

# Construction 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 and working adults 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 that four major constructs emerged, in accordance with Mayer and Salovey's domains of emotional intelligence 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 emotional intelligence.*

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).

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 emotional intelligence. 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 Naquiuddin (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 Malay language to cater the need of Malaysian researchers for more culturally reliable findings.

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.

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 proposed by Goleman (1995)

(*self-awareness, self-regulation, self-motivation, empathy, and social skills*), They added two more domains (*maturity and spirituality*) to better fit in the definition of an emotionally intelligent person from the Malaysian perspective. Both these qualities are strongly upheld in the Malaysian community and deemed as indications of being an emotionally intelligent person. 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.

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. However some limitations exist in the usage of these two measures. 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. Researchers assert that self-report measures using pen and paper method is still the most preferred method used in the field of trait EI (Schutte et al, 1998; Petrides and Furnham, 2006; Wong and Law, 2002; Cooper and Sawaf, 1996; Bar-On, 1996), therefore this measure provides more accessibility to participants even without internet access. Meanwhile, USMEQ-i was originally developed to assess the emotional intelligence among medical student, based on the suitability and compatibility with the medical profession. Therefore the norms of this group may not be comparable to the general public. In response to the need for a more affordable, easily administrated and norm compliant EI measure, the researchers of the current study embarked on constructing a self-report EI measure in the Malay language that is based on the Mayer and Salovey (1997) EI framework. It is hoped that the development of a new measure in the Malay language will contribute to the construction of additional EI measures in Malaysia.

## Conceptual Framework

The construction 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: Emotional Intelligence Domains and associated abilities*

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<b>EI Domains</b>	<b>Related abilities</b>
<b>Emotional perception and expression</b>	<ul style="list-style-type: none"><li>• Ability to identify emotion in one's physical and psychological states.</li><li>• Ability to identify emotion in other people</li><li>• Ability to express emotions accurately and to express the need related to them</li><li>• Ability to discriminate between accurate/honest and inaccurate/dishonest</li></ul>
<b>Emotional facilitation of thinking</b>	<ul style="list-style-type: none"><li>• Ability to redirect and prioritize thinking on the basis of associated feelings</li><li>• Ability to generate emotions to facilitate judgment and memory</li><li>• Ability to capitalize on mood changes to appreciate multiple points of view</li><li>• Ability to use emotional states to facilitate problem solving and creativity</li></ul>
<b>Emotional understanding</b>	<ul style="list-style-type: none"><li>• Ability to understand relationship among various emotions</li><li>• Ability to perceive the causes and consequences of emotions</li><li>• Ability to understand complex feelings, emotional blends and contradictory states</li><li>• Ability to understand transitions among emotions</li></ul>
<b>Emotional management</b>	<ul style="list-style-type: none"><li>• Ability to be open to feelings, both pleasant and unpleasant</li><li>• Ability to monitor and reflect on emotions</li><li>• Ability to engage, prolong or detach from emotional state</li><li>• Ability to manage emotion in oneself</li><li>• Ability to manage emotions in others</li></ul>

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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 is 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 clear 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 where 196 of them were full-time undergraduates, 104 were graduate students, and 105 were working adults from various work settings. The age of the participants ranged from 19-56 years old with an average of 32.4 years old. There were 144 males and 261 females.

The number of participants was considered reasonable for factor analysis as Tabachnick and Fidell (2007) suggested that it is comforting to have at least 300 cases for factor analysis but smaller sample size (i.e., 150 cases) should be sufficient if solutions have several high factor loadings. The present researchers 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 emotional intelligence, items for validation of SRMEIS were compiled from four major inventories in the field of emotional intelligence which reflects the Mayer and Salovey's framework. 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 validation.

- 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) whereby only twelve items under six subscales corresponding to Mayer and Salovey EI framework were taken. 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. Therefore the aim was not to translate word by word but rather 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 emotional intelligence studies, carried out the backtranslation 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 emotional intelligence measure (7 males; 13 females). The participants were given clear instructions on how to answer the inventory. After completing the measure, the participants was invited to give constructive comments on the items including their ability to understand the instructions and the meaning of items, the level of difficulty to understand the items, the clarity of the items and any suggestions to improve the items. The researchers made modifications on several items to suit the recommendations from the participants. The SRMEIS were then finalized for the factor analysis study.

### ***Procedure***

A total of 430 copies of the inventories were distributed through two methods, manual administration using pen and paper and online administration through email. The conventional paper and pencil administration was conducted on several groups of 250 undergraduates and post graduate students at three different universities. All 250 respondents fully answered the inventory resulting in 100% return rate. Meanwhile an online administration of the inventory through email was conducted on 180 working adults. Only 155 of the participants completed and

returned the inventory. Therefore the final number of respondents involved in this study was 405 respondents.

The paper and pen administration of the inventory was conducted by the group facilitators while the email administration was done by giving clear instructions through emails. 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. Similarly to the pen and paper participants, the online participants were required to answer the questions in 45 minutes of interrupted time period followed by emailing back their answers to the researchers.

## ***THE RESULT***

### ***Factor Analysis***

Since the items were categorized under various subscales in their original inventories, both exploratory and confirmatory factor analysis were carried out by the researcher to identify the factors that emerged from the compilation of items and whether the items fit in the four factors of the branch component of emotional intelligence as outlined by Mayer and Salovey (1997); *Perception and Expression of Emotions; Emotional Facilitation of Thinking; Understanding Emotions; and Management of Emotions*.

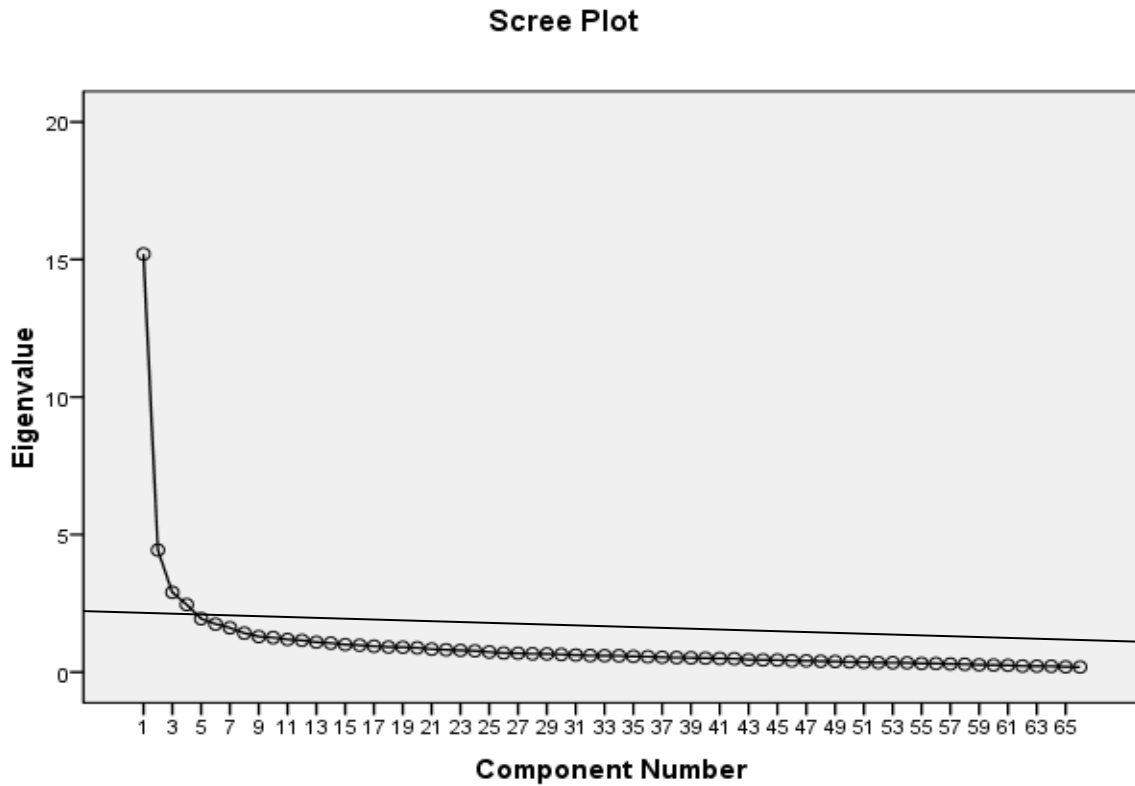
Firstly, the 66 items compiled for the Self Rated Malaysian Emotional Intelligence Scale were subjected to Principle Component Analysis using SPSS version 17. Prior to performing the PCA the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence 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.

Principle component analysis revealed the presence of 14 components with eigenvalues exceeding 1, explaining 58.72% of the cumulative variance. However the inspection of Screeplot



showed a break after the fourth component. This supports the Mayer and Salovey (1997) theoretical framework which emphasized on four components of Emotional Intelligence. Therefore, based on Cattell's scree test and Mayer and Salovey's theoretical foundation, a confirmatory analysis on four components was carried out.

**Figure 1: Scree Plot of Principle component analysis showing a break after fourth component**



Following the PCA, a confirmatory factor analysis was carried out. 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.

The items in the four factors maps ideally with the Mayer Salovey Emotional Intelligence framework with distribution of items as below:

- a) Emotional Perception and Expression (EPE) – 15 items
- b) Emotional Facilitation of Thinking (EFT) – 14 items
- c) Emotional Understanding (EU) - 6 items
- d) Emotional Management (EM) -12 items

Total of 47 items out of original 66 items

Further examination of each subscales found six items which do not fit into the construct of the related subscales although it possessed the face validity to assess emotional intelligence. Therefore these items were deleted from the corresponding subscales. Table 2 shows the items deleted from corresponding subscales due to construct irrelevancy.

A second phase of confirmatory factor analysis was conducted after the deletion the construct irrelevant items 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, 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. Cattell's screeplot also shows a clearer break after the fourth component. Two items with negative loadings were found, indicating an 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
1 <sup>st</sup> Phase	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		.430
		21		I am the type of person to whom others go when they need help with a difficult situation
				When someone I know is in a bad mood, I can help the person calm down and feel better quickly
			.466	
	EFT	54	(Expressing my emotions with words is not a problem for me)	
	EU	33	(I am not very good at helping others to feel better when they are feeling down or angry)	.519
2 <sup>nd</sup> Phase	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 emotional intelligence domains**

Emotional Intelligence 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 as shown in Table 4. With the exception of Emotional Understanding, all other subscales showed high level of internal consistency. Although the alpha cronbach 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.

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

<b>Domains</b>	<b>No of Items</b>	<b>Cronbach's Alpha</b>
Emotional Perception and Expression	11	.859
Use of Emotion to Facilitate Thinking	13	.868
Emotional Understanding	4	.683
Emotional Regulation and Management	11	.893
SRMEIS	39	0.922

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.

### *Discussion and Conclusion*

The study was conducted on the adult population of Malaysia with a mix of students and working adults from various backgrounds and age group making them a good representation of the Malaysian community. 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 PCA and CPA fit perfectly into Mayer and Salovey’s framework of emotional intelligence 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 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 emotional intelligence of the Malaysian population without worrying about cultural bias.

**Table 5. Factor analysis and reliability analysis according to the Emotional Intelligence constructs of SRMEIS**

No	Statements of items	Mayer SaloveyEI Domain	Corrected Item-Total Correlation	Cronbach Alpha if item deleted	Factor Loadings	Factor
1	I have the vocabulary to describe how most emotions progress from simple to complex feelings	Emotional Perception	.404	.858	.401	2
4	I always know my friends’ emotions from their behavior		.605	.844	.697	2
7	I am a good observer of others’ emotions		.616	.843	.685	2

11	I am sensitive to the feelings and emotions of others.	.439	.856	.470	2
14	I have good understanding of the emotions of people around me.	.658	.840	.661	2
17	By looking at people's facial expressions, I recognize the emotions they are experiencing	.636	.841	.753	2
21	I am aware of the nonverbal messages other people send.	.510	.851	.523	2
24	I can tell when a person is lying to me by looking at his or her facial expression.	.502	.852	.655	2
27	I know what other people are feeling just by looking at them.	.566	.846	.672	2
31	I can tell how people are feeling by listening to the tone of their voice	.559	.847	.583	2
34	I'm normally able to "get into someone's shoes" and experience their emotions.	.592	.844	.603	2
2	I always set goals for myself and then try my best to achieve them	.583	.856	.600	3
5	I always tell myself I am a competent person.	.500	.861	.479	3
8	I am a self-motivated person	.613	.854	.547	3
12	I would always encourage myself to try my best	.544	.858	.649	3
15	When I am in a positive mood, solving problems is easy for me	.509	.860	.575	3
18	When I am in a positive mood, I am able to come up with new ideas	.470	.862	.611	3
22	When I am faced with obstacles, I remember times I faced similar obstacles and overcame them	.464	.863	.469	3
25	I expect that I will do well on most things I try.	.594	.855	.585	3
28	I expect good things to happen.	.544	.858	.548	3
32	I seek out activities that make me happy.	.522	.859	.655	3
35	I motivate myself by imagining a good outcome to tasks I take on	.653	.852	.734	3
38	When I am faced with a challenge, I give up because I believe I will fail.	.481	.863	.537	3
10	I often find it difficult to see things from another person's viewpoint.	.447	.630	.619	4
20	My quick impressions of what people are feeling are usually wrong	.448	.628	.633	4
30	I find it hard to understand the non-verbal messages of other people.	.511	.591	.624	4
37	It is difficult for me to understand why people feel the way they do	.461	.621	.540	4
3	I usually find it difficult to regulate my emotions	.590	.887	.652	1
6	I have problems dealing with my feelings of anger.	.584	.887	.674	1
9	I can handle stressful situations without getting too nervous.	.584	.886	.639	1
13	I know how to keep calm in difficult or stressful situations.	.677	.880	.682	1
16	Others admire me for being relaxed.	.430	.894	.470	1

Emotional Facilitation of Thinking

Emotional Understanding

Emotional Management

19	I am able to control my temper and handle difficulties rationally	.649	.882	.697	1
23	On the whole, I'm able to deal with stress	.669	.881	.732	1
26	I am quite capable of controlling my own emotions	.737	.878	.745	1
29	I'm usually able to find ways to control my emotions when I want to.	.602	.886	.577	1
33	I have good control of my own emotions	.782	.875	.780	1
36	I can always calm down quickly when I am very angry.	.606	.885	.688	1

a Domains were framed based on Exploratory Factor Analysis, b Reliability analysis; Overall Cronbach's Alpha value was 0.922, c Factor Analysis; Principal Component Analysis with varimax rotation was applied, KMO was 0.912, Bartlett's test of sphericity was significance  $p < 0.001$ , total variance explains was 45.59%.

This study clearly shows the importance of validity and reliability of measurements instruments and concepts that were originally developed and tested in a culture that is different than the population being studied. Researchers must be aware that certain concepts and measures may be reliable but not culturally valid. Practitioners like counselors, psychologists, and educators must use a culturally valid and reliable measures on their clients. 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 would also like to 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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