

---

included interpersonal and intrapersonal intelligence as one of the seven intelligence domains in his theory of multiple intelligence.

Salovey and Mayer (1990) were the earliest researchers to propose the term "emotional intelligence" to represent the ability to deal with the emotions. They 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).

Each theoretical paradigm conceptualizes emotional intelligence from one of the three perspec-

Bar-On (1997) introduced the Bar-On EQ-i instrument, which contains 133 items. This scale was also used by some researchers (Austin et al., 2004; Bar-On, 1996, 1997, 2002, 2006). However, Bar-On's definition of EI is slightly different from the definition of Mayer and Salovey, and the scale includes a number of dimensions that may not relate to EI directly (e.g., problem solving, social responsibility, etc.).

There are still some other EI measures. Salovey, Mayer, Goldman, Turvey, and Palfai (1995) developed a 30-item Trait Meta-Mood scale to measure EI. Goleman (1995) developed a 10-item measure of EI without any validation evidence. However, none of these measures were validated in China.

Recently, Wong and Law (2002) developed a new EI measurement, which contains 16 items and four subscales. Their research showed the strong convergence with previous EI measures such as the Trait Meta-Mood and the EQ-i. Besides, this EI score could also predict external criterion variables such as life satisfaction. However, this scale was based on Hong Kong Chinese employees, we still have no evidence on the applicability of this scale in other Chinese populations such as university students in Mainland China.

With growing interest in the emotional intelligence of different cultural groups, a need has emerged for translated versions of scales measuring emotional intelligence. The aim of the present paper was to evaluate the reliability and validity of the WLEIS in a sample of Chinese university students. We were interested in assessing the relationship of the WLEIS with both personality and other psychological characteristics. We expected that the WLEIS score will have moderately positive correlations with the Openness, Agreeable and Conscientiousness dimensions of the Big Five model, and negative correlations with the Neuroticism dimension (McCrae & Costa, 1987). We also expected that subjects high on WLEIS would show high Positive Affect (PANAS: Watson, Clark, & Tellegen, 1988) and Warmth (one facet of the Extraversion dimension in the Big Five personality model), and low Negative affect, Loneliness (the UCLA Loneliness Scale; Russell, 1996; Russell, Peplau, & Cutrona, 1980; Russell, Peplau, & Ferguson, 1978) and Depression (Davis, 1980, 1983). We will also test the construct validity and reliability of the WLEIS in Chinese university students.

## 2. Method

### 2.1. Participants

Questionnaires were administered to 1458 students in two universities located in Beijing and Shandong province in China. In this research sample, 62.3% of participants were male (three did not report their gender). Participants ranged from 17 to 29 years old, with a mean age of  $19.8 \pm 1.4$  years old (four did not report their age). In sample 1 (Beijing), 918 undergraduate university students were recruited for the study. All these students were "first-year full-time students in one university in Beijing. The group comprised 648 males and 268 females (2 missing data). The mean age of the group was 19.3 years (SD = 0.9 years). In sample 2 (Shandong province), 397 undergraduate university students were recruited. The group comprised 197 males and 200 females. The mean age of the group was 20.5 years (SD = 1.4 years). In sample 3 (Shandong province), 143 undergraduate university students were recruited. The group



point of view of others; (3) fantasy, a tendency to identify with characters in “fictional works; and (4) personal distress, the tendency to become upset and anxious when observing other people in negative circumstances. Davis (1980) reports internal consistencies ranging from 0.68 to 0.79 for the subscales, and test...retest reliabilities ranging from 0.61 to 0.81 over intervals of between 60 and 75 days. The factor structure of the scales appears to be similar in male and female samples. The construct validity of the scales has been supported through correlations with other empathy measures and with measures of other theoretically related variables (Davis, 1983). The internal consistencies ranged from 0.64 to 0.75 for the subscales in sample 2.

The Big Five Adjective Scale: This scale was developed by McCrae and Costa (1987). To limit the length of the questionnaire, we adopted a simplified method (Law, Wong, & Song, 2004) that randomly selected 6 items for each of the Big Five Personality dimensions from the original 80-item scale, resulting in a 30-item measure. The internal consistencies ranged from 0.70 to 0.81 for the subscales in sample 3.

Warmth: One facet of the Extraversion dimension of the Big Five model (Costa & McCrae, 1989), which contained 8 items (e.g. “This person is known as a warm and friendly person”). We asked the counselor of each student to evaluate the student’s interest in and friendliness towards others. The internal consistency was 0.72 in sample 3.

Demographic information was also collected including age, gender and major information. All the questionnaires used in this research were in Chinese language.

### 3. Results

#### 3.1. Structure validity

We conducted confirmatory factor analysis (CFA) on the 16 items to examine the structure validity. Cases with missing data were deleted listwise. Results of the confirmatory factor analysis are presented in Table 1. Comparing with the one-factor model, the four-factor model fit well. These results meet the criteria for goodness of fit indices ( $>.90$ ) and root mean square residual (RMR  $<.05$ ) (see McDonald & Marsh, 1990), which means the WLEIS scale retained a four-factor structure in our Chinese university students sample.

#### 3.2. Internal consistency and item homogeneity

Internal consistency was assessed using Cronbach’s  $\alpha$  and item homogeneity was assessed using mean inter-item correlation (MIC). As shown in Table 2, internal consistencies of the whole scale

Table 1  
CFA results of the four-factor and one-factor model

Sample	$\chi^2$	RMSEA	GFI	AGFI	CFI
Four factor	381.42	0.045	0.97	0.96	0.97
One factor	15792.61	0.300	0.42	0.33	0.02

Note: N total = 1458.

and sub-scales of the WLEIS were excellent. It is worth pointing out that the MIC coefficients for the subscales of UOE for both men and women were very high, indicating possible redundancy among items comprising these subscales. The WLEIS total was less homogeneous than any composite scale which was expected given that WLEIS total was designed to tap a broad dimension of emotional intelligence.

### 3.3. Concurrent validity

The scores obtained from the WLEIS and the emotional intelligence scale (EIS; Schutte et al., 1998) was correlated to assess the concurrent validity of the WLEIS. As expected, higher scores on EIS were substantially associated with high scores on the WLEIS ( $r = .79, p < .01$ ), and also related to the four dimensions of the WLEIS, respectively. The high scores on EIS were associated with SEA, OEA, ROE and UOE ( $r = .62, p < .01$ ;  $r = .59, p < .01$ ;  $r = .49, p < .01$  and  $r = .59, p < .01$ ). The results showed that these two scales used to measure emotional intelligence had high or moderate correlations, which showed the WLEIS has concurrent validity.

### 3.4. Convergent/discriminant validity

We would expect a valid measure of emotional intelligence to be related to the measures that assess general emotional status, some specific emotions such as depression and loneliness, and

Table 3  
Correlations of the WLEIS and other measures

	PANAS		ZSDS	UCLA	Interpersonal reactivity inventory			
	PA	NA			Fantasy	Emotional concern	Perspective taking	Distress
Total	0.39**	0.18**	0.37**	0.27**	0.16**	0.15**	0.42**	0.33**
SEA	0.27**	0.15**	0.32**	0.20**	0.12*	0.11*	0.34**	0.23**
ROE	0.25**	0.20**	0.24**	0.19**	0.03	0.03	0.30**	0.40**
UOE	0.40**	0.14**	0.39**	0.26**	0.20**	0.23**	0.25**	0.18**
OEA	0.21**	0.04	0.21**	0.12*	0.18**	0.14**	0.28**	0.08

Note: PA = Positive affect; NA = Negative affect; ZSDS = Zung's symptoms of depression scale; UCLA = UCLA Loneliness scale; Fantasy, Emotional concern, Perspective taking and Distress are the four subscales of the interpersonal reactivity inventory.

\*  $P < .05$ .

\*\*  $P < .01$ .

Table 4  
Correlations of the WLEIS and Big Five personality score

	N	E	O	A	C
Total	0.46**	0.16	0.23**	0.23**	0.35**
SEA	0.33**	0.06	0.08	0.02	0.19
ROE	0.05	0.01	0.20	0.18*	0.04
UOE	0.38**	0.14	0.20	0.16	0.27**
OEA	0.45**	0.21*	0.14	0.23**	0.39**

\*  $P < .05$ .

\*\*  $P < .01$ .

Openness ( $r = .23$ ,  $p < .01$ ) and Conscientiousness ( $r = .35$ ,  $p < .01$ ) subscales. But there was no correlation between EI scores and the Extraversion subscale score ( $r = .16$ ,  $p > .05$ ). These results were similar with the results of Wong and Law's research (2002)

To avoid the common method bias, we obtained the evaluations of the students from the counselor. As expected, the Warmth scores were positively correlated to the scores on the WLEIS ( $r = .39$ ,  $p < .01$ ), and also related to the three dimensions of the WLEIS, respectively. The high scores on EIS were associated with SEA, OEA and ROE ( $r = .27$ ,  $p < .01$ ;  $r = .41$ ,  $p < .01$  and  $r = .26$ ,  $p < .01$ ).

Overall, the results above indicated that the EI measurement in this research has convergent and discriminant validity.

### 3.5. Analysis of gender and age differences

To examine the effects of gender group, an independent-samples  $t$ -test was performed on the total score of the WLEIS and the four subscales. The results indicated that males' total emotional intelligence score was higher than the score of female students (Table 5). Specifically, male students' scores on the subscale OEA and UOE were significantly higher than the female scores.

We also analysed the correlation between EI score and age but did not find significant results.

#### 4. Discussion

The present study provided support for the reliability and validity of a relatively new measure of emotional intelligence, the WLEIS (Wong & Law, 2002). The original purpose of developing the WLEIS was to be beneficial for future leadership and management research. In this research, we found this scale can also be used in a Chinese university student sample.





Dawda, D., & Hart, S. D. (2000). Assessing emotional intelligence: reliability and validity of the Bar-On Emotional Quotient Inventory (EQ-i) in university students. *Personality and Individual Differences*, 28, 797-812.

