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Validating the Instrument to Measure Entrepreneurial Leadership

[1]Mohamed Dahlan Ibrahim, [2]Abdullah Al Mamun, [1]Mohd Nor Hakimin Yusoff and
[1]Tengku Mohd Azizuddin Tuan Mahmood
[1]Faculty of Entrepreneurship and Business,
[2]Global Entrepreneurship Research and Innovation Centre (GERIC),
Universiti Malaysia Kelantan (UMK), Kota Bharu, Malaysia

Abstract: The primary objective of this study is to develop and validate the instrument to measure entrepreneurial leadership among the low-income households in Kelantan, Malaysia. Present study attempts to answer the call of existing studies to explore the individual antecedents of entrepreneurial leadership and to examine the constructs of responsibility, accountability, analytical thinking and emotional intelligence as indicators and measures of entrepreneurial leadership. This study adopted a cross-sectional design and quantitative data was collected from 800 households from 4 Districts in Kelantan, Malaysia, through a structured interview. Based on the reliability and validity testing, this study finalized the instrument reducing a 27 items scale to 21 items yielding four factors, i.e., responsibility (five items), accountability (three items), analytical thinking (five items) and emotional intelligence (eight items). Findings of the reflective hierarchical model show that emotional intelligence is the highest contributor to entrepreneurial leadership among the low-income households in Kelantan, Malaysia, followed by responsibility, analytical thinking and accountability. It is recommended that future researchers continue the development of the instrument by cross-examining the instrument presented in this study across the different income level groups living in low-income as well as developed countries.

Key words: Instrument, responsibility, accountability, analytical thinking, emotional intelligence, entrepreneurial leadership

INTRODUCTION

In recent years both developing and developed nations across the globe have indiscriminatingly acknowledged the indispensable role of entrepreneurship to act as a dynamic catalyst for economic growth and development and therefore, countries worldwide have been actively formulating entrepreneurship friendly policies in order to gain a competitive lead in the world economy (Naude, 2008). Research also supports the idea that high-potential entrepreneurial activities, specifically among small to medium sized enterprises are positively associated with economic growth (Wong *et al*., 2005). Particularly in the context of developing countries, entrepreneurship, even in its basic form, significantly affects the structural transformation of primary-sector based low-income states into technology based high-income service societies (Naude, 2008). On the other hand, the social significance of entrepreneurship is well reflected in the diverse range of disciplines where the concept is studied including social anthropology, organizational theory and even mathematical economics (Henrekson, 2007).

Approaching from an occupational perspective, entrepreneurship refers to self-employed people or entrepreneurs who carry out self-employing entrepreneurial activities as a matter of choice or necessity (Naude, 2008). The latter that is entrepreneurship by necessity is usually constituted by low-income or underprivileged communities who are more often associated with informal or micro-entrepreneurship. This form of entrepreneurship among the underprivileged plays the role of a powerful tool for combating poverty and empowering the poor economically (Basargekar, 2011). Moreover, the positive role of small sized enterprises particularly that of new ventures has been widely acknowledged in the development literature, thanks to the crucial role played by

Corresponding Author: Mohamed Dahlan Ibrahim, Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Kota Bharu, Malaysia

micro-enterprises in the socio-economic development of low-income households along with their support towards maintaining a healthy and sustainable economic growth (Mamun *et al*., 2016a, b).

Although, both developed and developing nations host the informal economy and its enterprises, entrepreneurship among low-income and underprivileged communities have been found to act as engines of economic dynamism particularly in developing economies such as Malaysia where a significant proportion of such underprivileged micro-entrepreneurs operate within the informal economy of the country (Mamun *et al*., 2016a, b). According to Saleh and Ndubisi (2006), small to medium sized enterprises are one of the most significant contributors towards economic development in Malaysia and perhaps this is why the policies and programmes of the Malaysian Government along with other development organizations in the country have been nurturing an entrepreneurship supportive environment in order to promote entrepreneurial activities among low-income and underprivileged entrepreneurs (Mamun and Ekpe, 2016).

Entrepreneurial behaviours such as leadership are significant because of the potential to recognize the importance of individuals in the entrepreneurial process and are therefore, considered vital in a variety of organizational aspects such as fostering innovation and adapting to the changing environments (Renko *et al*., 2015). Particularly in the case of small businesses, entrepreneurial leadership remains unavoidable as entrepreneurs in small enterprises are not able to successfully develop their business ventures without portraying effective leadership behaviours (Cogliser and Brigham, 2004). Moreover, in the context of new entities, entrepreneurs must rely on entrepreneurial leadership as no initial operating procedures, organizational structures or management practices exist that could support their advancement otherwise (Hmieleski and Ensley, 2007).

Studies focusing on entrepreneurship need to acknowledge that the concept of entrepreneurship has been receiving the deserved attention from both academics and policy makers in recent years (Serrano and Romero, 2013). However, according to research, entrepreneurship in the context of developing nations remains a relatively under-researched social and economic phenomenon (Naude, 2008). Moreover, in the context of entrepreneurial leadership, recent research reveals that although the concept is relatively current in the field of leadership and entrepreneurship and has been embraced in classrooms and popular press, academic knowledge of the construct remains underdeveloped, particularly in terms of individual or contextual antecedents of entrepreneurial leadership (Renko *et al*., 2015). Furthermore, research also stresses that the concept of leadership as an individual-level construct, remains unexplored (Hall *et al*., 2004). It is perceived from the review of literature that the lack of conceptual development along with inadequate tools to measure entrepreneurial leadership has been hindering the progress of related research. Therefore, in a novel and significant attempt, the present study surveys the depths and progress of entrepreneurial leadership with the purpose of distilling its outlines for a more prevalent measure of the construct particularly in the context of low-income or underprivileged entrepreneurs.

Literature review

Background of entrepreneurial leadership: Entrepreneurial leadership emerges at the intersection of leadership and entrepreneurship (Renko *et al*., 2015), wherein leadership refers to the process of influencing (Yukl, 2008) while entrepreneurship concerns both the entrepreneur and the intersection of the entrepreneur with his/her surrounding opportunities (Renko *et al*., 2015). According to research, both the concepts of entrepreneurship and leadership may belong to the same genealogical source (Becherer *et al*., 2008). Entrepreneurial leadership is considered a distinctive style of leadership that is perceived to be significant to organizations of all sizes, types or ages and it could be defined as the process of influencing and thereby directing the performance of members of a group towards the accomplishment of organizational goals that require acknowledging and exploiting entrepreneurship related opportunities (Renko *et al*., 2015).

The concept of entrepreneurial leadership is significant in general because of its potential to recognize the importance of individuals in the entrepreneurial process and is therefore, considered vital in a variety of organizational aspects such as fostering innovation and adapting to the changing environments (Renko *et al*., 2015). Particularly in the case of small businesses, entrepreneurial leadership remains unavoidable as entrepreneurs in small enterprises are not able to successfully develop their business ventures without portraying effective leadership behaviours (Cogliser and Brigham, 2004). Moreover, in the context of new entities, entrepreneurs must rely on entrepreneurial leadership as no initial operating procedures, organizational structures or management practices exist that could support their advancement otherwise (Hmieleski and Ensley, 2007).

In the process of reviewing the relevant literature with the objective of conceptualizing a

valid measure of entrepreneurial leadership, a list of various attributes including vision, opportunity-focused, influencing, planning, motivating, creativity, achievement orientation, flexibility, persistence, patience, risk-taking, high ambiguity tolerance, tenacity, power orientation, self-confidence, proactive behaviour and internal locus of control (Becherer *et al*., 2008; Stogdill, 1948) have emerged while the concepts of entrepreneurship and leadership converged. However, as the present study concerns more about entrepreneurship among low-income or underprivileged entrepreneurs, it is therefore, focused and built on the traits or personalities of the entrepreneurial leaders (Stogdill, 1948) rather than their actions (Renko *et al*., 2015) as entrepreneurship is exemplified by the characteristics of the entrepreneur (Man *et al*., 2008), particularly among entrepreneurial organizations where entrepreneurs play the founding and dominant role in terms of business development (Daily *et al*., 2002). Moreover, the choice of the following entrepreneurial leadership components are also based on empirical evidence that suggests the individual's personality plays a key role in the origins of entrepreneurship (Frank *et al*., 2007).

Components of entrepreneurial leadership: At this point, it needs to be acknowledged that a construct such as entrepreneurial leadership remains infinitely complex and is believed to be influenced by a number of variables. However, in an effort to focus on the perspectives and relationships as discussed above, the present study limits its discussion within the constructs of immediate interest. Therefore, in an attempt to illuminate the significance of responsibility, accountability, analytical thinking and emotional intelligence as indicators in measuring entrepreneurial leadership, the present study puts forth the following conceptualizations.

Responsibility: Leadership could be perceived as a process of occupying one or more positions of responsibility in group activities, wherein leaders are considered people who take initiative and portray willingness to assume responsibility by occupying a position of responsibility in coordinating activities of the members of the group in their quest towards attaining a shared goal (Stogdill, 1948; Becherer *et al*., 2008). Empirically, responsibility has been found to be associated with leadership in numerous studies and therefore a sense of responsibility is considered a characteristic of leaders (Stogdill, 1948). According to Stogdill (1948), the construct of responsibility in the context of leadership refers to habits that reinforce a leader's capacity for organizing and expediting cooperative efforts reflected by alertness and intelligence towards the motives and needs of others followed by insight into situations which could be measured by means of the following indicators: initiative, dependability, aggressiveness, persistence, self-confidence and desire to excel. Particularly in the context of entrepreneurship, the significance of responsibility as a leader's traits could be explained by the fact that entrepreneurs work within a relatively unstructured environment where they need to have primary responsibility for every aspect of an enterprise such as sales, recruitment, public relations and negotiations (Zhao and Seibert, 2006; Kuratko, 2007).

Accountability: Accountability in leaders is considered an informal and sociopolitical process whereby individuals are expected or assumed to behave in a particular manner thereby maintaining the proper social order (Hall *et al*., 2004). As leadership refers to the process of occupying one or more positions of responsibility in group activities (Stogdill, 1948), it is fundamental that accountability (socio-psychological process) as a leader's trait assures that individuals are held responsible for their actions thereby controlling the abuse of their otherwise well-connected celebrity status (Hall *et al*., 2004). Moreover, according to Hall *et al*. (2004), a leader's reputation stimulates the dynamics of accountability and trust which in turn, affect the demonstration of dysfunctional or functional leader's behaviors and therefore constructs such as accountability, although remaining less explored are significant in influencing the nature of a leader's behavior. Being a fundamental construct of the organizational theory, accountability plays a significant role in the management of organizations, particularly in the context of entrepreneurial leadership whereby certain organizational members influence others in order to achieve organizational goals and the construct could be measured using indicators such as accounting procedures, performance evaluation systems, social norms, culture, values and so on (Hall *et al*., 2004).

Analytical thinking: Analytical or critical thinking has been described as an intellectual leadership or thinking introversion whereby various studies have illustrated that being alert of the surrounding environment and understanding of situations are closely associated with the leadership ability (Stogdill, 1948). Paul (2005) defined

critical thinking as an art of thinking in a disciplined and intellectual manner. Empirically such a capability has not only been found to facilitate leadership experience but has also been established to support leadership training (Ricketts and Rudd, 2005). According to Flores *et al.* (2012), analytical thinking represents the ability within individuals to see beyond simple facts and to think complexly at a more comprehensive level which is why the concept is significant to leaders who need to deal with complex problems continuously that require relatively complex solutions, along with an ethical, reflective or moral approach that can be enhanced by thinking critically.

Moreover, it is perceived that leadership builds on existing knowledge base and experiences when individuals are able to integrate critical thinking with formal education within a constructivist development framework (Flores *et al.*, 2012). Particularly in the context of entrepreneurship, Drath (1990) revealed that business leaders with missing leadership attributes such as higher cognitive processing are less effective, indicating that a deficiency in terms of critical thinking negatively affects the individual's ability to lead in an entrepreneurship. According to previous studies, the most important elements that could be combined in measuring a general analytical thinking construct could include rationality, skills, openness to alternative viewpoints, introspective reflection, suspension of prior constructions and non-egocentric processing (Flores *et al.*, 2012).

Emotional intelligence: Emotional intelligence in the present context could be defined as a set of cognitive capabilities and self-efficacy that enables individuals to monitor their own feelings and emotions and understand how such feelings or emotions might distinguish them from the others, thereby using the exhaled information to guide one's emotions and thinking as they explore business opportunities (Anyanwu and Oad, 2016; Caruso *et al.*, 2002; Duckett and Macfarlane, 2003; Petrides and Furnham, 2001). According to Petrides and Furnham (2001), the concept of emotional intelligence could be divided into two dimension, i.e., ability (referring to the cognitive-emotional ability) and trait (referring to emotional self-efficacy). Recent research conveys that measures of ability (example: cognitive ability tests) are more accurate in predicting maximum performance whereas the non-ability dimension of emotional intelligence measures such as personality tests, correlate more with typical performance (Zampetakis *et al.*, 2009). Recent research conveys that motivational and self-influence constructs such as emotional intelligence is more relevant to the concept of self-leadership (Kuratko, 2007). According to a previous study, a leader's emotional state is significant as his/her emotions and actions as perceived can influence how the followers feel in regards to creativity, unconventional thinking and entrepreneurial behaviour and the construct could be measured by considering the leader's mood on their subordinates and other stakeholders (Anyanwu and Oad, 2016; Brundin *et al.*, 2008). Moreover, empirical evidence also suggests that emotional intelligence provides complete coverage of emotion-centered self-perceptions that have been found to directly influence organizational variables such as job satisfaction and firm performance (Zampetakis *et al.*, 2009).

MATERIALS AND METHODS

This study adopted a cross-sectional design to develop and validate the instrument to measure entrepreneurial leadership among the low-income households in Kelantan, Malaysia. The target population for this study is the low-income households of the poorest state in Peninsular Malaysia, i.e., Kelantan. This study then selected four locations in Kelantan including Bachok, Tumpat, Jeli and Gua Musang. The population of this study is the low-income households registered under 'Majlis Agama Islam Dan Adat Istiadat Melayu Kelantan (ASNAF)'. A total of 3,090 low-income households form the population across the four districts, i.e., Bachok (1394), Tumpat (1257), Jeli (233) and Gua Musang (206). Since, this study intends to compare across the locations and other antecendents, it randomly selected 800 low-income respondents a total of 200 respondents from each location. Data was collected through a face-to-face structured interview.

Research instrument: The questionnaire was translated into Malay and checked for inter-translator consistency. The questionnaire was developed based on the review of the existing entrepreneurship indices and tested through a pilot survey and the instrument was enhanced based on the comment and feedback from the pilot survey. This study used a 5-point Likert scale ranging from one denoted as strongly disagree to five denoted as strongly agree to avoid confusion and bias from fatigue of longer scales. The research instrument was adapted and modified from past studies and the existing entrepreneurship index (Table 1).

Table 1: Research instrument-entrepreneurial leadership

Codes	Questions
B126	I have to ask in advance to be briefed about the business
B127	I have to think in advance in order to get a clarification effect related to the business
B128	I am willing to take risks for the sake of the business
B129	I buy insurance every time I travel
B130	I enjoy the uncertainty and risks of business, since they energize me more than circumstances where there are predictable outcomes
B131	I need to know that it's already been done before I'm willing to try it
B133	I need to know the consequence before making any possessions
B134	I need to know the rules before starting a job
B135	I feel that example sentences are only helpful when we've already gone over the rules
B136	When we do a new activity or game, I prefer to know all of the rules before I start
B137	When faced with the ambiguity of change, I try to create certainty
B138	In the midst of something unfamiliar, I try to make sense of what I am experiencing
B139	When faced with ambiguity, I choose to become neutral instead of trying to force the certainty
B140	A person is said to attract those who differ with others
B141	A person is said to attract those who do not mind being themselves
B142	I have more fun handling more complicated problems
B143	Many of the most important decisions consist of insufficient information
B144	I am willing to face new challenges
B145	My life is determined by my own actions
B146	I get what I want and it is usually because I worked hard for it
B147	My success is due to luck and being in the right place at the right time
B148	The vast majority of my life happened by accident
B149	I am lucky getting what I want
B150	I think planning anything too much is not wise because things can turn out to be applied with a bad thing
B151	To have success in life, I mostly rely on my own abilities
B152	I think that what is happening in my life is mostly due to the existing contacts in the organization
B153	My life is under control

RESULTS AND DISCUSSION

Demographic characteristics: Among the selected 800 respondents from all over Kelantan, Malaysia, 32.0% (256 respondents) were male and 68.0% (544 respondents) were female. Among the respondents, 515 were married, 47 were single, 41 were widow/widower and the rest were single parents. The respondents were divided into four categories of ages. For the first category of <31 years old, there were 81 respondents accounting for 10.1%. Then, for the second category (31-45 years old), there were 250 respondents reflecting 31.3%, followed by the third category (46-55 years old) accounting for 22.1%. For the fourth category of over 55 years old, there were 292 respondents with 36.5% that was found to be the largest age group among the respondents. The level of education of the respondents was grouped into five categories of which most of the respondents reported SPM form five as their education level with 35.5, 19.8% or 158 respondents reported PMR/SRP, 18.9% or 151 reported completing primary six and a large portion of 22.4% or 179 respondents reported never attending school.

Table 2: Validity-model A

Description	RE	AC	AT	EI	EL
Fornell-larcker criterion					
Responsibility	0.723				
Accountability	0.799	0.823			
Analytical thinking	0.796	0.817	0.756		
Emotional intelligence	0.811	0.831	0.795	0.844	
Ent. leadership	0.902	0.920	0.902	0.960	0.739

Responsibility (RE), Accountability (AC), Analytical Thinking (AT), Emotional Intelligence (EI), Spiritual Intelligence (SI), Entrepreneurial Leadership (EL)

In the survey, the respondents were further asked whether they were willing to venture into business and in response to that 71.3% of the respondents gave a positive response while 25.3% gave a negative response and the rest at 3.5% of the respondents were not sure whether they were interested. The respondents were also asked whether they had any previous business experience before starting their business. The respondents were then categorized according to their years of experiences. The 30.1% of the respondents fell under the first category which was <5 years of experience, 10.4% of the respondents fell under the second category which was between 6-10 years of experience, 4.4% of the respondents fitted between 11-15 years of experience, 2.8% of the respondents reported 16-20 years of experience while 5.3% of the respondents had more than 21 years of previous business experience. However, a large portion of about 47.1% of the respondents reported not having any previous business experience as such.

Measuring validity: The Fornell-Larcker criterion postulates that the latent variable is expected to share more variance with its assigned indicators than with any other latent variable, therefore, the AVE of each latent variable should be greater than the latent variable's highest squared correlation with any other latent variable (Henseler *et al*., 2009). As shown in Table 2, the constructs do not meet the set criteria.

Furthermore, the loading of each indicator is expected to be greater than all of its cross-loadings (Henseler *et al*., 2009). Given the evidence of higher level of correlations among the items used, this study removed items with relatively higher cross-loading values. After removing 6 items (Table 3), the tests were conducted again. As noted earlier, the AVE of each latent variable

Table 3: Cross loading-model A

Codes	RE	AC	AT	EI	EL
B126	0.788	0.663	0.629	0.674	0.734
B127	0.788	0.632	0.595	0.661	0.715
B128	0.776	0.613	0.592	0.676	0.715
B129	0.427	0.258	0.332	0.343	0.364
B130	0.728	0.580	0.642	0.557	0.654
B131	0.762	0.624	0.607	0.538	0.653
B133	0.553	0.718	0.526	0.526	0.611
B134	0.583	0.743	0.564	0.567	0.649
B135	0.697	0.875	0.701	0.772	0.822
B136	0.703	0.886	0.756	0.744	0.824
B137	0.729	0.875	0.775	0.766	0.841
B138	0.643	0.670	0.805	0.682	0.748
B139	0.633	0.613	0.805	0.643	0.717
B140	0.689	0.742	0.815	0.727	0.795
B141	0.592	0.619	0.734	0.568	0.661
B142	0.567	0.568	0.730	0.485	0.606
B143	0.452	0.450	0.630	0.446	0.520
B144	0.627	0.607	0.674	0.614	0.674
B145	0.736	0.767	0.780	0.860	0.864
B146	0.723	0.724	0.704	0.888	0.850
B147	0.719	0.742	0.654	0.870	0.834
B148	0.697	0.755	0.677	0.883	0.843
B149	0.691	0.710	0.661	0.878	0.827
B150	0.712	0.715	0.681	0.885	0.839
B151	0.643	0.672	0.654	0.829	0.786
B152	0.611	0.618	0.605	0.834	0.760
B153	0.668	0.683	0.618	0.863	0.801

Responsibility (RE), Accountability (AC), Analytical Thinking (AT), Emotional Intelligence (EI), Entrepreneurial Leadership (EL)

Table 4: Validity-model B

Description	RE	AC	AT	EI	EL
Fornell-larcker criterion					
Responsibility	0.774				
Accountability	0.779	0.857			
Analytical thinking	0.783	0.781	0.793		
Emotional intelligence	0.797	0.808	0.758	0.845	
Ent. leadership	0.901	0.894	0.877	0.959	0.756

should be greater than the latent variable's highest squared correlation with any other latent variable. As shown in Table 4 and 5 the constructs do not meet the set criteria. This study therefore further removed one item with a loading value of <0.5.

As shown in Table 6, the AVE of each latent variable is not much higher than the latent variable's highest squared correlation with any other latent variable and therefore the set criteria is met. Furthermore, the loading of each indicator is expected to be greater than all of its cross-loadings (Henseler *et al*., 2009). As shown in Table 7, the loading values are all more than the cross-loading values.

Demographic, reliability and validity: The mean and relatively small standard deviation values as represented in Table 8 indicate that the values in the statistical data set of the present study are close to the mean of the entire data set used for the present study. However, in order to achieve a robust research, reliable and valid items are required. The first criterion for evaluation is typically the internal consistency reliability. Cronbach's alpha presumes that all the used indicators are equally reliable (Hair *et al*., 2013). For this study, the reliability of

Table 5: Cross loading-model B

Codes	RE	AC	AT	EI	EL
B126	0.798	0.646	0.627	0.670	0.739
B127	0.778	0.613	0.587	0.652	0.713
B128	0.776	0.593	0.574	0.676	0.721
B130	0.742	0.557	0.636	0.549	0.656
B131	0.778	0.603	0.613	0.528	0.653
B134	0.596	0.749	0.555	0.564	0.642
B135	0.697	0.911	0.702	0.766	0.824
B136	0.704	0.901	0.737	0.730	0.817
B139	0.630	0.641	0.694	0.665	0.740
B140	0.621	0.597	0.796	0.627	0.712
B141	0.691	0.721	0.849	0.716	0.794
B142	0.593	0.589	0.774	0.562	0.659
B144	0.571	0.557	0.751	0.473	0.601
B146	0.633	0.584	0.643	0.603	0.667
B147	0.720	0.714	0.693	0.885	0.855
B148	0.713	0.738	0.654	0.872	0.842
B149	0.691	0.744	0.681	0.885	0.848
B150	0.679	0.694	0.641	0.883	0.834
B151	0.707	0.698	0.666	0.890	0.850
B152	0.640	0.657	0.621	0.831	0.792
B153	0.609	0.626	0.571	0.842	0.770

Table 6: Validity-model C

Description	RE	AC	AT	EI	EL
Fornell-larcker criterion					
Responsibility	0.774				
Accountability	0.779	0.857			
Analytical thinking	0.783	0.782	0.793		
Emotional intelligence	0.777	0.794	0.734	0.874	
Ent. leadership	0.899	0.894	0.873	0.950	0.760

Responsibility (RE), Accountability (AC), Analytical Thinking (AT), Emotional Intelligence (EI), Spiritual Intelligence (SI), Entrepreneurial Leadership (EL)

Table 7: Cross loading-model C

Codes	RE	AC	AT	EI	EL
B126	0.798	0.646	0.627	0.652	0.736
B127	0.780	0.613	0.587	0.649	0.717
B128	0.778	0.593	0.575	0.677	0.728
B130	0.739	0.556	0.636	0.516	0.646
B131	0.775	0.602	0.613	0.496	0.643
B134	0.595	0.748	0.555	0.544	0.638
B135	0.697	0.911	0.703	0.761	0.827
B136	0.704	0.901	0.737	0.716	0.816
B138	0.630	0.641	0.694	0.645	0.736
B139	0.620	0.597	0.797	0.610	0.710
B140	0.691	0.722	0.851	0.712	0.798
B141	0.593	0.589	0.773	0.535	0.651
B142	0.570	0.557	0.748	0.438	0.589
B146	0.720	0.714	0.694	0.883	0.857
B147	0.714	0.738	0.655	0.881	0.850
B148	0.692	0.745	0.682	0.890	0.854
B149	0.680	0.694	0.642	0.887	0.839
B150	0.708	0.699	0.666	0.890	0.853
B151	0.641	0.658	0.622	0.833	0.796
B152	0.609	0.626	0.572	0.846	0.774
B153	0.661	0.667	0.593	0.879	0.815

Responsibility (RE), Accountability (AC), Analytical Thinking (AT), Emotional Intelligence (EI), Spiritual Intelligence (SI), Entrepreneurial Leadership (EL)

Table 8: Demographic, reliability and validity

Description	Items	Mean	SD	Cronbach's alpha	Composite reliability	AVE
Responsibility	5	3.6697	0.70733	0.833	0.882	0.600
Accountability	3	3.6742	0.80480	0.816	0.891	0.734
Analytical thinking	4	3.6772	0.74193	0.804	0.871	0.629
Emotional intelligence	8	3.5578	0.96864	0.956	0.963	0.764
Ent. leadership	20	3.6447	0.73367	0.963	0.966	0.578

the data is shown in Table 8, based on the Cronbach's alpha, composite reliability and the Average Variance Extracted (AVE). The Cronbach's alpha for responsibility, accountability, analytical thinking, emotional intelligence and entrepreneurial leadership have been found to be more than 0.7, thus, all the items used for the present study could be considered reliable.

Moreover, according to Hair *et al.* (2013), the reliability value of an item particularly, for composite reliability with values of 0.7 and more are acceptable which is the case in the present study (Table 8), indicating that all items could be considered acceptable. As for the Average Variance Extracted (AVE), Hair *et al.* (2011) state that the values should be higher than 0.50 because if the AVE is <0.50 on average, more error remains in the items than the variance that is explained by the construct (Hair *et al.*, 2013). In Table 8, the AVE values for all the variables are found to be higher than 0.50 which indicates acceptable convergent validity.

One procedure for assessing discriminant validity is by examining the cross loadings of the indicators (Hair *et al.*, 2013). For the discriminant validity, a component is considered reliable when the value is higher than 0.7 and the construct loading must be higher than its cross loading. Table 7 shows all the indicators for Model C have loadings that are higher than 0.7 and thus are assumed reliable (Hair *et al.*, 2013). Furthermore, according to Table 7, the cross-loadings of all the indicator's loadings are higher than the entire cross-loadings, confirming discriminant validity. For discriminant validity based on the Fornell-Larcker criterion, the AVE for each indicator should be higher than the construct's highest squared correlation with another construct. Based on Table 6, all the constructs meet the criteria and no evidence of a lack of discriminant validity is found.

Path coefficients: Path coefficients are estimated path relationships in the structural model (i.e., between the constructs in the model) (Hair *et al.*, 2013). Table 9 portrays that the path coefficients of responsibility, accountability, analytical thinking and emotional intelligence have a positive and statistically significant (at the chosen 5% level of significance) effect on

Table 9: Path coefficients of the reflective hierarchical model

Description	β	t-values*	p-values*
Responsibility→Ent. leadership	0.226	37.489	0.000
Accountability→Ent. leadership	0.169	35.845	0.000
Analytical thinking→Ent. leadership	0.204	41.618	0.000
Emotional intelligence→Ent. leadership	0.491	54.437	0.000

on entrepreneurial leadership indicating that the constructs employed are significantly able to predict entrepreneurial leadership. Furthermore, it could also be translated from the β and t-values of Table 9 that emotional intelligence as a single construct makes the strongest unique contribution in explaining entrepreneurial leadership as reflected by its highest beta value and the highest percentage variance, followed by responsibility, analytical thinking and accountability.

CONCLUSION

Although, previous conceptual studies on entrepreneurial leadership exist, attempts to measure leadership directly remain scarce (Renko *et al.*, 2015). Moreover, existing relevant studies on leadership strongly recommend that systematic and scientific inquiry into the consequences and antecedents of a leader's behavior could significantly enhance the understanding of the complicated interaction between situational and personal predictors (Hall *et al.*, 2004). Against such a backdrop, the present study attempts to answer the call by Renko *et al.* (2015) to explore the individual or contextual antecedents of entrepreneurial leadership and thereby examine responsibility, accountability, analytical thinking and emotional intelligence as indicators and valid measures of entrepreneurial leadership.

While it is acknowledged that the findings of the present study are mere incremental contributions to the overall understanding and knowledge of entrepreneurial leadership, however, in its contribution, the present study has forwarded and confirmed the reliability and validity of a new instrument to measure Entrepreneurial Leadership. As posited, the present study found significant relationships between Entrepreneurial Leadership and all of its components (i.e., responsibility, accountability, analytical thinking and emotional intelligence) by means of relevant statistical analyses. The instrument development and validation process for all

constructs employed by the present study has confirmed that the new instrument to measure entrepreneurial leadership is not only internally consistent but also multi-dimensional and stable across samples. It is therefore recommended that future researchers could use the instrument forwarded by the present study and thereby minimize the gap of quantitative studies focusing on entrepreneurial leadership.

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