

Entrepreneurial Intentions among University Students: A Structural Equation Modeling Analysis

Track: Entrepreneurship and Family Businesses

Abstract

By conducting a structural equation modeling analysis, the present study tested a model of entrepreneurial intentions. We examined the effect of motivational factors and entrepreneurial exposure on students' intentions to new venture creation through the mediating role of work attitudes and self-efficacy. Data were collected among 171 undergraduate students from three universities. On the one side, results indicate that intrinsic motivations have a positive indirect influence on entrepreneurial intentions through the mediation of work attitudes. On the other side, Self-efficacy mediates the relationship between entrepreneurial exposure and intentions. Discussion and implications for future research are presented.

Keywords: Motivations, Attitudes, Self-efficacy, Intentions.

Introduction

The use of intentional models is commonly suggested as a valuable alternative to explain the entrepreneurship phenomenon (Izquierdo and Buelens, 2011; Liñan, 2004). The rationale underlying this approach relies on the fact that predicting entrepreneurial behavior by using personality or demographic characteristics has yielded no conclusive results; hence, small explanatory power (Krueger and Carsrud, 1993; Krueger et al., 2000; Robinson et al., 1991) and even smaller predictive validity (Kristiansen and Indarti, 2004). On the other hand, emphasis has been made that the study of antecedents of intentions can increase our understanding of intended behavior; in consequence, a better way of predicting entrepreneurial activity (Krueger et al., 2000). This can be so as intentions are considered as a good predictor of actual behavior (Ajzen, 1991).

There have been numerous studies aimed at gaining understanding of the factors influencing entrepreneurial intentions (see e.g. Bird, 1988; Boyd and Vozikis, 1994; Choo and Wong, 2006; Díaz and Moreno, 2010; Izquierdo and Buelens, 2011; Kristiansen and Indarti, 2004; Krueger and Carsrud, 1993; Krueger et al., 2000; Lee et al., 2011; Zhao et al., 2005). However, few studies have examined the antecedents of intentions to new venture creation among undergraduate engineering students in a single theoretical model and analyzed it by the use of the structural equation modeling (SEM)

technique. One of the studies in this direction is of Zhao et al. (2005), in which the mediating role of entrepreneurial self-efficacy in the relationship between individual-level antecedent factors and entrepreneurial intentions was investigated. These authors reported that the effects of perceived learning from entrepreneurship-related courses, previous entrepreneurial experience, and risk propensity on entrepreneurial intentions were fully mediated by entrepreneurial self-efficacy. Another study is of Izquierdo and Buelens (2011) in which it was reported a positive effect of entrepreneurial self-efficacy and attitudes toward entrepreneurial acts on students' intentions to new venture creation. Although these studies are important contributions for theory development, there remains the need for getting better insights into the underlying motivations that may mobilize the students' attitudes toward work.

From an educational perspective, knowing the motivational factors that drive people to enter into entrepreneurial activity is worth doing as it can provide valuable information for university instructors to devise proper content and methods to be used in their teaching. In this respect, it is also worth to examine to what extent previous entrepreneurial exposure indirectly affects the students' intentions to create their own business through the mediating role of self-efficacy beliefs. By having knowledge of the determinants of intentions, education in a university context can be better oriented to instill in students what is required for them to enter the entrepreneurial career. Commitment in this direction may result in a higher number of students following an entrepreneurial career when finishing their studies as they represent the potential entrepreneurs (Naktiyok et al., 2010).

Grounded on the Ajzen's theory of planned behavior, the study examines the influence of internal and external motivational drivers on intentions to start a business through the mediating role of work attitudes. By doing so, we were interested in finding theoretical explanations regarding the effect of intrinsically and extrinsically motivated attitudes on intentions to new venture creation. This is in line with the assumption that people shape their intentions to enter the entrepreneurial arena when they possess favorable attitudes toward entrepreneurial acts (Carsrud et al., 2009). We were also interested in examining the relationship of the students' background and intentions to new venture creation through the mediation of self-efficacy beliefs. In this respect, previous work has provided empirical evidence that self-efficacy was positively related to students' intentions to create their own business (Chen et al., 1998). Furthermore, Zhao et al. (2005) found empirical evidence that previous entrepreneurial experience of university students had a positive effect on their self-efficacy beliefs which, in turns, increased their entrepreneurial intentions.

The study makes two contributions toward the advancement of our understanding of how intentions are formed. First, it provides a theoretical explanation for the influence of individual factors on the intention to become an entrepreneur. Ajzen's Theory of Planned Behavior (TPB), Social Cognitive Theory (SCT), and Cognitive Evaluation Theory (CET) – a sub-theory of Self-Determination Theory (SDT) – were used to select the antecedent variables considered in this study (Ajzen, 1991; Bandura, 1986; Ryan and Deci, 2000). The second contribution of this study addresses the issue of assessing the influence on intentions of an internally motivated factor (need for competence) together with an externally motivated factor (need for independence), and a third factor coming from a person's social context (perceived social norms) in a single theoretical model. The influence of need for competence and need for independence is examined through its effect on students' work attitudes, whereas perceived social norms in a direct relationship with intentions as proposed by TPB theory.

The paper is organized as follows. We first present a discussion regarding research on entrepreneurial intention models. Next, the theoretical model of entrepreneurial intentions is introduced, in which the hypothesis to be tested are proposed. In the following sections, we discuss our method and present the empirical results. Finally, we discuss and interpret our findings followed by the implications and limitations of the study.

Research on Entrepreneurial Intentions

In studying the entrepreneurship phenomenon, intention-based models have been commonly used as suitable approach because of their predictive ability to entrepreneurial performance. Intentions are defined as a state of mind directing a person's attention and action toward a given object in order to accomplish something (Bird, 1988). Intentions have demonstrated to be the single best predictor of planned behavior (Krueger et al., 2000). In this sense, examining the intention to be an entrepreneur can give us insight into the likelihood of actual firm-creation behavior (Fayolle and Gailly, 2004).

Two well-known models are based on the Shapero's work on the entrepreneurial event (Shapero, 1982) and Ajzen's TPB (Ajzen, 1991). The first model states that the intention to start a business comes from: a) the perception of the desirability; b) the feasibility of performing such entrepreneurial behavior; c) and the propensity to act. The second is intended to explicate human behavior by understanding their intentions toward that behavior, in which the determinants are: a) the subject's attitudes toward the behavior; b) subjective norms; and c) the subject's perception of behavioral control. When making a comparison, we can observe that both models have commonalities in terms of the antecedent factors influencing intentions to perform a given behavior. Perceived venture desirability in Shapero's model overlaps with a person's attitudes

toward the behavior and subjective norms in the TPB whereas venture feasibility corresponds to perceived behavioral control (Veciana et al., 2005).

Another model of intentions was proposed by Bird (1988), in which personal characteristics and contextual factors were incorporated in order to explain why some people engage in entrepreneurial behavior. Because of the need for including the notion of perceived behavioral control into the Bird's model, Boyd and Vozikis (1994) took into account the concept of self-efficacy from the social learning theory (Bandura, 1986) to propose a new model of entrepreneurial intentions. Perceived self-efficacy refers to "people's belief in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives" (Wood and Bandura, 1989, p. 364). One of the reasons for a generalized interest of the study of self-efficacy relies on its effect on a variety of behaviors (Snowman and Biehler, 2003). Important to remark is that it is not enough to possess certain skills but being able to use them well and consistently under a variety of circumstances, especially the most difficult ones. In this respect, Wood and Bandura (1989) explain that beyond the required skills to be successful, a person must also have a strong belief in his or her capabilities to exercise control over events for the achievement of a desire goal. If a person perceives that certain behavior goes beyond his or her ability, the person will not act, even in the case of a perceived social demand for that behavior (Boyd and Vozikis, 1994). Based on the similarities of both conceptions, it has been stated that perceived behavioral control and self-efficacy are concepts closely related to each other (Ajzen, 1991).

The Theoretical Model and Hypothesis

The theoretical framework for the present study is based on the Shapero's work on entrepreneurial event, Ajzen's Theory of Planned behavior and the Cognitive Evaluation Theory (CET) (Ajzen, 1991; Ryan and Deci, 2000; Shapero, 1982). While the formers provide the underpinning theories for building our intentional model, the latter gives support for introducing the notion of intrinsic and extrinsic motivational factors as drivers of work attitudes.

In general terms, getting motivated has to do with being moved to do something (Ryan and Deci, 2000). What motivates a person to become or not entrepreneurs has been a matter of great interest among scholars. Since the early work of McClelland (1965) research has put attention on the motives that may lead people to enter upon an entrepreneurial career. In this direction, Carsrud et al. (1989) contend that achievement motivation is a major characteristic of any successful individual which in the case of entrepreneurs, it drives them to innovative behavior. Specifically, motivations of entrepreneurs are tied to both internal and external factors (Carsrud et al., 2009). The first are intrinsic as they are linked to a

personal interest and joy in a task while the latter are extrinsic because they are associated to an external reward that follows a certain behavior.

As Ryan and Deci (2000) points out, there is an orientation implicit in a given motivation, which should be paid attention because of the underlying attitudes and goals that give rise to action. In other words, the orientation of motivation represents the why of actions. In the entrepreneurship field, both internal and external motivations play a relevant role in influencing an attitudinal posture toward creating a business. Internally, entrepreneurs are likely to get motivated to satisfy the need for success and accomplishment of a goal rather than money, power or status (Carsrud et al., 2009). In fact, money seems not to be the primary motivation for entrepreneurial activity (Dubini, 1988; Corman et al., 1988); instead, personal needs are the main motivator for the decision to start a new business. For self-motivation and personality integration, three needs are critical, including the need for competence, relatedness, and autonomy (Ryan and Deci, 2000). In this line, report from previous work indicates that the need for approval, the need for personal development, and the need for independence were the main reasons for business creation (Scheinberg and MacMillan, 1988).

Externally, entrepreneurs are likely to become motivated on the basis of the external rewards or some separable consequences, including being their own boss and obtain wealth (Carsrud et al., 2009; Ryan and Deci, 2000). In fact, two of the major reasons for starting and owning a high-tech business were the need for freedom and being own boss, and the rewards because of the profit made through the venture (Kourilsky and Walstad, 2002). In contrast, Corman et al. (1988) reported that money was not the main driver among technically-oriented entrepreneurs although a strong need for control, independence, and a need to build and create were some of their main motivations to pursue and entrepreneurial career.

From the above discussion, it is possible to state that a person is expected to show a positive attitude toward an action (e.g. a job or task) when he/she becomes satisfied for executing such action. Highly motivated entrepreneurs either by intrinsic or extrinsic factors tend to work harder and more persistent than their less motivated counterparts as they satisfy their needs for success (Khan et al., 2009). Even though entrepreneurs do not have jobs in the traditional sense, they do have jobs or tasks when starting and running new businesses (Bird, 2002), activities through which they can achieve satisfaction. According to Locke (1976), job satisfaction is “a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences” (p. 1300). Hence, job satisfaction can be regarded as an attitude that involves an affective reaction to one’s work (Brief, 1998; Weiss, 2002) as well as a cognitive dimension. Translating these concepts to the case of university students facing career decisions, we can expect that they show high willingness to work hard and open to competency

development in order to satisfy their needs for success and attainment of a target goal. Consequently, the underlying intrinsic and extrinsic motivations to perform a challenging job as it is the start of a new venture will drive them to develop favorable attitudes toward the target work. By having a favorable reaction with respect to a given job or task, this, in turn, can positively affect intentions as stated by the Theory of Planned Behavior (Ajzen, 1991). According to the above discussion, we formulate the following hypothesis:

Hypothesis 1: There is a positive relationship between the need for competence and work attitudes.

Hypothesis 2: There is a positive relationship between the need for independence and work attitudes.

Hypothesis 3: There is a positive relationship between work attitudes and intentions to new venture creation.

Another important construct from the TPB is related to perceived behavioral control, akin to Bandura's (1986) view of self-efficacy beliefs, the perceived feasibility of performing a target behavior according to Ajzen (1991). The relevance of examining people's feasibility perceptions relies on their influence on career-related choices, including self-employment as an entrepreneur (Krueger et al., 2000). In this respect, two of the influencing effects on an individual's sense of self-efficacy have to do with enactive mastery and role modeling and vicarious experience according to SCT (Bandura, 1986). The former can be the result of previous entrepreneurial experience while the latter can happen when a person observes the successful performance of a close family member by being self-employed as an entrepreneur. In fact, evidences indicate that the presence of parent entrepreneurial role model has been associated to an increased task self-efficacy and expectancy for an entrepreneurial career (Scherer et al., 1989). Similarly, entrepreneurial experience, including new venture start-up, new market development, and new product development among university students, has a positive effect on their self-efficacy beliefs (Zhao et al. (2005). Also, research among undergraduate students has found that self-efficacy beliefs have a strong effect on entrepreneurial intentions (Naktiyok et al., 2010). The above discussion suggests that previous entrepreneurial exposure plays an important role in positively affecting a person's self- efficacy beliefs which, in turns, influences intentions to become entrepreneur. Accordingly, we propose the following hypothesis:

Hypothesis 4: There is a positive relationship between exposure to entrepreneurial activity and self-efficacy.

Hypothesis 5: There is a positive relationship between self-efficacy and intentions to new venture creation.

The last construct considered in the present study relates to social persuasion. It refers to the perceptions of what important people in other individuals' lives think about performing a particular behavior (e.g. becoming self-employed) as stated by

TPB. It is not surprising to see a person's family to expect him/her to become a professional in any discipline. A special case is of individuals being influenced by friends and close family regarding the start of their own businesses. No conclusive results have been reported about the effect of social norms on predicting entrepreneurial intentions (Krueger et al., 2000). Social norms, on the other hand, seem to be less effective in predicting intentions among individuals with a high internal locus of control (Ajzen, 1991). Thus, more research is certainly needed to have better insights into the influence of these normative beliefs on a person's intentions to new venture creation. We expected, however, that students at the undergraduate level facing a career decision may be to certain extent malleable in terms of the importance they would put on the influence of parents, friends and any other important person. Therefore, the following hypothesis is formulated:

Hypothesis 6: There will be a positive relationship between social norms and intentions to new venture creation.

By linking the variables involved in the previous hypotheses, we propose the hypothesized model shown in Fig. 1. According to this model, intrinsically and extrinsically motivated attitudes are expected to have a positive effect on the students' intentions to new venture creation through the mediating role of their work attitudes. Also, the exposure to entrepreneurial role models or previous experience from starting a business positively affects the students' self-efficacy which, in turn, influences their intentions toward creating a new business. Finally, the model proposes that perceived social norms are expected to have a positive relationship with intentions to start a new business.

Insert Figure 1 around here

Method

This paper reports one of the studies conducted within a large worldwide project, called "International Study of Entrepreneurship Education Outcomes" (ISEEO) and led by researchers of McMaster University in Canada, in which participates many other academics from North America, Europe, Asia and Latin America. The purpose of the ISEEO project is to gather data about entrepreneurship as a career choice and to examine what the impact of education might have on it. As a final goal, the impact will be examined over a five year period.

Sample and Data Collection

Although the final goal of the ISEEO project embraces a longitudinal research because the data collection is at the start and end of an entrepreneurship course, and after one, three and five years, the present study only considers data gathered at one

point in time. These data, however, will be taken into account as pretest in a further longitudinal analysis. Being a cross-sectional study, its main focus is on examining the influence of individual factors on intentions to become entrepreneur in a single theoretical model. A survey instrument, written in the English language, was developed by the principal researchers of the ISEEO project and translated to French and Spanish. To assure the accuracy, native speakers were asked to review the translations of the questionnaire.

Data were collected among undergraduate students from three universities in Ecuador: ESPOL; Santa Maria University; and Santiago de Guayaquil Catholic University. Participating students from ESPOL were enrolled in an entrepreneurship course whereas those from the other two universities were registered in an administration-related course within their undergraduate programs. As these students are close to facing important career decisions, this allowed us to examine entrepreneurial processes before the actual entrepreneurial activity may occur.

The instrument was administered during the first week of classes at the three universities by using a print version of the survey instrument. As the data gathering was performed by using self-reported measures, the potential problem of social desirability biases was taken into account. This problem has to do with the inclination of presenting oneself in a manner that is viewed favorably by others (Fisher, 1993; Nancarrow, 2007). This means that a person is tempted to give social desirable responses instead of describing what one actually thinks, believes or does. In order to diminish this inconvenience, the instructions on the survey instrument emphasized the relevance of honesty on the self-assessment as recommended by Chen, Greene, and Crick (1998). In addition, emphasis was put on confidentiality and on making the presentation of results only in aggregate figures.

Drawn from a population of 288 students, the sample consisted of 174 respondents, representing a 60.4% response rate. After eliminating three respondents because their answers to the questionnaires were incomplete, 171 students were finally considered for further analysis. Forty percent of students were female and the rest were male with an average age of 22 years.

Measures

The constructs of interest included: 1) Need for competence; 2) Need for independence; 3) Work attitudes; 4) Self-efficacy associated to becoming self-employed; 4) Entrepreneurial intentions; 5) Social norms; and 6) The students' background.

Need for competence. We measured this variable by using a set of six indicators representing an individual's personal drivers. These indicators were developed based on what Ryan and Deci (2000) state as sources of satisfaction of the basic psychological need for competence. A five-point Likert scale was used to gauge these items, being 1 "Strongly disagree" and 5 "Strongly agree." Examples of these items are "I often read materials (articles, Internet, books, etc.) to improve my ability" and "I like to take on a challenging task that I can learn a lot from." The internal consistency reliability coefficient was well above the cut-off point of 0.7 (Cronbach's Alpha = 0.82). The factor analysis performed on the six items grouped them in only one factor. Five of the six indicators were finally retained for further analysis.

Need for independence. We gauged this variable by four indicators associated to a person's external motivation. In the case of entrepreneurs, they may be externally motivated when having the need for autonomy and being their own boss (Carsrud et al., 2009; Ryan and Deci (2000)). A five-point Likert scale was used to measure these items, being 1 "Strongly disagree" and 5 "Strongly agree." Respondents were asked to indicate the extent to which the following factors are important for the decision about their future career plans, including: "freedom", "independence", "being own boss", and "being able to choose own work tasks." The internal consistency reliability coefficient was close to the cut-off point of 0.7 (Cronbach's Alpha = 0.67). After performing the factor analysis, one of the items was finally taken out before testing the hypothesized model.

Work attitudes. To measure the students' work attitudes, we followed the works of Brief (1998) and Weiss (2002) as they agree that job satisfaction is an attitude toward one's job. Implicit in this definition is the fact that every attitude has an object that could be a person, thing, place, event, life style and so on (Robinson et al., 1991). Accordingly, the present study considers that entrepreneurs have a job or task when they create and operate a business. Five indicators were used to measure one's attitude toward work. Sample items include "I love to work" and "I look forward to returning to work when I am away from work. These items were measured by a five-point Likert type scale, being 1 "Strongly disagree" and 5 "Strongly agree." The internal consistency analysis resulted in a reliability coefficient well over the cut-off point of 0.7 (Cronbach's Alpha = 0.84). When factor analyzed, the five items were grouped in only one factor. Four items were finally retained for further analysis.

Self-efficacy. The measurement of students' self-efficacy was carried out by six items. Bandura's social cognitive theory (Bandura, 1986) and Ajzen's theory of plan behavior (Ajzen, 1991) were followed to develop these items. The former refers to the view of perceived self-efficacy while the latter denotes people's perception of the ease or difficulty of performing the

behavior of interest. Examples of these indicators are “For me, being self-employed would be very easy” and “If I become self-employed, the chances of success would be very high.” The items were measured by using a five-point Likert scale, being 1 “Strongly disagree” and 5 “Strongly agree.” The internal consistency was higher than the cut-off point of 0.7 (Cronbach’s Alpha = 0.72). The factor analysis of the six items resulted in a single factor.

Social norms. To measure social norms, we used five indicators. According to TPB theory, perceived social norms refers to the perceptions of what important people or close family members think about performing certain behavior (Ajzen, 1991). In this case, the items included respondents’ reactions to three types of influences (family, friends and important other). Items samples are “I care a lot about what my closest family thinks about whether or not to pursue a career as self-employed” and “I care a lot about what my closest friends think about whether or not to pursue a career as self-employed.” We measured these indicators by using a five-point Likert scale, being 1 “Strongly disagree” and 5 “Strongly agree.” The internal consistency was well above the cut-off point of 0.7 (Cronbach’s Alpha = 0.72). The factor analysis of the five items resulted in a single factor. Two of the indicators were eliminated for further analysis.

Entrepreneurial intentions. For measuring the students’ entrepreneurial intentions, we used five indicators aimed at unveiling the respondents’ intentions to start their own businesses in the future. The works of Crant (1996), Kickul and D’Intino (2005), and Liñan (2005) were reviewed for developing these indicators. The items were built as five-point Likert-type scale, being 1 “Strongly disagree” and 5 “Strongly agree.” Sample items include “I am very interested in setting up my own business” and “I am going to try hard to set up my own business.” The internal consistency of the instrument was well above the cut-off point of 0.7 (Cronbach’s Alpha = 0.88). The factor analysis of the five items resulted in only one factor. One of the indicators was eliminated for further analysis.

Students’ background. This construct refers to any exposure to entrepreneurial role models or previous experience from starting a business. Specifically, we included two indicators: father or mother or any close family member is self-employed; and whether the respondent has started a business in the past. Each of these indicators was defined in terms of a dichotomy variable, being the “Yes” and “No” answers equal to 1 and 0, respectively.

Data Analysis

The description of data (i.e. means scores and standard deviations) was performed by using SPSS software package, version 19.0. The Cronbach's alpha statistics was used to measure the internal consistency of each construct. Confirmatory factor analysis and structural equation modeling were carried out by using LISREL 8.80 software package (Jöreskog and Sörbon, 2010). By performing the confirmatory factor analysis, the convergent validity was tested, which resulted in all the standardized factor loadings significant and above 0.5. This can be considered as an acceptable result (Anderson and Gerbing, 1988; Hair et al., 2006).

Using LISREL 8.8 software, the hypothesized model was tested by performing the structural equation modeling (SEM) technique on the data gathered among undergraduate students from the three universities considered in the study. Important to mention is that performing SEM analysis, one is interested in not rejecting the null hypothesis (that is, the model is capable of perfectly reproducing the analyzed matrix of observed variable interrelationship indexes) (Raykov and Marcoulides, 2000). This implies that the p-value associated to the Chi-square χ^2 does not have to be small (statistical significant). For the acceptability of fit for a given model, it is commonly suggested that several goodness-of-fit indexes should be used instead of simply using the χ^2 test alone (Hair et al., 2006). In addition, Tabachnick and Fidell (2007) also suggest that values of the ratio $\chi^2/df < 2$ should be considered as one of the indexes for testing a model since significant p-values result can result even with good fit. Accordingly, we evaluated the hypothesized model by considering the following goodness-of-fit indexes: χ^2 -value together with degree of freedom (df), the ratio (χ^2/df); the comparative fit index (CFI); the non-normed fit index (NNFI); the standardized root mean squared residual (SRMS); and the root mean square error of approximation (RMSEA). The hypothesized model was compared with three alternative models in order to assess whether work attitudes exert a partial mediation rather than full mediation as suggested by Baron and Kenny (1986).

Results

Table 1 presents the means, standard deviations, Cronbach's alpha coefficients and intercorrelations among the study variables of interest.

Insert Table 1 around here

As indicated, the hypothesized model proposed that entrepreneurial intentions are influenced by the students' need for competence and need for independence through a full mediation of the work attitudes latent variable. To test the model as a whole by using the structural equation modeling technique, seven latent variables were included: need for competence; need for independence; work attitudes; self-efficacy beliefs; social norms; students' background; and entrepreneurial intentions,

the latter representing the dependent latent variable. Table 2 presents a summary of the fit indexes for the hypothesized model and the three alternative models.

Insert Table 2 around here

As can be observed in Table 2, the results of this analysis indicate that the goodness-of-fit indexes are somehow within the required values to assure that the hypothesized model and the three alternatives represent reasonable approximations of the data. It is important to remark that no strict norms exist for these indexes below which a model cannot be regarded as a reasonable description of the analyzed data and vice versa (Raykov and Marcoulides, 2000). As a rough guide, Hu and Bentler (1999) suggest that AGFI index should be in the middle of 0.9 or above and the RMSEA below 0.05 for a good fit of the model to the data. Also, as the Chi-square χ^2 statistics was significant, we considered the ratio χ^2/df as suggested by Tabachnick and Fidell (2007). By following these guidelines, we found that the hypothesized model fits the data well. The work attitudes latent construct mediates the relationship between the two independent variables, need for competence and need for independence, and entrepreneurial intentions. As the Alternative Model 1 shows, the need for independence construct was full mediated by work attitudes while the need for competence variable was only partially mediated as the direct path relationship with the intentions to new venture creation resulted significant. Also, we found that the students' background was positively related to entrepreneurial intentions through the mediating role of self-efficacy. In contrast, the social norms construct resulted no significantly related to intentions.

Alternative Model 1 displayed the best fit to the data ($\chi^2/df = 1.3$; RMSEA= 0.039; SRMR= 0.076; NNFI= 0.96; CFI= 0.96; AGFI=0.82). Based on these results, this model was retained and used to examine our hypotheses. The standardized path estimates of each model are presented in Fig. 2.

Insert Figure 2 around here

The link between need for competence and work attitudes was significant ($\gamma_1 = .30, p < 0.01$), giving support to hypothesis 1. The need for independence, however, was not significant ($\gamma_2 = 0.12, t\text{-value} = 1.22$), which does not support hypothesis 2. On the other hand, the direct path of need for competence variable to entrepreneurial intentions resulted significant ($\gamma_3 = .32, p < 0.01$), indicating that a partial mediation of work attitudes is in place (see Fig. 2). When testing the link between work attitudes and entrepreneurial intentions, we found a positive relationship ($\zeta = 0.20, p < 0.05$), which supports hypothesis 3. Furthermore, the students' background was significantly related to self-efficacy ($\beta = 0.64, p < 0.01$), supporting hypothesis 4. The relationship between self-efficacy and entrepreneurial intentions also resulted significant ($\lambda = 0.25, p < 0.01$), giving support to hypothesis 5. Finally, the social norms variable was not significant related to entrepreneurial intentions ($\psi = -.02$,

t-value = -0.18), giving no support for hypothesis 6. The Alternative Model 1 explained 12% of the variance in the work attitudes latent variable, 40% in the self-efficacy, and 33% in the entrepreneurial intentions.

Discussion and Implications

By performing a SEM analysis, we found initial evidence that work attitudes exerts a partial mediating role in the relationship between the need for competence and the students' intentions to new venture creation. These results indicate that individuals who self-reported high on need for competences they also reported high on their work attitudes and, in turn, high entrepreneurial intentions. Thus, the findings provide empirical support for the effect of intrinsic motivations (i.e. the need for developing abilities and skills to perform particular tasks) on the students' entrepreneurial intentions. This is consistent with CET proposed by Ryan and Deci (2000) in that need for competence is one of the three essential needs for a person to become self-motivated and personally integrated. This means that one will be more inclined to persist in completing a task because of the embedded satisfaction of the basic psychological need for competence.

Another important finding is that previous entrepreneurial exposure (students' background) seems to indirectly contribute to explain their intentions to start a business in the near future. As can be observed in Fig. 2, this influence occurs through the mediating role of the self-efficacy variable. For the present study, the students' background included the possibility of an entrepreneur among their close family members and whether they have started a business in the past. This is consistent with previous studies since evidences indicate that prior entrepreneurial experience among university students accounted for entrepreneurial self-efficacy enhancement (Zhao et al., 2005). Interesting to remark is that the literature has consistently reported the positive effect of self-efficacy on entrepreneurial intentions (see e.g. Chen et al., 1998; Zhao et al., 2005; Naktiyok et al., 2010; Izquierdo and Buelens, 2011). This seems to suggest that entrepreneurship education should pay careful attention to the mechanisms that increase the students' self-efficacy. In this line, strengthening students' confidence to become an entrepreneur could be achieved by addressing mastery experiences, role modeling, social persuasion, and physiological states. These mechanisms are means to positively affect self-efficacy beliefs (Bandura, 1986), which may be highly important especially at early, prelaunch stages in the entrepreneurial process.

In sum, the findings provide evidences that attitudes and self-efficacy are important predictors of intentions, which conforms to what previous research has reported (Boyd and Vozikis, 1994; Krueger et al., 2000). On the one side, the students' need for competence, embracing the need for learning and acquiring abilities and knowledge to perform particular tasks, accounted for favorable work attitudes. On the other side, the students' exposure to role model coming from close

family and friends as well as previous experience in starting a business resulted determinant in enhancing their self-efficacy which, in turns, influenced their entrepreneurial intentions. The findings of the study have important implications for entrepreneurship education, which are discussed next.

Implications

Although many studies have been conducted to test intentional models, neither the effect of intrinsic and extrinsic motivational drivers on work attitudes has been widely investigated, nor the mediating role of self-efficacy on intentions by making an integrative analysis. The present study goes in this direction by testing a model of entrepreneurial intentions as a whole using a structural equation modeling approach.

As we found that work attitudes positively influence intentions to start a business, the study contributes to the theory of planned behavior by providing explanation for the effect of individual factors on the intentions to become an entrepreneur. According to the findings, attitudes are affected by the need for competence, an intrinsically motivated factor. This seems to suggest that the more satisfied students become in their needs for learning and acquiring abilities and skills, the better their work attitudes and, in turn, the better their intentions to new venture creation. We also found that role model and previous entrepreneurial activity seem to be indirect predictors of students' intentions to new venture creation through the mediating role of self-efficacy. Thus, the study provides evidence that entrepreneurial exposure has a positive impact on increasing the self-efficacy beliefs of university students and, in turn, on heightening their intentions to start a new business.

For an educational context, a practical implication is that content and pedagogical approach of entrepreneurship courses should be adjusted as to encourage students to become self-motivated and active in the learning process. By doing so, we can target the stimulation of students' motivations for competency development and lead them to become independent thinkers which, according to Lobler (2006) should be a goal to be reached. Previous studies have shown that autonomy-supportive teachers (in contrast to controlling) become catalysts of their students' greater intrinsic motivations, curiosity, and the desire for challenge (Ryan and Deci, 2000). As these authors argue, classroom settings and home environments can facilitate or, otherwise, undermine intrinsic motivations by supporting or thwarting the needs for autonomy and competence. In this respect, we posit that entrepreneurship courses should embrace a variety of activities that allow students to explore and extend themselves. Also, there needs to be more practical exercises giving the opportunity for hands-on experiences through real-world business situations. Nevertheless, these learning experiences need to be theory-based and be the ones

that assist students understand and apply underlying course concepts as suggested by Fiet (2000). This way, students can raise their knowledge and become aware of the issues and challenges involved in pursuing a business opportunity. As a result, they may find themselves better capable of overcoming the difficulties and barriers that a new venture may present.

Current trends in business education are going in this direction as real-world experiences are becoming part of the curricula (Clinebell and Clinebell, 2008). Aligned with this perspective, Izquierdo et al. (2011) proposes that in- and out- class activities should include the possibility of starting and operating a business while taking an entrepreneurship course. The idea underlying the use of this type of activities is to challenge the students' creativity capacity and innovative thinking; features that are crucial for entrepreneurship (Carland, Hoy, Boulton, and Carland, 1984; Lumpkin and Dess, 1996). Dealing with limited resources as it is commonly the case for entrepreneurs (Hisrich and Peters, 2002); networking and looking for advice from experts; dealing with lack of information and uncertainty, and so on would be some of the derived effects of having to work on real-life projects.

Another implication refers to the relevance of instilling in students an attitude change toward entrepreneurial acts which, from policy and academic perspectives, is recognized as a crucial enquiry for stimulating entrepreneurial activity (Krueger et al., 2000). Robinson et al., (1991) contend that because attitudes are open to change, entrepreneurial attitudes can be influenced by educators and practitioners. Garavan and O'Connell (1994), on the other hand, argue that entrepreneurship education has not been effective in addressing this issue as attitude development or change has not been paid much attention. This is so, although attitudes toward entrepreneurship are central to explaining new business startups (Phan et al., 2002) and conducive to influence innovative and entrepreneurial behavior (Garavan and O'Connell, 1994). Again, influencing the intrinsic motivations of students could be a way to fill the gap by proper entrepreneurship education. However, Ryan and Deci (2000) emphasizes that intrinsic motivations will happen only when the activities used in a classroom environment hold intrinsic interest for an individual.

Limitations of the Study

The study presents some limitations due to methodological choices. As the students were not selected at random, the first limitation is related to the fact that students were not selected at random, which happened because of the common practical difficulties in conducting research in an educational context. It is likely that carrying out experimental research may pose a problem of having too few students answering the survey instruments. This is especially true whether the research design

requires a collection of data at the start and end of a course, which is even more critical when it is longitudinal. To overcome this problem, we selected as many as possible students enrolled in the courses considered in the present study.

Another limitation refers to the fact that the study was cross sectional. By having so, we were only able to make a snapshot of the current situation regarding the influencing factors on the intentions to start a business. However, this first picture gives us the opportunity to make a follow up of this sample in a longitudinal study that is ongoing.

The final limitation relates to the issue of subjectivity since the instruments were mainly developed on the basis of perceptual measures. Criticism can arise because perceptions may differ from what it is in reality. In addition, self-reported measures can be a source of common method variance as well as the tendency to agree with items independent of content (Spector, 2006). Another more objective data is advisable, for example, based on observations. As we are mainly interested in behavior, it is desirable to make a follow up of students in order to determine whether the intentions reflected in the data will actually culminate in new ventures created.

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Table 1 Descriptive Statistics, Scale Reliabilities and Correlations for the Study Variables of Interest

Variable	M	SD	1.	2.	3.	4.	5.	6.	7.	8.
1. Need for independence	4.42	.76	(.67)							
2. Need for competence	4.55	.70	.197**	(.82)						
3. Work attitudes	4.50	.71	.126*	.171**	(.84)					
4. Any family member self-employed ^a	4.19	.97	.065	.086	.035	(1.00 ^b)				
5. Started own business in the past ^a	3.68	1.03	.147*	.252**	.157*	.060	(1.00 ^b)			
6. Self-efficacy	4.42	.92	.097*	.238**	.203**	.103	.219**	(.72)		
7. Social norms	3.27	1.18	-.025	-.042	.097*	-.112	-.005	.048	(.83)	
8. Entrepreneurial intentions	3.23	1.15	.277**	.348**	.225**	.162*	.315**	.329**	-.044	(.88)

N = 171. Scale reliabilities (Cronbach's alpha) are on the diagonal in parenthesis.

^a Any family member self-employed: Yes= 1; No= 0. ^b Reliability estimated

^a Started own business in the past

* p < .05; ** p < .01.

Table 2. Goodness-of-Fit Indexes for the Structural Equation Models

	χ^2	df	χ^2/df	RMSEA	SRMR	NNFI	CFI	AGFI
Hypothesized model:	400.06 **	312	1.3	0.041	0.082	0.95	0.96	0.82
ALT 1: partial mediation of work attitudes	391.20 **	311	1.3	0.039	0.076	0.96	0.96	0.82
ALT 2: Need for competence direct path	397.00 **	312	1.3	0.040	0.089	0.95	0.96	0.82
ALT 3: Need for independence direct path	400.04 **	312	1.3	0.041	0.080	0.96	0.96	0.82

N= 171; * p < 0.01; SRMR: standardized root-mean-squared residual; NFI: norm fit index; CFI: comparative; fit index; AGFI: adjusted goodness-of-fit index

Figure 1. Hypothesized Model: showing the mediating role of work attitudes and self-efficacy

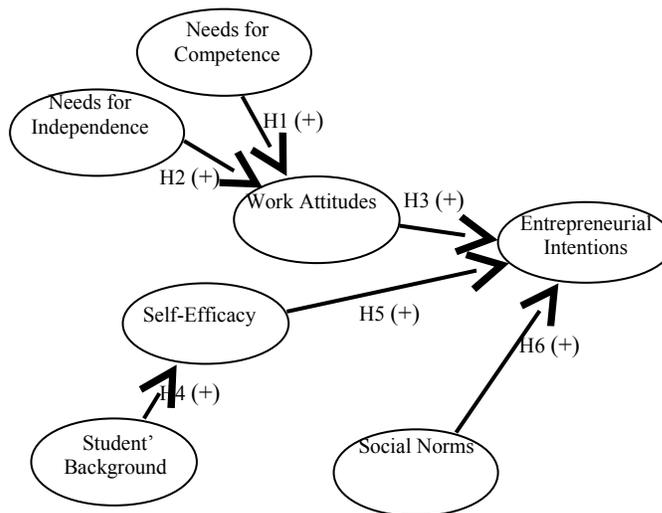
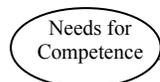
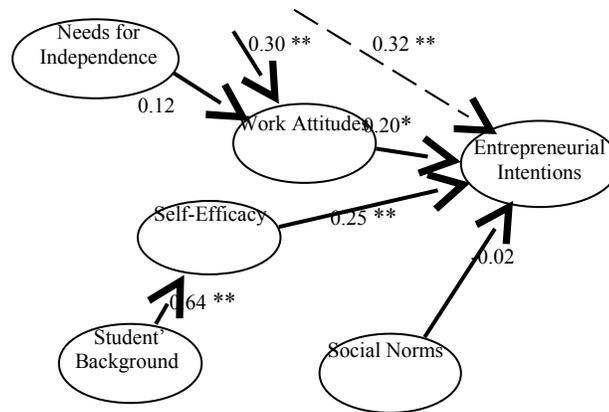


Figure 2 Final Model (Alternative 1): testing the partial mediating role of work attitudes





N = 171; * p < 0.05; ** p < 0.01