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EXAMINING THE PSYCHOMETRIC PROPERTIES OF THE WONG AND LAW EMOTIONAL INTELLIGENCES SCALE (WLEIS)

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ABSTRACT

Emotional intelligence is an individual's ability to perceive accurately, evaluate and express emotions. One of the instruments to measure emotional intelligence is the Wong and Law Emotional Intelligence Scale (WLEIS) which consist of four dimensions namely self-emotional appraisal, others' emotional appraisal, regulation of emotion and use of emotion. The main aim of this research was to evaluate the psychometric properties of the Wong and Law Emotional Intelligence Scale (WLEIS). This was a survey research using a set of questionnaires. A total of 150 newly appointed administrative officers who were undergoing a compulsory course participated in this study. The instruments used were the Wong and Law Emotional Intelligence Scale (WLEIS), Organisational Commitment Questionnaire and the Satisfaction with Life Scale (SWLS). In evaluating the reliability of WLEIS, alpha Cronbach and split half methods were used. In addition, criterion and construct validity methods were used to test its validity. Results obtained showed that the Bahasa Malaysia version of the WLEIS was valid and using principal component analysis with varimax rotation method, four components were extracted with 75.1% variance. The WLEIS also showed good criterion validity from the significant correlations with the criteria of organizational commitment and satisfaction with life. Furthermore, the results of reliability were satisfactory with alpha Cronbach ranging from 0.83 to 0.92 for all the dimensions. Results of split half reliability also showed the instrument was reliable with the coefficient ranging from 0.81 to 0.95.

Keywords: emotional intelligence; reliability; construct validity; criterion validity

INTRODUCTION

Emotional intelligence is an important variable in individual's achievement of success in all aspects. According to Petrides (2010), emotional intelligence can be considered a trait and it is a "constellation of emotional self- perceptions located at the lower levels of personality hierarchies" (p. 137). This concept was made popular by Salovey and Mayer (1990) who defined emotional intelligence as "the subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p. 189).

Although IQ and other factors are important, it is clear that emotional intelligence is very important for optimal performance (Goleman 1995). Many studies show that an individual's success is related with elements of emotional intelligence such as high motivation, high self-confidence and teamwork. Emotional intelligence enables life processes to proceed in an organized and fluent way. Success not only can be achieved in individual's life only, but also involves the individual's relationship with other people in his or her life (Syed Sofian 2010). Research also supports the relationship between trait emotional intelligence and positive life experiences, including life satisfaction, academic success (Austin, Saklofske & Mastoras, 2010; Schutte et al., 2010), and both mental and physical health (Austin, Saklofske & Egan, 2005; Keefer, Parker & Saklofske, 2009; Parker, Taylor & Bagby, 2001).

Emotional intelligence tests are one of the instruments in psychology aimed at measuring behavior. Currently, there are many emotional intelligence tests available in the market due to its importance. However, most of these tests were developed outside Malaysia. Many of these also consist many items and consume a lengthy time to be administered. Examples are Emotional Competence Inventory (ECI) by Haygroup comprising 110 items and Bar-On Emotional Quotient Inventory (EQ-i) that consists 133 items. Similarly, the Malaysian Emotional Intelligence Inventory (Inventori Kecerdasan Emosi Malaysia; IKEM) developed by Universiti Kebangsaan Malaysia (UKM) comprises 100 items (Muhammad Idham et al. 2010). Many items in a test can cause lengthier time needed to administer the test.

One of the frequently used scale is the Wong and Law Emotional Intelligence Scale (WLEIS; Wong & Law, 2002) which was developed in Hong Kong. The 16-item self-report WLEIS, based on Mayer and Salovey (1997) EI model, measures four dimensions: Self emotional appraisal (SEA) measures the individual's ability to understand their emotions, others' emotional appraisal (OEA) is the ability to recognize and understand other people's emotions, use of emotion (UOE) is the tendency to motivate oneself to enhance performance, and regulation of emotion (ROE) assesses the ability to regulate emotions (Fukuda et al., 2011).

Although there are several studies on emotional intelligence in Malaysia (Habibullah 2008; Mohd Shahril 2008), there are still no studies done to evaluate the psychometric properties of the WLEIS and its suitability in Malaysian context. The issue of psychometric is important because the instrument was developed in Hong Kong and has been widely used. Wan Rafaei (1980; in Lee Li Li 2002) said that many instruments used in Malaysia originated in the West. Thus, whether an instrument is suitable to be used in Malaysia raises an issue due to the sociocultural differences. What is certain is that the values and cultures of these settings are different with Malaysian multiracial societies.

Several cross-cultural studies have been done on the WLEIS. Shi and Wang (2007) conducted a study to evaluate the reliability and validity of the WLEIS in China. This is because the WLEIS was developed based on employees in Hong Kong and there was no evidence showing the suitability of the WLEIS in Chinese populations such as university students in mainland China. This study involves 1458 students of two universities in Beijing and Shandong.

The instruments used were the WLEIS by Wong and Law (2002) that was translated using the back translation method, the Emotional Intelligence Scale (EIS; Schutte et al., 1998), the UCLA Loneliness Scale (ULS; Russell et al. 1978, 1980) to measure loneliness, Zung's Symptoms of Depression Scale (ZSDS) to measure symptoms of depression, Positive and Negative Affect Schedule (PANAS; Watson et al. 1988) to measure positive affect and negative affect, Interpersonal Reactivity Inventory (IRI; Davis, 1983) to measure four dimensions of empathy, and 30 items selected randomly from the Big Five Adjective Scale by McCrae and Costa (1987) to measure personality and the warmth facet.

All the instruments used in Shi and Wang's (2007) study were translated into Chinese language. Results based on confirmatory factor analysis found that the four factor model was more suitable compared to the one factor model of the WLEIS. Therefore, the WLEIS retained its four factor model with goodness of fit indices > 0.90 and root mean square RMR < 0.05 . Internal consistency was assessed using Cronbach alpha and item homogeneity was assessed using the mean inter-item correlation (MIC). The internal consistency of the WLEIS and its four dimensions were very good with reliability for overall WLEIS was $\alpha = 0.86$; SEA, $\alpha = 0.81$; OEA, $\alpha = 0.83$; ROE, $\alpha = 0.72$; and UOE, $\alpha = 0.87$. Items for the whole WLEIS were low in homogeneity (MIC = 0.27) considering that it was developed to measure a wider dimension of emotional intelligence compared to four dimensions (SEA, MIC = 0.52, OEA, MIC = 0.55; ROE, MIC = 0.40 and UOE, MIC = 0.62). Concurrent validity of the WLEIS was also satisfactory with significant correlations between EIS and IES ($r = 0.79$, $p < 0.01$) and all dimensions of the WLEIS with SEA, $r = 0.62$, $p < 0.01$; OEA, $r = 0.59$, $p < 0.01$; ROE, $r = 0.49$, $p < 0.01$; and UOE, $r = 0.59$, $p < 0.01$. Results of the study also showed that the WLEIS has good convergent and discriminant validity.

Sebnem Aslam and Ehmert Erkus's (2008) study examined the reliability and validity of two instruments which were the WLEIS and the Tapia's Emotional Intelligence Inventory (TEII). The study involved 702 respondents namely 410 health staffs in several government hospitals in Konya, Turkey for the TEII, and the WLEIS was administered to 292 respondents comprising of government officers in Ankara, Turkey. Both the instruments were translated using the back translation method. The TEII has 41 items and four dimensions which are empathy, utilization of feelings, handling relationship and self-control. Results showed that the WLEIS high internal consistency with Cronbach alpha for the overall WLEIS was $\alpha = 0.89$. All the dimensions of the WLEIS also have high internal consistency with SEA, $\alpha = 0.81$; OEA, $\alpha = 0.89$; UOE, $\alpha = 0.83$; and ROE, $\alpha = 0.87$. Confirmatory factor analysis confirmed that the WLEIS was valid and reliable because all the factor loadings exceeded 0.50 and the number of items for all dimensions was more than three.

Li (2010) also conducted a validation study on the WLEIS and College Achievement Inventory (CAI). Li's (2010) study involved two studies based on two samples. The first study done in Beijing employed 357 students of Beijing Normal University as the respondents, and 323 students from other universities than Beijing Normal University. The second study was done in Calgary, Canada involving 302 Chinese students at the Calgary University. All of them

were fluent in English and Chinese languages. The third sample in the second study involved 151 respondents using the instrument in Chinese language and the fourth sample involved 151 respondents using the instrument in English language.

The instruments used in Li's (2010) study were the WLEIS, College Achievement Inventory (CAI), and the adapted Satisfaction with Life Scale (SWLS) by Diener et al. (1985). CAI has 70 items measuring the role of emotional intelligence and related variables such as anxiety and academic performance after high school. For this research, only four subscales (28 items) were used to measure overall emotional intelligence. The subscales were emotional understanding, psychological mindedness, ability to retain focus towards task, organization, work rules and attentiveness and emotional self control. The English and Chinese versions of the WLEIS were prepared by Wong and Law (2002), the SWLS was translated into Chinese by the researcher and the CAI was translated using the back translation method. Results showed that the Cronbach alpha for overall WLEIS was between 0.84 and 0.89 and Cronbach alpha for all dimensions was between 0.77 and 0.91 for four groups of respondents, and these were higher than the Cronbach alpha suggested by Hair et al. (2006). This shows that the WLEIS has high internal consistency. Findings of this study from correlation analysis found that the four dimensions of the WLEIS were significantly related but they were not identical dimensions. This also shows that emotional intelligence is a multidimensional construct. Results of this study based on Exploratory Factor Analysis (EFA) on the WLEIS for four groups of respondents showed that the four factors (dimensions) in the WLEIS were successfully replicated. Therefore, the WLEIS has high reliability and validity.

Other cross-cultural studies have also been done on the WLEIS such as in China (Law, Wong & Song, 2004; Wong & Law, 2002) and Japan (Fukuda et al., 2011) supporting the four dimensional structure (Fukuda et al., 2011; Law et al., 2004), the predictive validity with life satisfaction (Fukuda et al., 2011; Law et al., 2004), and discriminant validity with the five-factor personality dimensions (Law et al., 2004; Wong & Law, 2002).

This study was therefore conducted to: (1) examine the construct validity of the WLEIS by using factor analysis, (2) examine the criterion concurrent validity of the WLEI using job satisfaction, organizational commitment and life satisfaction as the criteria; and (3) assess the reliability of the WLEIS.

MATERIALS AND METHOD

This research employs a survey method by using a set of questionnaires to collect the data. A total of 150 respondents were selected using convenient sampling. These respondents were government officers undergoing a short course as part of the department's annual requirement for training.

Four instruments were used and they are:

1. Wong and Law Emotional Intelligence Scale (WLEIS) which consists 16 items and measures four dimensions namely, self emotional appraisal, others' emotional appraisal, regulation of emotion and use of emotion.
2. Overall Job Satisfaction scale (OJS) that measures job satisfaction and comprises 18 items. The scale uses the 5-point Likert scale from strongly disagree to strongly agree.
3. Organizational Commitment Questionnaire (OCQ) which assesses organizational commitment and has 15 items. It uses a 7-point Likert scale from strongly disagree to strongly agree.
4. Satisfaction with Life Scale (SWLS) which measures life satisfaction. This scale is a 5-item scale developed by Diener et al. (1985) and uses a 7-point Likert scale from strongly disagree to strongly agree.

The respondents were also asked to fill in several questions on their demographic profile. All the instruments were translated into Bahasa Melayu using the back translation method (Brislin et al. 1973).

RESULTS AND DISCUSSION

Table 1 shows the results of respondents' demographic profile. A total of 141 respondents were Diplomatic and Administration Officer while another five respondents were State Administration Officer and another four respondents were from Kedah State Administration Officer. A total of 100 respondents were female (66.7%), while 45 respondents (30.0%) were male. Ninety respondents (60.0%) were married, 53 respondents (35.4%) unmarried, 2 respondents (1.3%) with the status of divorced and another five respondents (3.3%) did not state their marital status.

In terms of academic qualification, 131 respondents (87.3%) have undergraduate degree, 13 respondents (8.7%) have Masters' degree, 1 respondent (0.7%) with PhD degree and 5 respondents (3.3%) did not state their academic qualification. Based on ethnic distribution, 132 respondents (88.0%) were Malays, 2 Chinese (1.3%), 8 Indians (5.3%), 3 other ethnicities (2.0%) and 5 respondents (3.4%) did not state their ethnicity.

Table 1: Respondents' demographic profile

Demography		Frequency	Percentage
Service Scheme	PTD	141	94.0
	PTN Kelantan	5	3.3
	PTN Kedah	4	2.7
Gender	Male	45	30.0
	Female	100	66.7
	Not stated	5	3.3
Marital status	Married	90	60.0
	Single	53	35.4
	Divorced	2	1.3

Academic qualification	Not stated	5	3.3
	Undergraduate	131	87.3
	Masters	13	8.7
	PhD	1	0.7
Ethnicity	Not stated	5	3.3
	Malay	132	88.0
	Chinese	2	1.3
	Indian	8	5.4
	Others	3	2.0
	Not stated	5	3.3

The first objective of this study was to examine the construct validity of the WLEIS by using principal component analysis with varimax rotation and examination of scree plot. This method aimed to replicate the four-factor structure as proposed by Wong and Law (2002). Prior to this analysis, sample of the study was tested to determine its adequacy and results of Measurement of Sampling Adequacy (MSA) Kaiser-Meyer-Olkin (KMO) yielded the value of $KMO = 0.87$. Based on Brace et al. (2009), acceptable KMO value is 0.60 and higher values nearing 1 indicates satisfactory results. The result obtained therefore was good and indicates that sample was adequate and factor analysis can be applied. The result was further strengthened by Bartlett Sphericity test which yielded a significant result ($p < 0.01$). According to Brace et al. (2009), factor analysis can be done if Bartlett Sphericity is significant.

Results of principal component analysis with varimax rotation and scree plot successfully extracted four factors which contributed a total of 75.1% variance and yielded loadings between 0.60 and 0.88. The four factors extracted replicated the same four factors as proposed by the WLEIS. The factors with its eigen values and variance are shown in Table 2. Based on the results, Factor 3 was similar with self emotional appraisal (SEA), Factor 1 (others' emotional appraisal; OEA), Factor 4 (regulation of emotion; ROE) and Factor 2 (use of emotion; UOE).

**Table 2: Factor structure of the WLEIS
and its items**

Factors and Items	Loading
Component 1 - Others' Emotional Appraisal (OEA); Eigen value = 7.12, Variance = 21.32%	
A5 Always knows his/her friends' emotions from their behavior.	0.79
A6 Is a good observer of others' emotions.	0.883
A7 Is sensitive to the feelings and emotions of others.	0.87
A8 Has good understanding of the emotions of people around him/her.	0.88
Component 2 – Regulation of Emotion (ROE); Eigen value = 2.19, Variance = 19.65%	
A13 Is able to control his/her temper and handle difficulties rationally.	0.85
A14 Is quite capable of controlling his/her own emotions.	0.83
A15 He/she can always calm down quickly when he/she is very angry.	0.77
A16 Has good control of his/her own emotions.	0.80
Component 3 – Self Emotional Appraisal (SEA); Eigen value = 1.50, Variance = 17.16%	
A1 Has a good sense of why he/she has certain feelings most of the time.	0.60
A2 Has good understanding of his/her own emotions.	0.77

A3	Really understands what he/she feels.	0.81
A4	Always knows whether or not he/she is happy.	0.77
Component 4 – Use of Emotion (UOE); Eigen value = 1.21, Variance = 16.98%		
A9	Always sets goals for himself/herself and then tries his/her best to achieve them.	0.71
A10	Always tells himself/herself he/she is a competent person.	0.71
A11	Is a self-motivated person.	0.80
A12	He/she would always encourage himself/herself to try his/her best.	0.81

Correlations were also conducted to examine the relationships among the four dimensions and results (Table 3) obtained showed that all the dimensions significantly correlated with each dimension with $r=0.46$, $p < 0.01$ between SEA and OEA, $r=0.58$, $p < 0.01$ between SEA and ROE, $r=0.50$, $p < 0.01$ between SEA and UOE, $r=0.45$, $p < 0.01$ between OEA and ROE, $r=0.36$, $p < 0.01$ between OEA and UOE, and $r=0.50$, $p < 0.01$ between ROE and UOE. The significant correlations indicated that all dimensions are related to one another which meant that it validly measures the same construct which is emotional intelligence

Table 3: Correlation among the dimensions of the WLEIS

Dimension	1	2	3	4
Self emotional appraisal (1)				
Others' emotional appraisal (2)	0.46*			
Regulation of emotion (3)	0.58*	0.45*		
Use of emotion (4)	0.50*	0.36*	0.50*	

* $p < 0.01$

The second objective was to examine the concurrent validity of the WLEIS in measuring emotional intelligence by correlating it with the criteria of job satisfaction, organizational commitment and life satisfaction. Results of correlation analysis showed that there was significant correlations between emotional intelligence and job satisfaction with $r= 0.30$, $p < 0.01$. There was also significant correlation between emotional intelligence and organizational commitment with $r = 0.29$, $p < 0.01$. Significant correlation was also obtained between emotional intelligence and life satisfaction with $r = 0.25$, $p < 0.01$. These results showed that the WLEIS has good concurrent validity from the significant correlations with the criteria.

Finally, the third objective was to assess the reliability of the WLEIS. Two methods were used namely Cronbach alpha and split half reliability. Results in Table 4 showed that Cronbach alpha for all 16 items yielded a lpha 0.91 indicating a high reliability. Results by dimensions also showed that all dimensions have good reliability with SEA= 0.83, OEA = 0.92, ROE = 0.85 and UOE = 0.89. Results of split half reliability also showed similar patterns of results with SEA = 0.84, OEA = 0.91, ROE = 0.81 and UOE = 0.83. The results obtained in this study showed that the WLEIS and all of its dimensions have high internal consistency and reliability.

Table 4: Results of Cronbach alpha and split half reliability

Dimension	Items	Cronbach Alpha	Spearman-Brown
Self emotional appraisal	4	0.83	0.84
Others' emotional appraisal	4	0.92	0.91
Regulation of emotion	4	0.85	0.81
Use of emotion	4	0.89	0.83
Overall	16	0.91	0.95

CONCLUSION

This study aimed to evaluate the psychometric properties of the Wong and Law Emotional Intelligence Scale (WLEIS). Since it was originally developed in Hong Kong, cross-cultural studies have to be done in order to establish its reliability and validity when used with populations of different sociocultural background. This study using Malaysian samples proved that the WLEIS was valid based on validation analysis of construct and criterion validity. In addition, results of internal consistency and split half reliability showed that the WLEIS has high reliability.

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