

Measurement of Variables in Entrepreneurship Intention Studies: A Review of the Entrepreneurship Intentions Questionnaire (EIQ)

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Abstract

This article is a review of literature on the measurement of variables in entrepreneurship intentions studies, particularly, the Entrepreneurship Intentions Questionnaire (EIQ). The features of the EIQ have been presented. Further, selected empirical studies that have applied the EIQ in student entrepreneurship intentions studies are the cornerstone of this literature review. Furthermore, the article gives a brief analysis of contradictions on measurement of entrepreneurial intentions.

Key words: *Entrepreneurship; Entrepreneurship Intentions; Entrepreneurship Intentions Questionnaire.*

Entrepreneurship Models and Measurements

There has been a general criticism of all entrepreneurship intention models. Literature, results have supported the applicability of models to entrepreneurship, despite some conflicts between numerous studies (Liñán and Chen, 2009). A good part of these differences may have been due to theoretical measurement issues of common as well as common theoretical concepts (Chandler and Lyon, 2001). For instance, measuring cognitive variables implies considerable difficulty (Baron, 1998; 2004). Thus, the design of the empirical tests based on antecedents has differed widely (Fayolle et al., 2006; Kolvereid and Isaksen, 2006; Liñán and Chen, 2009).

Krueger et al. (2000) used single-item variables to measure each construct. Kolvereid (1996) used a belief-based measure of personal attitudes on an ordinal scale. Kolvereid and Isaksen (2006) have used an aggregate measure for personal attitudes, but relied on a single-item variable for intentions. Similarly, some of the studies looking at antecedents and intentions have used an unconditional measure of intention (Autio et al., 2001; Zhao et al., 2005), while others forced participants to state their preferences and estimated likelihoods of pursuing a self-employment career ‘as opposed to organizational employment’ (Fayolle et al., 2006). To solve this conflict, in 2009 Liñán and Chen developed a measurement instrument for entrepreneurial intention and its antecedents: The Entrepreneurship Intentions Questionnaire (EIQ).

Firstly, the questionnaire uses Likert-type scale to measure entrepreneurial intention (EI) through sentences indicating different aspects of intention. A similar system was already used by Zhao et al. (2005). In this sense, the EIQ aims to become a reference-measuring instrument to study entrepreneurship intentions.

Secondly, grounded on Ajzen (1991, 2001) who stated that beliefs are the antecedents of personal attitudes and suggested using an aggregate measure for personal attitudes (PA) beliefs would explain attitude, while attitude would explain intention); Liñán and Chen (2009) decided to measure the PA through an aggregate attitude scale. This is an important difference compared to other studies, such as those of Kolvereid (1996) and Fayolle et al. (2006), where a belief-based measure of PA was used.

Thirdly, subjective norm (SN) is approached through an aggregate measure of the kind “what do reference people think?” as previously assessed by Ajzen (1991). In practice, however, some researchers have simply omitted this element from the model (Krueger, 1993) or have posited answers to this question with their respective “motives to comply” (Kolvereid, 1996; Tkachev and Kolvereid, 1999; Kolvereid and Isaksen, 2006). Finally, as aggregate measures have been used for personal attitude (PA) and subjective norms (SN), Liñán and Chen (2009) kept this scheme for PBC as well. However, the Perceived Behavioural Control (PBC) is a concept quite similar to Self-Efficacy (Bandura, 1997), and to perceived feasibility (PF) (Shapiro and Sokol, 1982). All three concepts refer to the sense of capacity regarding the fulfilment of firm creation behaviours. In fact, Self-Efficacy measures have been used instead of Perceived Behavioural Control within the Theory of Planned Behaviour in several studies with positive results (Zhao et al., 2005).

Features of the Entrepreneurial Intention Questionnaire

According to Linan (2009) some of the most salient features of the Entrepreneurial Intention Questionnaire are the following:

Unconditional measure of intentions: The intention to implement entrepreneurial behaviours is measured through a semantic differentials scale. Each item asks the individual’s agreement with a general sentence stressing a specific aspect or characteristic of intention. Therefore, it is not opposed to any other career option such as salaried employment.

Aggregate measure of personal attraction: The construct of personal attitude towards

becoming an entrepreneur has been obtained using a similar scale to that of intention. Though it is generally accepted that attitude is determined by specific beliefs, a belief-based measure of attitude often correlates poorly with the aggregate measure (Ajzen, 1991). The measure thus obtained has provided highly satisfactory results both in the factor analysis and in the linear regression.

Knowledge of the entrepreneurial business framework: The theoretical model considers general entrepreneurial knowledge as the most relevant variable to explain intention and its other antecedents.

Selected Empirical Studies that have Applied the EIQ in Student Entrepreneurship Intentions Studies

Gomes da Costa and Mares (2016) used the EIQ in their study, “Factors Affecting Students’ Entrepreneurial Intentions of Polytechnic Institute of Setubal: A Cognitive Approach.” This study tries to understand this mental process following the cognitive approach through the application of Entrepreneurial Intentions Questionnaire (EIQ) to students from College of Business and Administration (ESCE), Polytechnic Institute of Setubal (IPS). The main purpose of this study was to understand the student’s entrepreneurial intentions, considering the influence of social and skills perception. Additionally, the study tries to understand the influence of gender, age, labour experience and self-employment experience in entrepreneurial students’ intentions. To achieve this objectives, it was applied a quantitative approach. The statistical techniques used were factor analysis for the identification of factors, as well as, correlation analysis and t-test for hypotheses confirmation. This study allowed the confirmation of the findings of previous studies concerning the relationship between the entrepreneurial intention and the attitudes toward entrepreneurship, subjective norms, and perceived behavioural control. These results also revealed that age and gender are significantly correlated to entrepreneurial intentions.

Mares, Gomes da Costa and Galina, (2017) in another study, “Student’s Entrepreneurial Intention: ESCE and FEA Comparison”, applied the EIQ. This research used the part of the questions developed in Entrepreneurial Intentions Questionnaire (EIQ), designed by Liñán and Chen (2009), to collect the data from the students who attended the subject of entrepreneurship in ESCE and FEA. The EIQ is an instrument to measure entrepreneurship intentions (EI) and other variables such as attitude towards entrepreneurship (ATE), subjective norm (SN), and perceived behavioural control (PBC). Reliability and validity of

the questionnaire were already verified by Liñán and Chen (2009) to ensure that each set of questions is related to same subject and each subject corresponds to the required measure. The questionnaire used in the research is divided into 2 sections. The first section identifies the profile of the respondents. In this section the main characteristics identified are: (1) the gender; (2) the age; (3) the labour experience and (4) the self-employment experience. Section 2 comprehends the questions taken from the EIQ to measure, through a 7 Likert-type scale, the different constructs of the entrepreneurial intention model (ATE, SN, PBC and EI).

The study tries to understand the mental process related to students become an entrepreneur following the cognitive approach through the application of Entrepreneurial Intentions Questionnaire (EIQ) to students from College of Business and Administration (ESCE), Polytechnic Institute of Setubal (IPS) and students from Economics and Management College (FEA), University of São Paulo (USP). Mares, Gomes da Costa and Galina, (2017) postulate that the decision to become an entrepreneur involves an elaborate mental process. Understand this process during the formation of possible entrepreneurs that means during its educational process is important since entrepreneurship is actually a possible career for an increase number of students. It is against this background that the aim of their study was to understand the student's entrepreneurial intention, considering the influence of social and skills perceptions in determining entrepreneurial intentions. This study allowed the confirmation of the findings of previous studies concerning the relationship between the entrepreneurial intention and the attitudes towards entrepreneurship and perceived behavioural control.

The EIQ has also been extensively used in cross-cultural comparative studies on entrepreneurial intentions. Linan and Chen conducted a study on the development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. This study used Ajzen's theory of planned behaviour to build an entrepreneurial intention questionnaire (EIQ) and analyzes its psychometric properties. The entrepreneurial intention model is then tested on a 519-individual sample from two rather diverse countries: Spain and Taiwan. EIQ and structural equation techniques have been used trying to overcome previous research limitations. The role of culture in explaining motivational perceptions has been specifically considered. Results indicate EIQ properties are satisfactory and strong support for the model is found. Relevant insights are derived about how cultural values

modify the way individuals in each society perceive entrepreneurship.

A profile of how the most cited studies that have measured intention

Author	Measurement of intention
Chen et al. (1998) and Zhao et al. (2005)	5-point Likert item - How interested are you...
Armitage and Conner (2001)	Nominal scale in form of desire (“I want to . . .”), self-prediction (“How likely it is . . .”) and behavioural intention (“I intend to . . .”).
Crant (1996); Kolvereid and Isaksen, (2006); Autio et al., (2001); Krueger et al.; (2000); Erikson (1999); Fayolle et al. (2006); Kolvereid (1996a,b).	Categorical 2 items
Kolvereid (1996); Hamid (2008)	7 point semantic differential
Autio et al.,2001; Kickul & Zaper, 2001; Kolvereid et al., 2005)	Unconditional measure of intention
Gomes da Costa, T. and Mares, P. (2016).	EIQ used to measure entrepreneurial intention
Liñán, F. & Chen, Y. (2009).	Development & Cross-Cultural Application of a Specific Instrument to Measure Entrepreneurial Intentions, Entrepreneurship

Contradictions on Measurement of Entrepreneurial Intentions

There have been contradictions among researchers concerning the measurement of entrepreneurial intentions with some authors supporting the use of single variable methods with others supporting multivariable method. Proponents of the multivariate format argue that even though the single variable method appears to be simple and clear, they dismiss it because of its validity and reliability, which are considered less ideal because of over simplicity (Chen et al., 1999; Van Gelderen, et al, 2008). As for those who champion the single format, they posit that they provide slightly better results in the prediction of behaviour (Armitage and Conner, 2001: 483). It therefore follows that there is still work to be done to produce a standard measurement instrument for entrepreneurial intention.

In order to overcome these construct contradictions and measurements, a critical assessment of all operationalised antecedents and intention constructs which are deemed

to be relevant dimensions be identified. It is evident that five antecedents are covered as demonstrated in the literature review namely (a) family conditions (Krueger, 1993; Carr and Sequeira (2007), (b) personality factors (Johnson, 1990; Mueller and Thomas 2000; Lee and Tsang, 2001; Kickul and Gundry, 2002; Chem et al., 2012; Kickul and Gundry, 2002), (c) perceived barriers (Ajzen, 1991) (d) perceived support (Ajzen, 1991) and (e) student participation in entrepreneurship education (Lüthje and Franke, 2003).

Conclusion

The article attempted to review selected literature on entrepreneurship intentions measurements, particularly the EIQ (adjusted from Liñàn and Chen, 2006) that has extensively been used by researchers studying entrepreneurship intentions of students especially. was used to assess entrepreneurial intentions. The scale contains 6 items, presented in Likert-type format with a scale ranging from 1 (=strongly disagree) to 5 (=completely agree). A Composite score is calculated by summing across items, with higher scores indicating higher entrepreneurial intentions.

It is worth noting that there are also other entrepreneurship intention measurement instruments such as the *Measure of Entrepreneurial Tendencies and Abilities (META)*; *Entrepreneurial Propensity Questionnaire*; *Entrepreneurial self-efficacy scale*; and *Desirability of Entrepreneurship Scale*. *There is need to conduct a critical review and analysis of these other instruments as a way of pursuing the frontiers of knowledge on measurements and models on entrepreneurship intentions.*

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