

Entrepreneurial intention: a study with MIEGI students

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ABSTRACT

In the actual complex economic context, entrepreneurship is seen as a hope and an alternative to the crisis, reducing poverty and creating new jobs. Understanding entrepreneurial intentions is the key to predict, enhance and foster entrepreneurship. However, it is a hard task to really understand and predict these intentions, given the fact that they are related to many variables as personal traits, family influence, self-efficacy, social background, and others. Regarding this, there is a well-known model, the Theory of Planned Behavior (Ajzen, 1991), that enables accurate outcomes predicting the entrepreneurial intentions, and consequently the entrepreneurial behavior. The aim of this paper is to explain the entrepreneurial intentions using the Ajzen's Theory of Planned Behavior. This was done by a survey developed to measure attitude towards the behavior, subjective norms, perceived behavioral control and self-efficacy in students of industrial engineering and management (MIEGI) from University of Minho.

1. INTRODUCTION

Entrepreneurship is a field of study of great importance and relevance to the development of society and that, given its large untapped potential, is the subject of many scientific, economic and psychological researches primarily from the 90s (Obschonka et al., 2010). This relevance notes further increase these days because there is a steady increase in social and economic challenges faced by today's societies, and the promotion of entrepreneurship is seen as vital to the success of those companies inserted in that context (Audretsh, 2007). This can be explained by the fact that when there are financial crisis, innovations, new solutions and creative approaches, new ways of operation and also breaking old paradigms are needed, and this can be achieved by fostering and developing entrepreneurship. Entrepreneurship fosters the creation of new jobs and is

critical to economic growth in society, helping to reduce poverty (Amorós and Bosma, 2013).

However, entrepreneurship is a concept with many peculiarities. It is not an exact science to be implanted, but a way of thinking to be developed. Therefore, entrepreneurship emphasizes opportunities rather than threats and obstacles, and its ability to identify opportunities requires first and foremost the study of entrepreneurial intentions of individuals (Krueger et al., 2000). Much of the complexity and considerable breadth in the study of entrepreneurship is exactly in the pursuit of understanding the motivations that lead a person to undertake. Furthermore with the constant appearance of new research and articles on this subject is expanded the number of possibilities in this field. This paper will focus in one of these possibilities, the intention-based models.

This paper is organized into 4 sections, besides the introduction. Section 2 resumes the conceptual background of the intention-based models and presents the Theory of Planned Behavior (TPB), as well as the relationship between that model and the entrepreneurial intentions. Section 3 presents and discusses the results of the survey *Project Empreende 2014* designed to understand the entrepreneurial intention and extend the TPB model to explore the effect of demographic variables. Finally, Section 4, presents the main conclusions.

2. THE THEORY OF PLANNED BEHAVIOUR (TPB) AND THE ENTREPRENEURIAL INTENTIONS

Attitude has being the object of study of various disciplines such as psychology, sociology and marketing. According to Ajzen (1991), through the study and analysis of attitudes, it is possible to determine the behavior of individuals. In order to understand, describe and predict human behavior, several models were developed for the measurement of attitudes. One of the best known is the Theory of Planned Behavior, the theory developed in 1985 by Icek Ajzen.

The theory developed by Ajzen states that intention is an indication of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior. The intention is based on attitude toward the behavior, subjective norm, and perceived behavioral control, with each predictor weighted for its importance in relation to the behavior and population of interest.

The attitude towards a certain behavior refers to the expectations of the results and impacts of the action to be taken. The subjective norm refers to social pressure, perceived by the individual, from the people considered important for him. The perceived behavioral control is related to the feasibility of performing the behavior, which is associated with the concept of self-efficacy.

Figure 1 illustrates the main determinants of the model of the Theory of Planned Behavior.

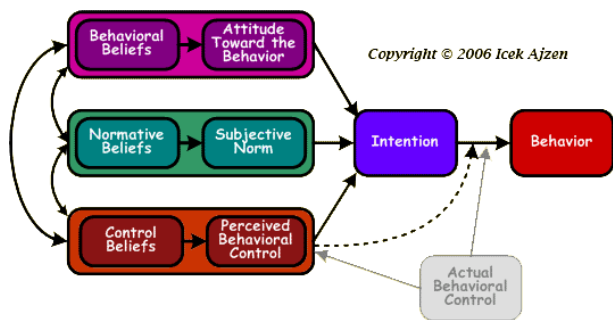


Figure 1: TPB Diagram

The research by Krueger et al. (2000) makes one more subdivision, the first two factors, attitude toward the behavior and subjective norm, are related to the perceived desirability of performing the behavior. The last factor, perceived behavioral control, would be associated with perceptions that the behavior is personally controllable. Still, it is important to emphasize the great importance of this last factor in this theory, as besides being one of the antecedents of intention, it also has a moderating effect in the effect of intention on behavior. After all, a favorable intention produces the behavior only when perceived behavioral control, a concept that is similar to the self-efficacy, is strong.

The major principle behind the psychological Theory of Planned Behavior (Ajzen, 1991) is that planned behaviors are intentional and thus are predicted by intention towards that behavior (Souitaris et al., 2007). The Theory of Planned Behavior predicts that the behavior is more likely to be realized if each of its components are either favorable or positive because the greater the likelihood of realization. According to Ajzen (1991), the individual forms an intention to have a certain behavior and that intention is a reflection of motivational factors that affect behavior. The intentions of behavior provisions remain until, in an appropriate and timely

manner, an attempt is made to achieve the intention in action.

The Theory of Planned Behavior have been used to predict a lot of different kinds of intentions to behave in a certain way (Küttim et al., 2014) including, for example, dieting, stopping smoking, choosing between different means of transport, acting as a volunteer, donating blood or organs, use of condoms, and others (Armitage and Conner, 2001). Several studies identified on literature used the theory to explain the entrepreneurial intention (see for instance Fayolle and Liñán, 2014; Küttim et al., 2014; Lee et al., 2011; Liñán et al., 2011; Obschonka et al., 2010; Peterman and Kennedy, 2003; Souitaris et al., 2007; Zhang et al., 2013, Fretschner, 2014).

Liñán et al. (2011) in their study about the factors affecting the temporal stability of entrepreneurial intentions concluded that, first, the attitude and subjective norms would be formed as a result of socialization processes at a younger age. Thus, young college graduates do not have these factors affected by events after they graduate, for example, when they are looking for a job. Secondly, the perceived behavioral control would also be influenced by these same processes of socialization, but with the difference that it also derives from work experiences, that have happened before the person graduated. Thirdly, a high level of entrepreneurial intentions at the end of the period of graduation would not be necessary for the individual to become an entrepreneur effectively. The combination of favorable perceptions developed before graduating, along with the work experience obtained subsequently would enhance entrepreneurial act (Liñán et al., 2011).

The importance of prior experience can be found too in another research made by Carr and Sequeira (2007). They concluded that when individuals have no clear plan of action, they would probably rely on their past experiences to evaluate their intentions. As entrepreneurial intentions and behaviors are often inserted in this context of ambiguity, consequently they are immersed in an atmosphere that demonstrates the importance of prior experience on these intentions.

The family has a remarkable influence on the development of entrepreneurial intentions of an individual as well. Subjective norms relate not only with family but also with the entire social network that can influence the entrepreneur to start a business. Nevertheless, one should not take that as a rule that the family will always be crucial determining intentions. This is because each individual has his particular way of evaluating the opinion of others. For example, while for some people neighbors generate social pressure, for others this source is distinct.

In a study that tested the effects of entrepreneurship education programs on attitudes and entrepreneurial intentions among students in science and engineering, performed by Souitaris et al. (2007), important segments were identified. First, there was a significant increase in subjective norms after the program. The authors believe that this could be a result of the creation of a new cycle of friends with the “entrepreneurial mind”. Second, there was a negligible effect on the perceived behavioral control. This latter result is difficult to explain and contradicts previous studies such as the Peterman and Kennedy (2003). One possible explanation was that the sample used in the study was the “elite-university” students and they generally had already high self-confidence. Therefore there was less space for change attributed to the program.

The research conducted by Peterman and Kennedy (2003) examined the effect of the participation of students from a secondary school in an entrepreneurship education program. The result was that both desirability and feasibility regarding opening a new business increased. That is, the perceived behavioral control of these students has increased, which already contradicts the aforementioned study.

Clearly studying and predicting intentions is not an easy task. Though, with the TPB it is possible to get closer to a more accurate forecast of intentions and behaviors. As a result, perceiving this model is the first step to discover potential entrepreneurs and then to develop a way to enhance entrepreneurship.

3. THE PROJECT EMPREENDE 2014

Considering that and, moreover, the fact that young people are more likely to have new ideas, to be “born-digitals” and also, possibly, to have received more education than their parents (Amorós and Bosma, 2013), it is opportune to examine the entrepreneurial intentions of university students, applying the Theory of Planned Behavior, particularly at the level of engineering courses with no previous experience on entrepreneurship courses.

Hypotheses

To determine the extent for which external variables influence students’ entrepreneurial intentions, the study used the Theory of Planned Behavior by examining the role of three personality determinants: attitudes towards entrepreneurship, subjective norms towards entrepreneurship and perceived behavioral control in relation to be entrepreneur and extend the model to explore the effect of demographic variables such as gender, study level and self-employed parents. Based on the above variables, the following hypotheses are posit:

- H1: the higher the entrepreneurial attitude, the higher the entrepreneurial intention;
- H2: the higher the perceived subjective norms, the higher the entrepreneurial intention;

- H3: the higher the perceived behavioral control, the higher the entrepreneurial intention;
- H4: the gender has an effect on entrepreneurial intention;
- H5: the cycle study has an effect on entrepreneurial intention;
- H6: the self-employed parents have an effect on entrepreneurial intention.

Sample

Questionnaires were administered to students enrolled in the Integrated Master Course on Industrial Engineering and Management from the University of Minho. The survey instrument was given to students during class or given access through an online platform (mainly students of the 5th year in a situation of a company internship). A total of 139 usable questionnaires were returned and used for the data analysis. Of the respondents, 58.7% were male, 33.81% has an age less than or equal to 19 years old and 63.31% is an undergraduate student (student enrolled in the first study cycle: 1st to 3rd year). Respondent’s profile is depicted in Table 1.

Table 1: Respondents’ Profile (n=139)

Profile	Response Count	Response Frequency (%)
Gender		
Male	81	58.70%
Female	57	41.30%
Age		
Less than or equal to 19 years old	47	33.81%
Aged between 20 and 21 years	41	29.50%
Aged between 22 and 23 years	26	18.71%
Greater than or equal to 24 years old	25	17.99%
Integrated Study Cycle		
Undergraduate students	88	63.31%
Master students	51	36.69%

The survey included a question about the entrepreneurial behavior of students’ parents: “Do you grew up in an entrepreneurial family?” (adapted from Laspita et al., 2012). The options presented and the respective results were summarized in Table 2.

Table 2: Entrepreneurial behavior of student's parents

	Response Count	Response Frequency (%)
Yes, business still active	49	35.25%
Yes, the business still worked at least until 5 years ago	7	5.04%
Yes, but the business ended more than five years ago	13	9.35%
No, my parents were never entrepreneurs	70	50.36%

Measures

Measurement items were developed on the basis of a comprehensive review of the literature and modified to suit the research context. Attitudes and subjective norms were measured using a 5-point Likert type scale, anchored by "I strongly disagree" and "I strongly agree". Entrepreneurial intention and perceived behavioral control was measured using a 7-point semantic scale. Questions were adapted from prior research studies. Table 3 summarizes the measures used.

Table 3: Measures

Scale	Author	Number of items
Intention	Souitaris et al. (2007)	3
Attitude	Liñán et al. (2011)	5
Subjective norms	Carr and Sequeira (2007)	8
Perceived behavioral control	Souitaris et al. (2007)	5

Data analysis method and results

In data examination process, the analysis initiate with scales reliability and unidimensionality using Cronbach's alpha, item-to-total correlation and exploratory factor analysis (before analysis, items that sounded discordant with the majority of the statements of the scale were reversed coded).

Constructs reliability is summarized in Table 4.

Table 4: Constructs reliability

Construct	Original items	Final items	Cronbach's alpha	Variance explained by 1 factor
Entrepreneurial intention	3	2	0.685	76.13%
Attitude	5	5	0.827	59.84%
Subjective norms	8	8	0.832	47.18%
Perceived behavioral control	5	5	0.698	47.26%

After reliability analysis, scales were transformed as a mean indicator of the items. The exception was the entrepreneurial intention that was operationalized as a dichotomous variable, whether the student has entrepreneurial intention or not (0: no entrepreneurial intention; 1: entrepreneurial intention). The classification was based on an aggregated index that resulted from the sum of the answers of the two retained items. If the sum was higher than or equal to four, student was considered as having entrepreneurial intention. Otherwise, student has no entrepreneurial intention.

Since the dependent variable was dichotomous (entrepreneurial intention versus no entrepreneurial intention), the logistic regression analysis was applied to examine the research model. This approach does not face discriminant analysis assumptions (is more statistically robust when these assumptions are not met) and in practice is similar to multiple regression since has straightforward statistical testes and similar approaches to incorporating metric and nonmetric variables and nonlinear effects (Hair et al., 2010).

First, the entrepreneurial intention is tested using the Theory of Planned Behavior model (see Table 5).

Table 5: Theory of Planned Behavior (TPB)

Constructs	Coefficient	Wald statistic	Sig
Attitude	1.051	5.409	0.020
Subjective norms	0.175	0.152	0.697
Perceived behavioral control	1.045	11.713	0.001
Constant	-10.038	23.374	0.000
Overall Model Fit			
Qui-Square (df) (sig)	-2 Log likelihood	Cox & Snell R2	Nagelkerke R2
37.477 (3)(0.000)	139.985	0.239	0.330
Discriminating power			
Observed	Predicted		% Correct
	No intention	Intention	
No intention	76	13	85.40%
Intention	21	27	56.30%
Overall Percentage			75.20%

Results indicated a chi-square test significant and satisfactory two Pseudo R2. With respect to overall discriminating power, the results also indicate a prediction accuracy of 75.20% by the logistic regression model. The Wald statistic and the corresponding level of significant test the effect of each of the independent variables in the research model. Results indicated that the factors attitudes and perceived behavioral control were

significant at the 0.05 level. The factor subjective norms was not significant. Thus, hypotheses H1 and H3 were supported, but not the hypothesis H2.

After the estimation of the TPB model, the analysis will test the inclusion of characterization variables such as gender, study cycle and self-employed parents. To operationalize the test of these variables, the procedure adopted considers the inclusion of only one demographic variable at a time in the TPB model.

Therefore, and following sample characterization, each respondent was classified in three new dummies variables based on:

- Male gender student (1-male, 0-female).
- Student of master cycle studies (1-master, 0-undergraduate).
- Student with self-employed parents (“yes” answers as 1-yes; otherwise 0-no).

Table 6, Table 7 and Table 8 present the results obtained for each variable. Although the model with the male dummy has a reasonable fit and good accuracy, the results of male coefficient indicate that it is not statistically significant (H4 is not validated) (see Table 6).

Table 6: TPB and Male dummy

Constructs	Coefficient	Wald statistic	Sig
Attitude	1.061	5.406	0.020
Subjective norms	0.144	0.101	0.750
Perceived behavioral control	0.984	9.991	0.002
Male Dummy	0.379	0.719	0.396
Constant	-9.918	22.651	0.000
Overall Model Fit			
Qui-Square (df) (sig)	-2 Log likelihood	Cox & Snell R2	Nagelkerke R2
37.596 (4) (0.000)	138.999	0.242	0.332
Discriminating power			
	Predicted		
Observed	No intention	Intention	% Correct
No intention	75	13	85.20%
Intention	19	29	60.40%
Overall Percentage			76.50%

The model with the master dummy has a satisfactory fit and good accuracy, and the results of coefficient indicate

that master is statistically significant (H5 is validated) (see Table 7).

Table 7: TPB and Master dummy

Constructs	Coefficient	Wald statistic	Sig
Attitude	0.963	4.456	0.035
Subjective norms	0.134	0.087	0.768
Perceived behavioral control	1.058	11.730	0.001
Master Dummy	0.845	3.892	0.049
Constant	-9.959	22.851	0.000
Overall Model Fit			
Qui-Square (df) (sig)	-2 Log likelihood	Cox & Snell R2	Nagelkerke R2
41.400 (4) (0.000)	136.062	0.261	0.359
Discriminating power			
	Predicted		
Observed	No intention	Intention	% Correct
No Intention	78	11	87.60%
Intention	21	27	56.30%
Overall Percentage			76.60%

Table 8: TPB and Self-employed parents dummy

Constructs	Coefficient	Wald statistic	Sig
Attitude	1.050	5.401	0.020
Subjective norms	0.178	0.150	0.699
Perceived behavioral control	1.046	11.659	0.001
Parents Dummy	-0.013	0.001	0.976
Constant	-10.045	23.154	0.000
Overall Model Fit			
Qui-Square (df) (sig)	-2 Log likelihood	Cox & Snell R2	Nagelkerke R2
37.478 (4) (0.000)	139.984	0.239	0.330
Discriminating power			
	Predicted		
Observed	No intention	Intention	% Correct
No intention	76	13	85.40%
Intention	21	27	56.30%
Overall Percentage			75.20%

Although the model with self-employed parents has a reasonable fit and accuracy, the results of coefficient indicate that variable “self-employed parents” is not statistically significant (H6 is not validated).

Table 9 summarizes the validation of the hypotheses.

Table 9: Hypotheses validation

Hypotheses	Validated	Not Validated
H1: the higher the entrepreneurial attitude, the higher the entrepreneurial intention;	H1 validated (p<0.05)	-
H2: the higher the perceived subjective norms, the higher the entrepreneurial intention;	-	H2 not validated
H3: the higher the perceived behavioral control, the higher the entrepreneurial intention;	H3 validated (p<0.05)	-
H4: gender has an effect on entrepreneurial intention;	-	H4 not validated
H5: cycle study level has an effect on entrepreneurial intention	H5 validated (p<0.05)	-
H6: self-employed parents have an effect on entrepreneurial intention	-	H6 not validated

4. CONCLUSIONS

The objective of this study was to understand entrepreneurial intention of university students by using the Theory of Planned Behavior and extended it with contextual factors such as gender, study cycle and self-employed parents.

In general, the results provide support for the research model of the Theory of Planned Behavior. The results reveal that students with positive attitudes and better perceived behavioral control are more likely to pursue an entrepreneurial intention. Further, of the three contexts variables tested in the TPB research model, only one, being a master student, has importance in determining the student entrepreneurial intention.

The TPB model applied in this context indicates the attitudes and perceived control as variables with the greatest explanatory power. According to Fretschner (2014) the importance of perceived control is desirable because it is a self-assessment of students regarding their knowledge and skills in the creation of new business. The same author adds that the frequency of a second course in entrepreneurship reinforces the intention as it provides a wider range of entrepreneurial skills and self-efficacy of students. Given the results of the present study, it is recommended the creation of mandatory courses in

entrepreneurship as well as the availability of extracurricular entrepreneurship courses.

In turn, as attitudes reflect a positive evaluation about self-employment, it may be formed and strengthened through an increased emphasis on the theme of entrepreneurship. It is suggested a wider dissemination of theme of entrepreneurship to students through regularly scheduled weeks of entrepreneurship, lectures and workshops.

Regarding subjective norms, the third explanatory variable of TPB model did not work the same in this study. According to Fretschner (2014) this situation has been observed in many studies and may be due to differences in the operationalization of the scale and its focus. In the case of the scale used in the present study that presents a wide selection of referees. By not focusing on a smaller group of referees, the scale may be dispersing the responses (require a more careful investigation).

Interesting to note the behavior of demographic variables in the model. There was no explanatory power to the gender of the student or self-employed parents. This results from the explanatory power of psychographic variables of the TPB model. Thus, the entrepreneurial intention is not a gender issue or having self-employed parents, but rather a matter of attitude or perceived behavioral control. Nevertheless, the cycle of studies revealed explanatory power, with graduate students presenting higher entrepreneurial intention. This may be explained by the fact that throughout the course these students receive more indirect information that makes them more sensitive to the subject, either by the proximity of their future professional life, either by increasing its maturity.

The ongoing research is at an early stage but the results obtained are relevant and pertinent to the topic of entrepreneurship, particularly in the study of entrepreneurial intentions of young people. In the future, the team intends to explore further explanatory variables of entrepreneurial intention and extend the study to other students from different courses.

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