovey, 1999), Emotional Competence Inventory (ECI; Boyatzis et al., 1999), Schutte Self Report Emotional Intelligence Scale (SSREIS: Schutte et al, 1998), and Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey & Caruso, 2002).

MEASUREMENT OF EMOTIONAL INTELLIGENCE

The concept of EI combines emotions with rationality, suggesting that human beings can be rational while staying in touch with their feelings. Therefore, researchers from different parts of the world including Malaysia are continuously finding ways of conducting more interesting, valid and reliable research of EI. Most Malaysian researchers used translated version of western EI instruments to carry out EI research. For example, Rohana Ngah and Kamaruzaman Jusoff (2009) and Mariani Mansor and Mohamad Naqiuddin (2011) employed the Schutte Self Report Emotional Intelligence Scale (SSREIS) while the study by Syed Sofian Syed Salim and Rohany Nasir (2010) employed Emotional Competence Inventory (ECI). Based on this fact, the researchers of this study aimed to adapt a new EI measure in the Malay language to cater the need of Malaysian researchers who need a more culturally valid and reliable instrument.

Salovey, Mayer, and Caruso (2002) assert that research needs to be conducted to measure EI with greater precision, together with more easily-administered and briefer tests. They also believe that it will be necessary to investigate whether tests of EI are subject to cultural bounds when applied in a different population from its origin. The use of translated versions of EI instruments from the western world without proper adaptation and validation to the Malaysian culture may produce results which are susceptible to cultural biases.

The development of the mentioned psychometric measures contributed greatly to the field of EI research in Malaysia. It also encourages local researchers to use properly adapted and validated measures that fit the multicultural complexity of Malaysian culture. Two EI scales using the mixed method were developed in Malaysia following the growth of EI studies. The Malaysian EQ Inventory (MEQ-i) was developed in 2003 by a research group led by Noriah Mohd Ishak. This inventory

measures five domains (*self-awareness, self-regulation, self-motivation, empathy,* and *social skills*) proposed by Goleman (1995). Noriah et al (2003) added two additional domains (*maturity and spirituality*) to reflect Malaysian perspective of emotional intelligence as found in their research. MEQ-i was developed as an online system whereby participants' results will be processed by a database and compared with the norm to generate a profile report. Since it was not a pen a paper measure, only participants with the access of internet are able to take part in the survey. In 2011, Muhammad Saiful Bahri Yusof and his colleagues developed and validated the Universiti Sains Malaysia Emotional Quotient Inventory (USMEQ-i) to measure EI of medical program applicants in attempt to assist in student selection. This self-report inventory measure seven domains of EI, namely, *Emotional Control, Emotional Maturity, Emotional Conscientiousness, Emotional Awareness, Emotional Commitment, Emotional Fortitude,* and *Emotional Expression*. A faking index was also included to measure the tendency of the respondents to over rate themselves. Since the two studies were based on mixed EI framework, this study seek to apply Mayer and Salovey's EI framework with four different set of domains; *emotional perception and expression, emotional facilitation of thinking, emotional understanding* and *emotional management.* Additionally, the development of the EI scales in Malay language will ensure higher reliability of the scores among Malaysian respondents.

CONCEPTUAL FRAMEWORK

The development of the Malay EI scale aimed to map into the Mayer and Salovey's (1997) framework of EI which consist of four domains: *emotional perception and expression, emotional facilitation of thinking, emotional understanding* and *emotional management*. According to Mayer and Salovey, the four domains are inter-related, as proficiency in an area influences the mastery of skills in other areas. Table 1 describes the mastery of skills in each domain.

Table 1: EI Domains and associated abilities

EI Domains	Related abilities
Emotional perception and expression	• Ability to identify emotion in one's physical and psychological states. • Ability to identify emotion in other people • Ability to express emotions accurately and to express the need related to them • Ability to discriminate between accurate/honest and inaccurate/dishonest
Emotional facilitation of thinking	• Ability to redirect and prioritize thinking on the basis of associated feelings • Ability to generate emotions to facilitate judgment and memory • Ability to capitalize on mood changes to appreciate multiple points of view • Ability to use emotional states to facilitate problem solving and creativity
Emotional understanding	• Ability to understand relationship among various emotions • Ability to perceive the causes and consequences of emotions • Ability to understand complex feelings, emotional blends and

	contradictory states • Ability to understand transitions among emotions
Emotional management	• Ability to be open to feelings, both pleasant and unpleasant • Ability to monitor and reflect on emotions • Ability to engage, prolong or detach from emotional state • Ability to manage emotion in oneself • Ability to manage emotions in others

This is the first attempt in Malaysian research using the Mayer and Salovey EI framework for constructing an EI measurement. In order to this, a factor analysis was conducted to determine whether the items pooled for the measure falls within these four EI domains outlined by Mayer and Salovey (1997). Factor analysis offers the possibility of gaining a clearer view of the data (Field, 2000) whereby inter-correlated variables are brought together under more general, underlying variables.

METHODOLOGY

Participants

The final data was collected from 405 participants consisting of undergraduates and graduates students in three public universities. The age of the participants ranged from 19-56 years old with an average of 32.4 years old. There were144 males and 261 females. The number of participants was considered reasonable for factor analysis, exceeding the minimum number of 300 cases as suggested by Tabachnick & Fidell, (2007). The study also considered Comrey and Lee (1992) guidance in determining the adequacy of sample size with 405 cases being a good number of participants for factor analysis study.

Materials

After reviewing all related literatures of EI, sample items reflecting the four domains of EI based on Mayer and Salovey framework were compiled from four major inventories in the field of EI. The inventories were:

a) The Self Rated Emotional Intelligence Scale (SREIS) by Brackett, Rivers, Shiffman, Lerner, and Salovey (2006). All nineteen items under original subscales (*Perceiving emotion; Use of emotion; Understanding emotion; Managing emotion (self);* and *Social management*) were considered for adaptation.

b) Wong and Law Emotional Intelligence Scale (WLEIS) by Wong and Law (2002). All sixteen original items under four subscales (*Appraisal and expression of emotion in self; Appraisal and recognition of emotion in others; Regulation of emotion in the self;* and *Use of emotion to facilitate performance)* are included in the self-report measure.

c) Schutte Self Report Emotional Intelligence Scale (SSREIS) by Schutte, Malouff, Hall, Haggerty, Cooper, Golden, & Dornhein (1998). Only twenty one items which corresponds to the subscales of Mayer and Salovey framework based on the confirmatory factor analysis done by Gignac et al (2005) were considered from the original 33-items scale.

d) Trait Emotional Intelligence Questionnaire – Short Form(TEIQue-SF) by Petrides &Furnham (2006). Only twelve items under six subscales corresponding to Mayer and Salovey EI framework were considered for adaptation. The subscales are *Emotion appraisal in self and others; Emotion Control; Emotion Expression; Emotion management (others); Self-motivation;* and *Stress management.*

A total of 68 items were compiled. However two items were found redundant in both Schutte et al (1998) and Brackett et al (2006). Thus a set of these items were removed leaving only 66 items for the assessment purpose. The researchers carried out an adaptation process using translation and back translation to ensure the validity of the measure for the Malaysian population. The aim of the translation was mainly to restate the items adapted from the original measures into Malay language without changing their contexts and meanings, i.e conceptual translation. The first and third researcher, both bilingual registered counselors who converse fluently in both English and Malay languages translated the original version into the targeted Malay language. Both researchers translated the original version independently at first and later reviewed the items together in order to achieve consensus on the final translation.

Two bilingual experts, both neither had seen the source of the items nor had any experience in EI studies, carried out the back translation into English. They worked independently prior to coming to a consensus on the accepted back translation of the items. Comparison was made to the original English version and wordings of several translated items were revised after the back translation process in order to ensure the content validity of the items. By validity of items it means that the translated statements produce the equivalent meaning to the original statements. The researchers finally agreed on the Malay language translation after satisfied with the result of the back translation process. In order to avoid duplication of responses in the respective subscales, all the 66 items are randomly distributed in SRMEIS before the measure was set for administration.

Pretesting

The purpose of a pretest is to refine the translations through opinion from the target population (Su & Parham, 2002). In this case, twenty respondents were selected to participate in the pretesting of the adapted EI measure (7 males; 13 females). The participants were given clear instructions on how to answer the inventory. The participants were invited to give constructive comments on the items including the clarity of instructions and the meaning of items, level of difficulty to respond to the items and suggestions for improvements. Based on their comments, several items were modified and finalized for the factor analysis study.

Procedure

A total of 430 copies of the inventories were administered to undergraduates and post graduate students at three different universities. For the purpose of assessment, the respondents were required to indicate the extent of which the statements on the SRMEIS have accurately described them using a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) . Each participant was given 45 minutes to complete the questionnaire. Although all respondents

answered the inventory resulting in 100% return rate, only 405 questionnaires are deemed suitable for data analysis using SPSS.

THE RESULT

Factor Analysis

Since the items were categorized under various subscales in their original inventories, confirmatory factor analysis were carried out by the researcher to confirm the factors that emerged from the compilation of items and whether these items fit in the four domain of EI as outlined by Mayer and Salovey (1997) namely *Perception and Expression of Emotions; Emotional Facilitation of Thinking; Understanding Emotions; and Management of Emotions*. Prior to performing the factor analysis using Statistical Package for Social Science software, Version 17, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer- Oklin value was .917, exceeding the recommended value of .6 (Kaiser 1970, 1974). Meanwhile the Bartlett's Test of Sphericity (Bartlett, 1954) showed statistical significance, supporting the factorability of the correlation matrix.

The CFA revealed a four components solution which explained a total of 37.87% of the variance , with Component 1, 2, 3 and 4 contributing 23.03% , 6.72%, 4.39% and 3.72% of the variance respectively, with eigenvalues exceeding 2.4. To aid the interpretation of these four components, oblimin rotation with Kaiser Normalization was performed. The rotated solution present a simple structure showing a number of strong loadings and all variable loading substantially only on one factor, showing a clean data. Total number of 47 items out of 66 items in the four factors maps ideally with the Mayer Salovey EI framework with 15 items representing Emotional Perception and Expression (EPE), 14 items representing Emotional Facilitation of Thinking (EFT), 6 items representing Emotional Understanding and 12 items representing Emotional Management (EM) - 12 items. However, further inspection of each subscales found 6 items which did not fit into the construct of the related subscales although it possessed the face validity to assess EI. Therefore, these items were deleted from the corresponding subscales leaving 41 items.

The deletion the construct irrelevant items called for second factor analysis and the result of the four components solution showed a higher percentage of 45.59% of the variance, with Component 1 , 2 , 3 and 4 contributing 25.97 % , 9.05%, 6.01% and 4.66% of the variance respectively, and eigenvalues exceeding 1.9. To aid the interpretation of these four components, obliging rotation with Kaiser normalization was performed. The rotated solution present a simple structure showing a number of strong loadings and all variable loading substantially only on one factor. Cattel's scree plot also shows a clearer break after the fourth component. Two items with negative loadings were found, indicating and inverse factor. These items were deleted from the scale leaving 39 final items for the reliability analysis. The description of all deleted items is shown in Table 2.

Table 2: Deleted items from SRMEIS domain after factor analysis

Factor analysis	Domain	Item No	Deleted Items	Factor Loadings
1st Phase (Construct irrelevant items deleted)	EPE	27	I know the strategies to make or improve other people's moods	.620
		11	I'm usually able to influence the way other people feel.	.455
		38	I am the type of person to whom others go when they need help with a difficult situation	.430
		21	When someone I know is in a bad mood, I can help the person calm down and feel better quickly	.411
	EFT	54	Expressing my emotions with words is not a problem for me	.466
	EU	33	I am not very good at helping others to feel better when they are feeling down or angry	.519
2nd Phase (Inverse factor items deleted)	EU	20	I often pause and think about my feelings)	-.425
	EM	26	I am a rational person and don't like to rely on my feelings to make decisions	-.545

Table 3 shows the range of factor loadings of each domain after the second phase confirmatory factor analysis. The results shows that all domains have strong factor loadings over .40, indicating construct validity of SRMEIS.

Table 3 : Range of factor loadings for SRMEIS EI domains

EI Domains	No of Items	Range of Factor Loadings
Emotional Expression and Appraisal	11	.401to. 753
Emotional Facilitation of Thinking	13	.469 to .734
Emotional Understanding	4	.425 to .633
Emotional Management	11	.470 to.780
Total No Of Items	39 items	

Reliability Analysis

One of the main concerns in the construction of any inventory is the scale's internal consistency, referring to the degree to which the items that make up the scales 'hangs together' (Pallant 2007). Ideally, the Cronbach coefficient of a scale should be above .70 (DeVellis, 2003). Therefore,

reliability analysis was conducted to determine the internal consistency of the SRMEIS. The result of the reliability analysis shows that the total Cronbach's alpha value of the SRMEIS was 0.922 which indicated high level of internal consistency. The Cronbach's alpha values of Emotional Expression and Appraisal, Emotional Facilitation of Thinking, Emotional Understanding and Emotional Management were .859, .868, .683 and 0.893 respectively. With the exception of Emotional Understanding, all other subscales showed high level of internal consistency. Although the cronbach's alpha of Emotional Understanding is slightly lower than .70, it still relatively a good indicator of internal consistency since research has indicated that a low alpha cronbach coefficient is common for scales with items less than 10 and therefore acceptable.

Based on these findings, the Self-Rated Malaysian Emotional Intelligence Scale is deemed reliable due to having high internal consistency. The 39 items were randomly distributed in the final scale. Table 5 shows the distribution of the 39 items in the final Self Rated Malaysian Emotional Intelligence Scale and the result of factor analysis and reliability analysis. Table 4 illustrate the values of Cronbach's alpha and distributions of items in the newly developed SRMEIS according to the four domains of EI. All items are positive in nature with the exceptions of the seven items numbered 3,6,10,20,30,37 and 38. The scoring method of the items remains unchanged , based on 5 points Likert Scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) for positive items and vice versa for reverse items.

Table 4: The Cronbach's Alpha value for EI Domains of SRMEIS

EI Domains	**Total Items**	**Items No.**	**Cronbach's Alpha**
Emotional Perception and Expression	11	1, 4, 7, 11, 14, 17, 21, 24, 27, 31, 34	.859
Use of Emotion to Facilitate Thinking	13	2, 5, 15, 18, 22, 25,28, 32, 35, 38	.868
Emotional Understanding	4	10, 20, 30, 37	.683
Emotional Regulation and Management	11	3, 6, 9, 13, 16, 19, 23, 26, 26, 29, 33, 36	.893
SRMEIS	39		0.922

DISCUSSION AND CONCLUSION

The number of participants involved in this study was reasonable to produce a valid and reliable finding on factor analysis and reliability study. The factor analysis study showed that the four constructs that emerged from the dual stage CPA fit perfectly into Mayer and Salovey's framework of EI with factor loadings above .40. This indicated that the constructs are well clustered together and valid. Meanwhile, the reliability analysis reflected high internal consistency of all scales in SRMEIS with Cronbach's alpha ranging from .683 to .893 among the domains and .922 for the whole SRMEIS. This indicated that SRMEIS is highly reliable for the use in Malaysian community (Table 5). Researchers in Malaysia can now utilize this new reliable and briefer test to assess the EI of the Malaysian population without worrying about language and cultural bias. Table 5 listed samples items representing each EI domains in SRMEIS.

Table 5: Sample items of SRMEIS based on Mayer & Salovey's EI Domains

Domains	Item No.	Item statements	Factor Loadings
Emotional Perception and Expression	4	I always know my friends' emotions from their behavior *Saya sentiasa mengetahui emosi rakan-rakan saya melalui tingkah laku mereka*	.697
	7	I am a good observer of others' emotions. *Saya seorang pemerhati yang baik terhadap emosi orang lain*	.675
	17	By looking at people's facial expressions, I recognize the emotions they are experiencing. *Dengan melihat raut wajah seseorang, saya mengenalpasti emosi yang mereka alami*	.753
Emotional Facilitation of Thinking	12	I would always encourage myself to try my best. *Saya akan sentiasa menggalakkan diri sendiri untuk mencuba sebaiknya.*	.649
	18	When I am in a positive mood, I am able to come up with new ideas. *Apabila saya berada dalam mood yang baik, saya mampu menghasilkan idea-idea baru.*	.611
	35	I motivate myself by imagining a good outcome to tasks I take on. *Saya memotivasikan diri saya dengan membayangkan hasil yang baik untuk segala usaha saya.*	.734

Emotional Understanding	10	I often find it difficult to see things from another person's viewpoint. *Saya sering mengalami kesukaran untuk melihat sesuatu perkara dari sudut pandangan orang lain*.	.619
	20	My quick impressions of what people are feeling are usually wrong. *Tanggapan segera saya terhadap perasaan orang lain lazimnya salah.*	.633
	30	I find it hard to understand the non-verbal messages of other people. *Saya mendapati sukar untuk memahami mesej bukan lisan orang lain*.	.624
Emotional Management	6	I have problems dealing with my feelings of anger. *Saya mempunyai masalah mengendalikan perasaan amarah.*	.674
	23	On the whole, I'm able to deal with stress *Secara keseluruhan, saya mampu mengendalikan stress.*	.732
	33	I have good control of my own emotions *Saya memiliki kawalan yang baik ke atas emosi saya.*	.780

This study demonstrates the importance of validity and reliability testing in developing instruments especially when the original scales were developed in a different culture. Researchers must be aware that certain concepts and measures may be reliable but not culturally valid when applied to local respondents. It is of utmost importance for helping practitioners such as counselors, psychologists, and educators to use culturally valid and reliable measures on their clients in order to make more accurate interpretation of scores. Simple importation of Western psychological measures may lead to misunderstanding and misdiagnosis of clients.

Additional research addressing validity evidence for scores from the SRMEIS is still needed to support its construct validity. Correlational analysis using other measures would help provide this type of evidence and promote the utility of this scale in counseling and educational settings. The researchers recommend further research involving a larger pool of respondents from various backgrounds to strengthen the construct validity and reliability of this newly developed scale. It is hoped that the Self Rated Malaysian Emotional Intelligence Scale will ignites new dimensions of emotional intelligent research in Malaysia.

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