

VALIDATION OF EMOTIONAL INTELLIGENCE SCALE AMONG WOMEN ENTREPRENEURS IN INDIA

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ABSTRACT

Entrepreneurs need to have strong emotional intelligence because it allows them to control their emotions and that of others. Emotional intelligence is a blend of intrapersonal and interpersonal skills. However, there is no accurate and valid tool to evaluate the emotional intelligence of women entrepreneurs in India. As a result, this attempt aimed to assess the validity of the Emotional Intelligence Scale developed by Wong and Law, among 104 women entrepreneurs who were chosen randomly from the Dindigul District of Tamil Nadu, India. A content validity index of 0.87, which is satisfactory construct validity, was used to assess the tool being measured. The overall Cronbach's alpha value was 0.88. As a result, this scale is trustworthy, valid, and appropriate for assessing the emotional intelligence of women entrepreneurs in India.

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INTRODUCTION

Emotional intelligence (EI), which is the capacity for managing emotions, has its origin in the idea of social intelligence, initially put forth by Thorndike (E. L. Thorndike, 1920) and further defined by Howard Gardner to comprise intrapersonal and interpersonal intelligence (Gardner, 1993). EI's formal formulation was first proposed by Salovey and Mayer in the year 1990 (Salovey & Mayer, 1990), explained emotional intelligence as a capacity to pay attention to an individual's and other people's emotions, to differentiate between them, and able to make decisions based on this knowledge. Emotional intelligence, a subset of social intelligence, has been found to improve a leader's effectiveness through the display of abilities (Goleman, 1998; Spencer & Spencer, 2008).

E.L. Thorndike, the inventor of the Intelligent Quotient (IQ) test, noted in 1920 that social interactions and settings had an impact on one's intellectual skills. From other types of intelligence, he distinguished social intelligence. Three separate subfields of social intelligence were discovered by (R. L. Thorndike & Stein, 1937): i) A person's perspective on society; ii) Their level of social awareness; and iii) The extent to which they have made social adaptations. Each social intelligence domain denotes abilities that go beyond IQ.

Goleman, states that emotional intelligence empowers the individual to notice the feelings as well as those of others, to inspire himself, and to control his own emotions as well as those that arise in our interpersonal connections (Perloff, 1997). The primary components of EI are self-assessment of emotions, emotional evaluation of others, control of emotions, and use of emotions (Wong & Law, 2002). Grounded on the notion of social intelligence, EI is seen to encompass both intra-personal and interpersonal intelligence (Law et al., 2004). EI is a collection of personal societal capabilities that allow a person to recognise, and distinguish their own and others' emotions to control their thoughts and behaviour (Mayer et al., 2000). Emotional adjustment, the capacity to recognise and express emotions, and the use of emotions for both one's motivation and that of others are all aspects of EI (Mayer et al., 2000; Perloff, 1997). The emotional intelligence competencies of outstanding performers were used to define them, and the significance of relationship and self-management demonstrated a higher level of creative performance (Gerli & Bonesso, 2011).

Intellectual intelligence, EI, and social properties all work together to boost both an individual's and a group's capacity for innovation, (Goyal & Akhilesh, 2007). Emotional intelligence is essential for fostering creativity and innovation inside an organisation (Suliman & Al-Shaikh, 2007). The four primary subcategories of EI are awareness of self, regulation of self, understanding others, and societal skills (Goleman, 2012). It requires managing emotions to keep from getting distracted by work, delaying pleasure to meet objectives, dealing with emotional pain, and being conscientious (Karimi et al., 2012).

It has been demonstrated that entrepreneurship is crucial for boosting employment, production, and overall economic development (Birch et al., 1979; Parker, 2004). According to economists' long-held beliefs (Rumelt, 2005; Schumpeter, 1934), entrepreneurs are the ones who start new businesses. They are also directly responsible for wealth creation (Schumpeter, 1934). Understanding, characterising and explaining entrepreneurs as well as the entrepreneurial activities that powered the final big economic expansion have received a lot of attention (Birley et al., 1987; Norton & Moore, 2002; Schoonhoven & Romanelli, 2001).

The underwhelming outcomes of earlier research seeking to establish generic personality traits of entrepreneurs, risk-taking qualities, and behaviour profiles have raised apprehensions (Hornaday & Aboud, 1971; McClelland, 1961; Sexton & Bowman-Upton, 1990). Research indicates that self-awareness and motivation have the biggest effects on fostering creativity, self-regulation has the biggest effects on taking risks, and empathy has the biggest effects on proactiveness (Kamalian et al., 2011). In research on high-profile Australian entrepreneurs, they discovered that these

individuals demonstrated very high levels of emotion management, expression, and utilisation (Cross & Travaglione, 2003). Businesspersons will get a viable advantage that distinguishes the company's performance from the rivals if they can recognise, comprehend, and regulate emotional responses.

Begley and Boyd made an effort to describe the emotional traits of prosperous businesspersons, but they included a small number of factors that could be regarded as being related to emotional intelligence, such as achievement needs, broad-mindedness, awareness, elasticity, confidence, and adaptation (Begley & Boyd, 1987). Numerous researchers have studied intuition in businesspeople, and they discovered that most businesspeople had intuitive personalities (Carland jr, 1982) and displayed both awareness and inventiveness (Bird, 1988; Nickerson et al., 2014). Group unity mixed with unrestricted communication improved performance and teamwork (Pearson et al., 2002). Entrepreneurship is a collection of activities and behaviours that businesspersons engage in (Brandstätter, 1997). The activity is not just about starting a firm. Entrepreneurs having an augmented level of EI are predicted to perform well than low EI entrepreneurs (Zhou et al., 2014). Brandstätter in his research randomly selected participants from two different groups: the first group consisted of small- and medium-sized business owners, while the second group consisted of people who were considering beginning a private business. In contrast to entrepreneurs who had inherited their businesses from parents, relatives, or through marriage, he discovered that beginning owners were more emotionally stable and independent (Brandstätter, 1997). Entrepreneurs who are successful typically possess emotional stability and independence (Karimi et al., 2012).

Further research revealed that individuals with high EI are inclined to be more effective, inspiring innovative attitudes and promoting innovation (Ahmetoglu et al., 2011). Emotional intelligence is crucial for successful entrepreneurship, as evidenced by how the businessperson makes choices and judgements in an emotional approach as opposed to a normal situation (Schindehutte et al., 2006). They also underlined that an entrepreneur can function at their absolute best when they are at their spiritual and emotional pinnacles. Entrepreneurs can use their sense of joy as a motivating factor to drive their performance to new heights and ultimately find success and fulfilment (Loehr & Schwartz, 2001). Emotion is the key component in assisting entrepreneurs in making a balanced decision making as well as creativity, according to research on emotional intelligence (Goleman, 2012), which is claimed to be a factor in superior performance. Positive feelings may also help entrepreneurs to be more creative and recognise opportunities, according to Baron (Baron, 2008). Additionally, it has been proposed that emotionally intelligent leaders act in ways that encourage their staff members' inventiveness.

Little emphasis has been placed on the measurement of the level of emotional intelligence among women entrepreneurs, even though many academics have argued that it is more important to look at behavioural differences among entrepreneurs than demographic characteristics (Ramoglou et al., 2020; Zahra, 2008). To measure the EI level of women entrepreneurs, a valid and consistent scale is required. Accordingly, cross-validation methods, such as factor analysis, should be used to look at the fundamental dimensions of various EI competencies. Using the Mayer and Salovey model (Mayer et al., 2000), Wong and Law advocated the four-dimension emotional intelligence scale (Wong & Law, 2002). Thus, the purpose of this initiative is to assess the consistency and validity among women entrepreneurs in India using Wong and Law Emotional Intelligence Scale (WLEIS) (Wong & Law, 2002).

METHODS

Participants and Sample

The present attempt aims to measure the validation of the WLEIS tool among the women entrepreneurs registered with the District Industries Centre (DIC), Dindigul District of Tamil Nadu, India using a convenience sampling technique. The distribution of 126 questionnaires to the women entrepreneurs resulted in 104 responses (82.5 per cent response rate) included for data analysis. Hair et al. (2006) suggested that the sample size be five times as large as the number of variables in the research scales. Consequently, we believe that a sample size of 104 is appropriate for this investigation.

Measures

The WLEIS (Wong & Law, 2002) consists of a self-report of 16 statements, a tool used to measure emotional intelligence. Four components were measured by the 16-statement scale: self-emotional assessment, others' emotional assessment, use of emotion, and regulation of emotion. All the responses were coded in the following ways: 1- strongly disagree to 7- strongly agree. It assesses four aspects of EI: (1) self-emotional appraisal - Individuals' capacity to recognise and assess their deep emotions and to express them naturally; (2) others' emotional appraisal - Individuals' capacity to recognise and comprehend the emotions of those around them; (3) use of emotion - Persons' capacity to channel their excitements toward resourceful activities and personal performance; and (4) regulation of emotions - Individuals' capacity to control their emotions. In terms of dependability, the four dimensions' alpha coefficients in Wong and Law's scale (Wong & Law, 2002) were 0.89, 0.88, 0.76, and 0.85, respectively. The ratio of the four ratings for each statement was considered while evaluating the content validity. The scale is considered to have good content validity if the ratio was more than 0.8. (Hair, 2009). This current index was having an adequate level of content validity at 0.87.

Data Collection

Data was gathered from February through October 2022. The researchers used a structured questionnaire and convenience sampling to collect the information from the samples. All respondents were made aware of the objectives of the study and given guarantees that the information they supplied would only be utilised for academic research.

Analysis of Data

All the analyses were done using AMOS (ver. 24) and SPSS (ver. 23). The data normality was evaluated by applying the Shapiro-Wilk test. Confirmatory factor analysis was done to determine construct validity because WLEIS has earlier constructed and validated (Wong & Law, 2002). The scale's convergent validity was further investigated using Pearson's correlation analysis. By calculating the item-total correlation coefficient and Cronbach's alpha, the reliability of the four WLEIS dimensions was determined.

Results

Construct Validity

To confirm the factor construction of the 16 statements of the WLEIS, confirmatory factor analysis was used (Table 1). The standardised regression weights for each of the four variables' statements ranged from .591 to .939 and were significant statistically (all $p < .001$). Several goodness-of-fit metrics, such as comparative-fit-index (CFI) of 0.90 and root-mean-square-error of approximation (RMSEA) of 0.08, were applied to assess the inclusive model fit. The indices provide information on model fit and are suitable indices for model assessments (Byrne, 2013; Hooper et al., 2008; Leak, 2011).

Table 1. WLEIS - Confirmatory Factor Analysis (CFA)

Item No.	Factors	Standardized estimates	SE	C.R	p	AVE	Composite Reliability
SEA1	Self-emotions appraisal (SEA)	.873				.671	.890
SEA2		.816	.09	10.476	<.001		
SEA3		.812	.07	10.400	<.001		
SEA4		.885	.08	12.051	<.001		
OEA1	Others-emotions appraisal (OEA)	.891				.673	.891
OEA2		.939	.07	14.191	<.001		
OEA3		.800	.08	10.641	<.001		
OEA4		.679	.09	8.128	<.001		
UOE1	Use of emotion (UOE)	.787				.670	.890
UOE2		.836	.12	8.370	<.001		
UOE3		.795	.10	8.051	<.001		
UOE4		.619	.13	6.148	<.001		
ROE1	Regulation of emotion (ROE)	.798				.538	.820
ROE2		.861	.11	9.584	<.001		
ROE3		.855	.11	9.515	<.001		
ROE4		.591	.12	6.101	<.001		

Source: Primary data

Table 2. - Fit Indices - Confirmatory Factor Analysis (CFA) Models

Model	X ² (p)	df	CMIN/df	RMSEA	RMR	GFI	IFI	TLI	CFI
Criteria	(< .05)		≤ 3	≤ .10	≤ .08		≥ .90		≥ .90
Model 1	255.48 (<.001)	97	2.63	.088	.113	.872	.935	.919	.935
Model 2	1147.969 (<.001)	120	1.309	.055	.177	.868	.971	.964	.971

Source: Primary data

Note: Model 1 is based on the original theoretical model WLEIS and it contained four factors and 16 indicators. Model 2 is the independence model generated by the AMOS program. df = degree of freedom; RMSEA = root mean square error of approximation; RMR = root-mean-square-residual; GFI = goodness-of-fit-index; IFI = incremental-fit-index; TLI = Tucker–Lewis-index; CFI = comparative-fit-index.

The original theoretical model WLEIS model fit for this tool (model 1) indicates that the goodness-of-fit-indices satisfied the criteria of CMIN/df ≤ 3, SRMR ≤.08, RMSEA ≤.10, IFI ≥ .90, CFI ≥ .90 (Noh, 2014; Yu, 2012). The values of the above-mentioned indices compared to Model 2 fit the standards, indicating the viability, which is the aim of this initiation and is presented for comparison in Table 2.

Convergent Validity

Confirmatory Factor Analysis was used to evaluate the convergent validity of the scale. In that the critical ratio value ranged from 6.10 to 14.19, satisfying the criteria of being 1.97, and the standardised factor loadings for all items were .591 to .939, exceeding the reference .50.

The average extracted variance was more than the reference value of ≥ .50, ranging from .53 to .67 (Jin et al., 2021; Yu et al., 2016). The convergent validity was therefore confirmed (Table 1). The regression model goodness-of-fit was seen, and the outcomes confirmed the goodness-of-fit (Table 3).

Table 3. Reliability and Correlation Coefficients

Variables	Dimensions	Items	Mean	SD	Cronbach's Alpha	Item total correlation	r	p
EI	SEA	1	3.30	1.73		.61	.66	<.001
		2	3.58	1.76		.64	.67	<.001
		3	3.29	1.46		.56	.63	<.001
		4	3.57	1.64		.69	.70	<.001
		Mean of SEA	3.44	1.65	.91	-	-	-
	OEA	1	3.71	1.76		.59	.60	<.001
		2	3.77	1.65		.70	.70	<.001
		3	3.83	1.81		.65	.69	<.001
		4	3.72	1.71		.59	.64	<.001
		Mean of OEA	3.76	1.73	.89	-	-	-
	UOE	1	4.36	1.99		.31	.42	<.001
		2	4.24	1.94		.35	.46	<.001
		3	3.90	1.68		.35	.43	<.001
		4	4.35	2.11		.31	.41	<.001
		Mean of UOE	4.21	1.93	.84	-	-	-
	ROE	1	3.35	1.58		.55	.58	<.001
		2	3.28	1.62		.59	.65	<.001
		3	3.43	1.65		.64	.67	<.001
		4	3.62	1.65		.50	.56	<.001
		Mean of ROE	3.42	1.63	.85	-	-	-
		Mean of EI	3.71	1.74	.88	-	-	-

Source: Primary data

Internal Consistency

The 16 statements in the WLEIS's initial edition were all intercorrelated and valid (all ps < .001). For the four dimensions, the following Pearson's correlation coefficient ranges were found: SEA = .63-.70, OEA = .60-.70, UOE = .41-.46, and ROE = .56-.67 (Table 3).

Reliability

The four WLEIS dimensions' respective Cronbach's alphas (internal consistency) were .91,.89, .84, and .85. The whole scale's Cronbach's alpha was.883. An examination of the item-total correlation yielded correlations ranging from.31 to.70 (Table 3). Each component of the WLEIS was added to the model (Shrigley, 1990). Composite reliability often referred to as construct reliability, is a measurement of the internal consistency in scale items, much like Cronbach's alpha. When applied to the four dimensions, the following composite reliability ranges were found: SEA = .56 - .69, OEA = .59 - .70, UOE = .31 - .35, and ROE = .50 - .64. As a result, the WLEIS's initial version showed sufficient internal consistency and reproducibility (Table 3). Additionally, the data demonstrated a sufficient level of dependability with a coefficient of.883, and the removal of any item had no impact on the overall scale's alpha (Table 4). As a result, the WLEIS conducted among the entrepreneurs showed sufficient internal consistency.

Table 4. Alpha coefficients of the WLEIS if an item is deleted.

Item	Alpha if the item is deleted
	.873
	.872
	.875
	.870
	.874
	.870
	.871
	.874
	.886
	.884
	.883
	.887
	.876
	.874
	.872
	.877

Source: Primary data

Discussion

Starting a business is a difficult process, it takes a strong mind and calm emotions for a businessperson to be able to compete. EI is considerably more than just being likeable or having good people skills, although these things do play a role (Ghorbani et al., 2012). Our interactions with others, whether personal or professional, have an impact on every part of our existence (Singh & Modassir, 2007). The effectiveness with which business owners may profit from different partnerships greatly depends on their internal EI. Lack of EI capability would limit entrepreneurs' ability to innovate and succeed.

Top managers' effectiveness is influenced by their social and emotional intelligence (Johnson, 2017). This explanation backs up Goleman's assertion that EI can lead to extraordinary performance (Goleman, 1998). It has also been suggested in the same context that improved EI enables enterprises to use emotions in a way that influences both individual job performance and enterprise performance (Cherniss et al., 2016).

Prior research has found that EI has an impact on a variety of factors, including the professional setting (Mishra & Mohapatra, 2009), leadership efficiency (Rosete & Ciarrochi, 2005), teamwork and team performance (Goyal & Akhilesh, 2007; Stubbs & Wolff, 2008), intellectual job performance (Schutte et al., 2001) greater flexibility and emotional balance, such as participation in high emotive context situations (Schutte et al., 2008). Additionally, it was found that emotional awareness and improved performance go hand in hand. Individuals who had a better understanding of their emotions were better able to control them and, as a result, performed better when making decisions (Seo & Barrett, 2007).

Businesses today need entrepreneurs with high levels of EI because they can persevere in the face of competition and collaborate with others to achieve goals (Ko & Kim, 2020). Small business executives were more meticulous and logical in their decision-making abilities whereas entrepreneurs were more intuitive and flexible (Carland & Carland, 1997). It was also identified that entrepreneurs are less strategic than executives (Smith et al., 1988).

Entrepreneurs who had high integrative complexities and ambiguity sensitivity spent a lot of time on essential tasks and had judgement styles that were favourably correlated with the financial performance of their business (Dollinger, 1984). Entrepreneurs' decision-making skills have an impact on the choice of crucial tasks (Scherer et al., 1990).

To measure EI, several self-report tools have been developed and authenticated. The EI model developed by Salovey and Mayer (Salovey & Mayer, 1990) served as the foundation for Wong and Law's WLEIS (Wong & Law, 2002). The WLEIS is regarded as a comprehensive tool (Carvalho et al., 2016; Libbrecht et al., 2014).

As a result, this study is the first to measure the WLEIS's reliability and validity among women entrepreneurs in India. To ascertain the construct validity, we carried out confirmatory factor analyses. No statements were deleted since the goodness of fit indices showed that every item measured the intended constructs. This outcome is unswerving with the original scale's four-factor structure (Wong & Law, 2002).

The WLEIS and its subscales' Cronbach's alpha values, which ranged from 0.84 to 0.91, were satisfactory. Alpha values $>.80$, are a sign of strong internal consistency (Ponterotto & Ruckdeschel, 2007). As a result, the WLEIS' internal consistency was acceptable and was found even stronger than the original version. It can be noted that the correlation coefficients between the EI dimensions in the WLEIS study (Wong & Law, 2002) were lower than that of the present study even though they were significantly associated (range from $r = 0.13$ to 0.42). These findings suggest that the original WLEIS has shown appropriate validity and reliability.

This study has a few drawbacks, even though the original WLEIS version's validity and reliability, when used with women entrepreneurs, met the necessary standards. First, because India is a country with diverse cultures, more

research needs to be done in India on women entrepreneurship. This study only included participants from a small portion of Tamil Nadu State in India. Second, the list provided by the DIC, Dindigul District, Tamil Nadu, from whom the participants in this study were chosen might have reduced the representativeness of the sample. Thirdly, limitations of self-report questionnaires, such as recollection biases and socially desired response sets, may also hurt the findings. Therefore, additional testing of the WLEIS's original version among micro, small, and medium-sized businesswomen owners should be done.

Conclusion

This study indicated that the original WLEIS supported the four-factor structure and validated its validity and reliability among women entrepreneurs in India. As a result, this scale can be used to evaluate the women entrepreneurs EI in India. Researchers who study entrepreneurs are no longer unfamiliar with EI, and it may even be used as a reference to the psychosocial competencies of entrepreneurs. Because entrepreneurship has a measurable economic impact on both the person and the national economy, the current findings can be used to inspire additional research studies on emotional intelligence among women entrepreneurs. The results also provide empirical data that can be used to create programmes that enhance women entrepreneurs' emotional intelligence. However, more investigation is required to prove that the WLEIS's original version has strong psychometric properties and is appropriate for application in Indian contexts. To provide more conclusive results and direct future studies on the subject, additional testing of the scale's validity should be conducted among diverse categories of women entrepreneurs, such as micro, small, and medium enterprises.

COMPETING INTERESTS

The authors have no competing interests to declare.

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