

Revisiting the Reliability and Validity of the Entrepreneurial Attitude Orientation Scale in Malaysia

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Abstract

The aims of this paper are to determine the reliability and validity of Entrepreneurial Attitude Orientation (EAO) scale as an instrument to measure the entrepreneurial attitudes among business students of higher education institutes of Malaysia. Initially, the EAO scale consisted of 75 items concerning 4 conceptual subscales: achievement in business (23 items), perceived personal control of business outcomes (12 items), innovation in business (26 items), and perceived self-esteem in business (14 items). The data was collected from 357 business students who had attended courses on entrepreneurship. The results of the current study indicate that the EAO properties are satisfactory. The evidence of the reliability and validity of the EAO scale supports the generalizability of the scale in Malaysia.

Keywords: Entrepreneurial Attitude Orientation (EAO) scale, reliability, validity

1. Introduction

Over the past decades, there have been various attitudes-related entrepreneurship studies (i.e., Shariff & Saud 2009; Vanwyk & Boshoff 2004) using the Entrepreneurial Attitude Orientation (EAO) Scale (Robinson, Stimpson, Huefner, & Hunt, 1991) to quantify attitudes toward entrepreneurship. With limited exception, little studies have tested the validity and reliability of the EAO scale prior to examining its relation with other constructs (Qing, 2012). Most attitudes-related entrepreneurship studies using the EAO scale in Malaysia (i.e., Shariff & Saud 2009) have focused on the prediction of the entrepreneurship. It is not yet clear whether the EAO scale could be directly replicated in Malaysia. Thus, the present study aims to determine the reliability and validity of the Entrepreneurial Attitude Orientation (EAO) scale as an instrument to measure the entrepreneurial attitudes among the business students of higher education institutes of Malaysia.

This paper consists of an introduction, the literature review and a research methodology section which discusses sampling and data analysis methods. The section after that analyses the data and presents the results. The final section concludes the study and offer recommendations for future research.

2. Literature Review

Entrepreneurship is always on the top list of government research due to the fact that it is a crucial prerequisite for economic development and a catalyst for change (Minniti, Zacharakis, Spinelli, Rice, & Habbershon, 2006). Entrepreneurs create jobs, contribute to taxation revenue, promote R&D and innovations (Roper, 2012). The overall economic benefits incurred by entrepreneurship are often larger than the private benefits reaped by entrepreneurs themselves (Praag, Mirjam, & Versloot, 2007). Empirical research has drawn data from them and developed a stream of entrepreneurship literature.

In the last decade, a substantial amount of entrepreneurship literature has focused on attitudes which determine entrepreneurial behavior (i.e., Andriuščenka 2003; Comeche & Loras. 2010). Theory of reasoned action (Ajzen & Fishbein, 1980) and theory of planned behavior (Ajzen, 1991) highlight the relationship between attitudes and planned behavior. According to these two theories perspectives, attitude is an important indicator of behavioral intent and the exhibition of related behavior. Indeed, empirical research (i.e., Shariff & Saud 2009) has indicated entrepreneurial attitude is an important indicator of the new venture creation and entrepreneurial behavior.

A review of literature has shown that various attitudinal instruments such as Kirton (1976) adaptor-innovator scale, Robinson et al. (1991) entrepreneurial attitude orientation (EOA) scale and the Liñán & Chen (2009) entrepreneurial intention questionnaire (EIQ) scale has been applied in descriptive attitudinal-based studies of entrepreneurs (i.e., Vanwyk & Boshoff 2004) as well as non-entrepreneurs (i.e., Shariff & Saud 2009). EOA scale has been used extensively in attitudinal based-studies since its development by Robinson et al. (1991) to quantify attitudes toward entrepreneurship (i.e., Shariff & Saud 2009).

Robinson et al. (1991) designed the EAO scale as a four dimensions model. Since its inception, this 4 dimensions model's reliability and validity have been tested by many empirical studies (Qing, 2012). Nevertheless, Vanwyk & Boshoff's (2004) study using a South African sample found out that the perceived personal control of business outcomes and perceived achievement in business loading on the same factor resulting in the formation of a three dimensional model (Vanwyk & Boshoff, 2004). This finding indicated that it is advisable to retest the reliability and validity of EAO scale when administrating this scale in different social circumstances.

3. Research Methodology

3.1 Procedures and Participants

A simple random sampling frame was employed for this study whereby participants included business students of different higher education institutes located in the Klang valley of Malaysia. In addition, all these business students have attended at least one entrepreneurship related subject. The questionnaire was administered to students between

September and November of 2014 and the collection of data was done in a confidential manner. A total of 1000 survey questionnaires were distributed to the selected respondents.

The author decided to choose business students who have attended entrepreneurship related subjects at the end of the semester because they are perceived to be well aware of the entrepreneurship process. Moreover, they are supposed to be in the common pool for future entrepreneurs.

3.2 Measures and Statistical Analysis

The primary instrument used in this study was the EAO scale developed by Robinson, Stipson, Huefner, and Hunt (1991). This scale consisted of 75 items referring to 4 conceptual subscales as follows: (i) achievement in business (23 items), (ii) perceived personal control of business outcomes (12 items), (iii) innovation in business (26 items), and (iv) perceived self-esteem in business (14 items). Each item in the scale used a 10-point Likert scale that ranged from 1- Strongly Disagree to 10 – Strongly Agree with a higher score connoting a pro-entrepreneurship response.

The reliability - internal consistency of the scale was assessed by examining the Cronbach alpha coefficient for each subscale of the EAO scale. Cronbach alpha coefficient as an index based on the number of variables as well as the mean of correlation between variables is the most important reliability-internal consistency index (Hair, Celsi, Money, Samouel, & Page, 2003). A reliable scale is characterized by repetitiveness and is not connected with measurement errors (Hair et al., 2003). Moreover, a scale cannot be valid if it is not reliable (Hair et al., 2003).

A principal component analysis with Varimax Rotation was used to explore the factor structure of the data and to confirm the scale construct validity. A four-factor model was hypothesized to be consistent with the findings of Robinson, Stipson, Huefner, and Hunt (1991). Prior to the extraction of the factors, Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) (KMO Measure of Sampling Adequacy, KMO) were used to determine the suitability of factor analysis (Hair et al., 2003). Bartlett's test of sphericity was applied to examine the inter-independence of the subscales on the scale, and the Kaiser-Meyer-Olkin (KMO) (KMO Measure of Sampling Adequacy, KMO) was used to examine sample sufficiency (Hair et al., 2003).

4. The findings

A total of 381 respondents returned their questionnaires but only 357 of the questionnaires were completed. The mean age of the respondents was 22 years (SD \pm 3.389), and the sample had a slightly higher proportion of female students (51.5%).

The internal consistency of the EAO scale was evidenced by a Cronbach alpha of 0.880 (Hair et al., 2003). All the items: (i) achievement in business ($\alpha = 0.982$), (ii) perceived personal control of business outcomes ($\alpha = 0.867$), (iii) innovation in business (α

= 0.881), and (iv) perceived self-esteem in business ($\alpha = 0.883$) were over the recommended value of 0.8 (Hair et al., 2003). This indicated that the EOA is a reliable scale.

Table 1 shows that the sample sufficiency index Kaiser-Meyer-Olkin (KMO) is .856. This gets over the percent of .70 which is an extra good value for the sum of analysis variables which compare the size of the observed correlation coefficients to the size of the partial correlation coefficients. The values indicate that the sample data are suitable for the undergoing of factor analysis.

As shown in Table 1, Bartlett's test of sphericity is rejected on a level of statistical significance $p < 0.0005$ for Approx. Chi-Square = 45964.079. As the finding of KMO and Bartlett's test shown the coefficients are not all zero. The results of Barlett's test show the principal component analysis is a suitable technique for factor analysis.

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.856
Bartlett's Test of Sphericity	Approx. Chi-Square	45964.079
	Df	2775
	Sig.	.000

The Scree plot graph (Figure 1) which is a graphical representation of eigenvalues guide the author to the determination of the number of the essential factorial axes. A distinguished break up is presented up to the five factors, whereas after the five factors an almost linear part of the eigenvalue curve follows. All the five factors (32.335, 11.004, 8.215, 6.974, and 1.302), which eigenvalue are over 1, are taken under consideration to decide whether they interpret data in a satisfactory way.

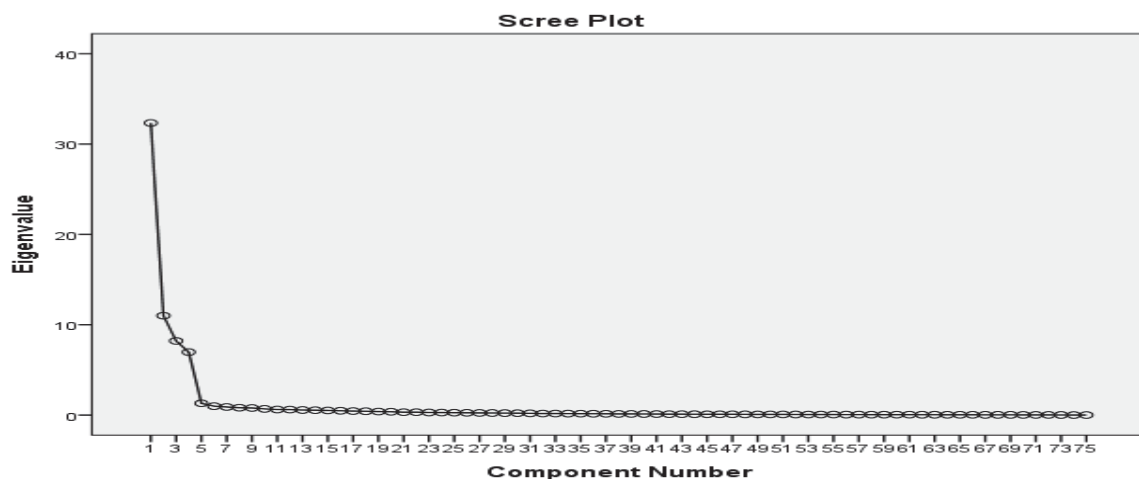


Figure 1. Scree Plot

Table 2 presents the components and the factor loadings produced after the Principal Components Analysis. Factor 1 with eigenvalue 32.335 represents innovation in

business. This factor explains, following Varimax rotation, 27.724% of the total dispersion. All the items from INN01 till INN26, without exception appear to have high loadings on the first factor axis-factor.

The second factor, with eigenvalue 11.0004, which explains 21.425% of the total dispersion, represents achievement in business. All the items from ACH01 till ACH23, without exception appear to have high loadings on the second factor axis-factor.

The third factor, with eigenvalue 8.215, which explains 16.119% of the total dispersion, represents perceived self-esteem in business. All the items from SE01 till SE14, without exception appear to have high loadings on the third factor axis-factor.

The fourth factor, with eigenvalue 6.974, which explains 12.301% of the total dispersion, represents perceived personal control of business outcomes. All the items from PC01 till PC12, without exception appear to have high loadings on the fourth factor axis-factor.

The fifth and final factor with eigenvalue 1.302 which explains 2.204 of the total data inactivity is constructed and interpreted by ACH11, ACH12, ACH13, ACH17, ACH22 and ACH23. It is important to take note that ACH11, ACH12, ACH13, ACH17, ACH22 and ACH23 also appear on the second factor. After comparing the loadings of ACH11, ACH12, ACH13, ACH17, ACH22 and ACH23 on these two factors, the author concluded that the fifth factor can be ignored.

Based on the findings of the principal factor analysis, a model of four factors is created. Furthermore, from the values of the common community, the author ascertained that the measurement of the model is satisfactory.

Rotated Component Matrix^a

	Component					Communalities
	1	2	3	4	5	Extraction
ACH01		.845				.797
ACH02		.893				.883
ACH03		.894				.881
ACH04		.882				.827
ACH05		.837				.795
ACH06		.821				.737
ACH07		.895				.903
ACH08		.900				.883
ACH09		.882				.832
ACH10		.888				.845

ACH11		.686		.450	.791
ACH12		.652		.379	.686
ACH13		.645		.384	.683
ACH14		.883			.878
ACH15		.890			.883
ACH16		.902			.895
ACH17		.664		.485	.785
ACH18		.861			.811
ACH19		.830			.755
ACH20		.535	.435		.563
ACH21	.376	.520			.547
ACH22		.571		.384	.658
ACH23		.559	.312	.379	.654
PC01				.752	.622
PC02				.911	.841
PC03				.847	.739
PC04				.954	.934
PC05				.829	.714
PC06				.848	.736
PC07				.855	.749
PC08				.710	.549
PC09				.923	.880
PC10				.870	.783
PC11				.834	.719
PC12				.857	.766
SE01			.896		.894
SE02			.872		.842
SE03			.752		.625
SE04		.387	.512		.591
SE05			.515		.481
SE06			.929		.938
SE07			.944		.970
SE08			.943		.977
SE09			.926		.935
SE10			.932		.966

SE11		.935		.948
SE12		.937		.956
SE13		.926		.924
SE14		.937		.967
INN01	.838			.784
INN02	.880			.823
INN03	.899			.854
INN04	.886			.825
INN05	.864			.805
INN06	.888			.845
INN07	.872			.840
INN08	.856			.780
INN09	.890			.873
INN10	.894			.851
INN11	.838			.760
INN12	.852			.789
INN13	.865			.819
INN14	.779			.659
INN15	.880			.845
INN16	.731			.581
INN17	.866			.799
INN18	.854			.774
INN19	.893			.860
INN20	.876			.823
INN21	.891			.856
INN22	.835			.785
INN23	.832			.744
INN24	.905			.889
INN25	.904			.883
INN26	.730			.667

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

5. Conclusions

As indicated by the findings of this study, the validity and reliability of the EAO scale are satisfactory. The EAO scale constitutes of a 75 item questionnaire and is an instrument useful for measuring students' attitudes toward entrepreneurship. The principal components of analysis made evident are divided into four subscales, namely; (i) achievement in business, (ii) perceived personal control of business outcomes, (iii) innovation in business, and (iv) perceived self-esteem in business. The findings provide support for the generalizability of the four-dimensional model of EAO, developed by Robinson et al. (1991).

Admittedly, this study has its limitations. This study may suffer from self-report bias since participants may overstate their entrepreneurial inclination. Students who initially exhibit entrepreneurial attitudes may not necessarily become entrepreneurs. In addition, research on student subjects may not be able to generalize the real world entrepreneurs. Future research studies should revisit the reliability and validity of the scale among specific group of practising entrepreneurs. Longitudinal research can be conducted to explore whether attitudes toward entrepreneurship vary over time.

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