COGNITIVE FACTORS THAT DRIVE OR HINDER UNIVERSITY STUDENTS' ENTREPRENEURIAL ORIENTATION: EVIDENCE FROM COLOMBIA

ABSTRACT

By considering entrepreneurial activity as a crucial element for regional development and associated with changes in the nature of the labor forces, it is no longer enough that higher education institutions limit themselves to form individuals who hold jobs in organizations. Therefore, developing entrepreneurial skills among students is a necessary factor to raise citizens, not only capable of creating new companies, but also with abilities to identify and generate opportunities in those already established. In this sense, the objective of this article is to research how some cognitive factors such as self-confidence and fear of failure affect the Entrepreneurial Orientation (EO) of university students. To achieve this, we take into consideration variables related with proactivity, risk assumption and the propensity to innovate, dimensions which compose the construct of EO. This study uses information extracted from a survey applied to students from different majors in the city of Medellin-Colombia. Linear regression models are used to contrast the proposed hypotheses. The results show a positive and significant relationship of self-confidence on EO; as for fear of failure, this relationship is negative and significant.

Keywords: Entrepreneurship Education, Entrepreneurial Orientation, Cognitive Factors.

INTRODUCTION

Entrepreneurship education exists as a way to boost the entrepreneurial and innovative spirit under the premise that it is possible to acquire facets of entrepreneurship beyond being an inherent condition to each individual, that is, entrepreneurship like any other discipline can be assimilated (Drucker, 1985). Aware of this, the models of higher education around the world have incorporated entrepreneurship as a fundamental element of their academic programs (Lima *et al.*, 2015; Iglesias *et al.*, 2016), forging individuals capable of not only creating new companies, but also with abilities to identify and generate oportunities in those already established, therefore developing skills towards entrepreneurial orientation (EO).

EO defined as the behavior towards innovation, proactivity and risk asumption, has been widely addressed in entrepreneurial literature (Miller, 1983; Covin and Slevin, 1991; Lumpkin and Dess, 1996; Anderson *et al.*, 2015), and its focus has been destined mainly towards business management and strategic management. Within the context of entrepreneurship education, the use and analysis of the EO construct has been based on the effectiveness and efficiency of the different curricular programs towards the promotion of entrepreneurship, and how this is affected by regional and socio-cultural conditions (Frank and Korunka, 2005; Alvarez, DeNoble and Jung, 2006). However, the study of features associated to the personality in the environment of entrepreneurship education and its link with the dimensions of the EO, has not been exploited to the moment.

This research aims, therefore, to identify both the impact of features own to the personality such as self-confidence and fear of failure in the EO construct of university students enrolled in courses of entrepreneurial education. For such, variables related to risk-taking, innovativeness, proactiviness, as well as those related to self-confidence and fear of failure, are taken into account, from the information obtained through surveys applied in different educational programs in the city of Medellin.

Section 2 presents the theoretical framework, previous studies and the proposed hypotheses. Section 3 describes the design of the research. The analysis and the results are exhibited in Section 4. Finally, in Section 5 the conclusions, discussions and implications of the findings of the study are presented.

THEORETICAL FRAMEWORK, PREVIOUS STUDIES AND HYPOTHESES

The fact that the entrepreneur is considered the most important actor in a modern economy (Lazear, 2006) has led to a growing focus in the objectives of public policies and initiatives that sensitize in the topic of entrepreneurship and manage to improve the skills of the society to carry out entrepreneurial activities (Stamboulis and Barlas, 2014). Therefore, current theories about economic growth include entrepreneurial promotion as one of its most important instruments (Liñán and Rodríguez, 2004), with the entrepreneurial education being one of the most efficient strategies and with the most potential impact (Liñán, 2004).

The importance of entrepreneurial education lies in its capacity to provide individuals with a sense of independence and self-confidence, while granting knowledge to improve their capacity to perceive or develop new opportunities (Raposo and Paço, 2011; Sánchez, 2011). Following this set of ideas, access to abilities and necessary knowledge is granted through entrepreneurial education to initiate and make a new businesses grow, which is the same as determining the entrepreneurial

orientation (EO), referring to the processes, practices and decision-making that lead to a new concept of entrepreneurship (Lumpkin and Dess, 1996).

Based on the approaches by Miller (1983), according to whom an entrepreneurial position corresponds to the one dedicated to product innovations in the market, performs risky operations and is the first to devise proactive innovations, authors such as Covin and Slevin (1991), Daily *et al.* (2002) and Wiklund and Shepherd (2003), have adopted a multidimensional construct of the EO which is comprised by three components which are innovation, risk assumption and proactivity (Riviezzo, 2014).

Under this context, innovation reflects the trend towards the support of new ideas, novelty, experimentation and creative processes in general, leaving aside those practices and technologies already established (Lumpkin and Dess, 1996). Meanwhile, risk assumption is represented in the willingness to assign financial resources to projects with an uncertain outcome, and is related with the permanent search of new opportunities (Miller and Friesen, 1978; Riviezzo, 2014). Lastly, proactivity refers to the capacity to assume an anticipatory stance and acting with respect to future wishes and needs of the market, thus achieving a competitive advantage (Lumpkin and Dess, 1996).

Taking into consideration the general notion of an entrepreneur, who is regarded as a person who prefers to develop his own businesses, it is expected that a self-confident entrepreneur is able to reach the objectives he establishes (Koh, 1996). This way, self-confidence is a relevant condition within entrepreneurs, particularly the emerging ones, and thus is considered as one of the determinant conditions regarding EO (Koellinger, Minniti and Schade, 2004; Arenius and Minniti, 2005).

Starting from the dimensions of EO, there is confidence in the fact that a person's own abilities are positively related with his innovation processes, and the excess of confidence is particularly associated, in a direct way, with said component through the introduction of pioneer products (Simon and Houghton, 2003). Regarding risks, project managers with high levels of confidence show low levels of risk awareness, which they usually assess in an optimistic way, and thus are more willing to assume higher risks (Bryde and Volm, 2009; Fabricius and Büttgen, 2015). Lastly, there is a positive relationship between proactivity and aspects about the personality of the individual, such as extroversion, conscience, need for achievement, and self-confidence (Claes, Beheydt and Lemmens, 2005).

Taking into consideration the exposed context, the following hypotheses are proposed:

H1. Students' self-confidence is positively related with their entrepreneurial orientation.

H1a. Students' self-confidence is positively related with their propensity to assume risks.

H1b. Students' self-confidence is positively related with their propensity towards innovation.

H1c. Students' self-confidence is positively related with proactivity.

The entrepreneurial activity is influenced not only by the decision to become an entrepreneur, but also the selection of projects and the decision to complete them, point in which the stigma associated with failure becomes an important determinant regarding entrepreneurship (Landier, 2005). This way, fear of failure is a reason to avoid disappointments and the shame associated to

the failure of a project, and thus, the greater the shame, the greater the incentives to avoid the failure that might occur in the beginning of the new entrepreneurship (Carsrud *et al.*, 2009).

The association between fear of failure and entrepreneurship has been analyzed taking into consideration the relationship among entrepreneurial decisions and risk aversion. In this sense, given that most individuals are risk averse, and given that the perception to fear of failure is a determinant in the risks to start a new project, a lower risk perception augments the possibility to commence an entrepreneurship (Weber and Milliman, 1997; Arenius and Minniti, 2005).

Taking into consideration the effect of fear of failure, the following hypotheses are proposed:

H2. Students' fear of failure is negatively related with their entrepreneurial orientation.

H2a. Students' fear of failure is negatively related with their propensity to assume risks.

H2b. Students' fear of failure is negatively related with their propensity to innovate.

H2c. Students' fear of failure is negatively related with proactivity.

DESIGN OF THE RESEARCH

Information collection

The information used in the study is part of an annual survey implemented by EAFIT University, Medellin, to students who are enrolled in a subject of preparation for entrepreneurship. EAFIT University has incorporated courses designed to promote the entrepreneurial spirit in the students of the different majors. This is the case of the subject *Iniciativa y Cultura Empresarial* (Entrepreneurial Initiative and Culture), which is transversal to all the undergraduate programs offered by the university, and is part of the *Núcleo de Formación Institucional* (institutional training program). Therefore, all the students at the university have to enroll in at least one subject that provides them with knowledge about entrepreneurial activity.

The survey is anonymous and students answer it online during the first two class sessions, minimizing biases that may affect the quality of the answers (such as inherent biases to the student's anonymity or answers influenced by the instruction they receive starting the subsequent sessions). Questions are closed, designed in a seven point Likert scale (1 being the minimum point and 7 the maximum) and dichotomous questions (yes or no). The information allows to identify the position of the students regarding different aspects of entrepreneurship and is grouped in different sections. For this study, only the information concerning the variables proposed in our model of analysis. This way, the information for the construct of EO is taken into account, which gathers the students' propensity towards innovation, proactivity and risk assumption, as well as the questions that reflect their self-confidence and fear of failure, as well as demographic variables such as age and gender.

For this study, the information collected in 2016 is used, making up a sample of 688 observations, 656 of which were correctly submitted. From the surveyed population, 48% are women and 52% are men, and 63% of the population was between 19 and 22 years old. Furthermore, 61% of them

were in their first 3 semesters of undergraduate studies. The school with more student participation was the school of management with 40,5%, followed by the school of engineering with 27,4%, the school of humanities with 12,2%, the school of economics and finance 7,3%, the school of law 6,9%, and the school of sciences 5,6%.

Variables of the model

Age

Age assumes the role of a control variable in the model to consider possible effects of the age difference between the students who answered the survey. This is a continuous variable with a mean of 20,21 years, and a standard deviation of 3,98. In the model, their logarithmic form is used (ln_age). Its choice is justified in previous studies where the impact of age on individuals when deciding whether to start their own business or promoting intraentrepeneurship, is stressed (Levesque and Minniti, 2006; Vicki Culpin *et al.*, 2015).

Gender

Control variable with dichotomous characteristics, which assumes the value of 1 when the subject is a man, and the value of 0 when the same is a woman. The decision of considering gender a control variable in our regression model is justified given the different findings in previous studies, which show significant differences between men and women, taking into consideration aspects such as propensity towards innovation (Carter *et al.*, 2003), the disposition to assume more risks (Tan, 2008) and entrepreneurial intention (Crant, 1996).

Self-Confidence

Dichotomous variable that assumes the value of 1 when the student affirms he/she firmly believes in his/her own capacities and in the successful achievement of anything he/she proposes him/herself, and the value of 0 when otherwise affirmed.

Fear of Failure

Dichotomous variable that assumes the value of 1 when the student affirms that fear of failure would stop him/her to create a business, and the value of 0 when otherwise affirmed.

Entrepreneurial Orientation

Literature about EO validates and confirms that the propensity to innovate, proactivity and risk assumption are the most representative dimensions of this widely studied construct (Wiklund and Shepherd, 2005; Rauch *et al.*, 2009; Martins, 2016). However, the internal consistency of the survey is evaluated as a research method through the application of an exploratory factorial analysis to evaluate the factorial dimensionality and validity. Statisticss such as a KMO of 0,638 (propensity to innovate); 0,680 (proactivity) and 0,711 (risk assumption), as well as the Bartlett's test of sphericity ($p < 0,01$) support the idea of validity of the application of a factorial analysis, and allows to prove if there were significant correlations among the variables.

Additionally, the stat α of Cronbach is applied to each set of questions that comprise the factors: Propensity to Innovate (α = 0,700), Proactivity (α = 0,728) and Risk Assumption (α = 0,800). Each one of the dimensions has been measured from three questions, and in all cases a coefficient α of Cronbach equal or greater to 0,7 is observed, which indicates the internal consistency of said measures (Hair *et al.*, 2010).

Multivariate analysis

The three dimensions of EO are the variables that depend on self-confidence and fear of failure in our model. This two are independent variables and, according to the object of this study, have a direct influence over the levels of EO of the surveyed students. For this reason, we have opted for the multivariate analysis technique: linear regression. This type of analysis is adjusted to explain the effect that one or more independent variables may exercise over the dependent one (Hair *et al.*, 2010). The control variables (age and gender) are related with socio-demographic aspects and are constantly used in similar studies (Iglesias *et al.*, 2016).

Techniques for the control of common method biases

In studies that use information about individual's behavior or organizations', different methods of bias that may influence the answering process have to be taken into account (Martins, 2016). There are two ways of controlling this influence: the design of the research, or the statistical part (Podsakoff *et al.*, 2003).

Firstly, it is important to guarantee the anonymity of the individuals who answer the survey to minimize common effects such as answer consistency (when the surveyed try to maintain a forced consistency in their answers), social convenience (the trend to answer aiming to obtain social acceptation over showing their real stance regarding the topic), mood (which may be emotionally positive or negative at the time of the survey), among others (Podsakoff *et al.*, 2003).

Secondly, at a statistical level, other control technique has been used. One of the more broadly used techniques is the Harman factor test (Meade, Watson and Kroustalis, 2007; Martins, 2016). The basic hypothesis for this test is that if there is an important amount of variance of common method, a single factor will surge from the factorial analysis, or most of the covariance will be focused on one of the factors (Podsakoff *et al.*, 2003). In our study, as expected, the results show three factors for the dependent variables, which show a total variance of 67%. Therefore, a single factor has not emerged from the Harman test, and also it has not been seen that a single factor has accumulated the totality of the variance. This results show the validity of the measures of the constructs used in the study.

RESULTS

Seeking to explore the impact of the characteristics associated to the personality regarding the development of the EO of university students, two variables were selected: perceived self-confidence and fear of failure when undertaking entrepreneurial activities. From the surveyed population, 84,45% answered affirmatively to the question about self-confidence and the remaining 15,55% reflected low self-confidence when facing and dealing with new challenges. Regarding

fear of failure, 39,79% of the students answered that they would not create a new business for fear of failure, whereas the remaining 60,21% said they would regardless of the possibility of failing.

Before the regression analysis, some possible correlations were observed between the variables. A coefficient of -0,133** could be observed and, as expected, we found a negative and significant correlation between self-confidence and fear of failure. However, the magnitude of said correlation is marginal and does not represent problems of multicollinearity in the model of linear regression (Hair *et al.*, 2010). On the other hand, a significant correlation was expected (p<0,001) between the dependent variables given that they are validated in the literature as dimensions of the EO construct. Table 1 summarizes the main statistics (mean and standard deviation) and the matrix of correlation among the variables in the regression models.

Table 1: Summary of the Statistics and Correlation Coefficients for the Variables

Variables	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Gender	-	-	1						
2. Age	20,21	3,981	-0,023	1					
3. Self-confidence	0,84	0,363	0,014	-0,005	1				
4. Fear of failure	0,4	0,49	-0,093*	-0,042	-0,133**	1			
5. Risk assumption	0	1	-0,111**	-0,026	0,159**	-0,196**	1		
6. Propensity to innovate	0	1	0,081*	-0,064	0,162**	-0,166**	0,314**	1	
7. Proactivity	0	1	0,009	-0,066	0,176**	-0,146**	0,331**	0,532**	1

Note: * p<0,05; ** p<0,001

To test hypotheses 1 and 2 of the research, we resorted to multiple regression models. The analysis is structured in two steps. Step 1 is the base model, which contains only the demographic control variables (gender and age). Step 2 is the complete model which contains the explicative variables (self-confidence and fear of failure).

Regarding the control variables, it was observed that gender (1= men, 0= woman) has a negative effect on risk assumption. This effect is, however, positive on the dimension of propensity to innovate, and not significant on proactivity. Age had a positive relationship with the propensity to innovate and the student's proactivity. There was no evidence of a significant relationship of age on risk assumption in the sample.

Table 2: Results of the Regression Analysis

	Risk Assumption		Innovation		Proactivity	
	Control	Model	Control	Model	Control	Model
Step 1						
Control						
Gender	-0,110***	-0,130***	0,081**	0,066*	0,009	-0,005
	(0,078)	(0,076)	(0,078)	(0,076)	(0,078)	(0,077)
ln_age	-0,011	-0,009	0,076*	0,078**	0,075*	0,077**
	(0,302)	(0,293)	(0,302)	(0,296)	(0,303)	(0,296)
Paso 2						
Hypothesis						
Self-Confidence		0,136***		0,142***		0,160***
		(0,105)		(0,106)		(0,106)
Fear of Failure		-0,190***		-0,141***		-0,126***
		(0,078)		(0,079)		(0,079)
R^2 Model	0,012	0,073	0,012	0,058	0,006	0,052
R^2 Adjusted	0,009	0,068	0,009	0,052	0.003	0,046
Valor F	4,079**	12,868***	4,072**	9,968***	1,869	8,959***

Note: N: 656; * p<0,10; **p<0,05; ***p<0,01. The entries in the table belong to the standardized coefficients. The values between parentheses reflect the standard errors.

Regarding the hypotheses, the regression analysis shows that self-confidence exercises a positive and significant effect over the three dimensions of the EO, thus confirming hypotheses H1a, H1b and H1c, for which we accept hypothesis H1. Regarding fear of failure, it is observed that self-confidence has a negative and significant effect on all three dimensions of the EO. This way, we accept hypotheses H2a, H2b and H2c, and therefore hypothesis H2 is confirmed.

DISCUSSION AND CONCLUSIONS

The purpose of this research was to inquire about the existence of a relationship between features of the personality and the EO in university students. For this reason, a particular emphasis was done in two explicative variables: self-confidence and fear of failure. The results show interesting relationships regarding the gender of the students of the sample.

According to the control variable, gender, our findings point that women are more willing to assume risks than men, result that reinforces the findings of Tan (2008), who highlights, from a study

made in China, that women own a higher propensity to assume risks while undertaking bold movements in the aim of finding a higher profitability and future competitive advantage. On the other hand, it is observed that men tend to be more prone to innovate that women, which is consistent with the results found by Carter et al. (2003), according to whom it is evidenced that men are more financially successful and have a higher level of innovation for the American environment than their female counterparts. Regarding the Colombian context, the differences found around the gender are coherent with previous studies which argued the existence of differences between men and women in what concerns to the entrepreneurial activity (Martins, Gómez-Araujo and Vaillant, 2014). Besides, this differences are more disparate in Colombia, compared with the average of Latin American and Caribbean countries (Pereira *et al.*, 2012).

Regarding the age variable, older university students seem to be more prone towards innovation and proactivity, which would be justified given the chance of having a higher degree of human capital from complimentary experiences and formation, according to Bae *et al.* (2014), directly reflected in the attitudes and intentions of this individuals.

Taking into consideration both hypotheses of the research, we could observe that both self-confidence and fear of failure are determinants of the EO of university students. The effect of self-confidence has a positive and consistent effect in the three dimensions of EO, whereas fear of failure, as it was expected, has a negative effect on EO.

Regarding the above, we observed higher levels of risk assumption, propensity to innovate and proactivity in students who are confident of themselves. Self-confidence as a factor of risk assumption is explained by the optimism and positive expectation of achievements, which is regarded as a determinant personality characteristic for entrepreneurial activity. Regardless, it can induce the individual to evaluate risks in a biased way. Following this set of ideas, our findings are coherent with previous studies (e.g. Fabricius and Büttgen, 2015).

The direct relationship between students' self-confidence and their propensity to innovate is explained with the reduction of uncertainty carried by confidence itself, that is, as there is confidence in oneself, one tends to have an inferior perception of risks associated to a specific action, and, therefore, one is willing to test ideas, projects or processes. Such findings are consistent with those obtained by Simon and Houghton (2003).

Regarding the positive effect of self-confidence in students' proactivity relies in the definition of proactivity itself. According to Ares (2004), a proactive individual aims to change their way of doing things, accepting conditionings but agreeing that their behavior can be more affirmative, with higher self-esteem, more security and self-confidence. Therefore, a higher level of self-confidence allows the individual to express thoughts in a coherent manner, and, therefore, create new alternatives, by adopting behaviors focused in new possibilities and options.

At the same time, a lower propensity to assume risks, to innovate and towards proactivity was observed in those students with high levels of fear of failure. The reverse relationship lying between fear of failure and risk assumption is explained given that the people who are afraid of failing are less willing to assume risks. This results reinforce what was highlighted in previous studies (Popescu and Maxim, 2014; Nitu-Antonie and Feder, 2015).

As for the negative impact of fear of failure on the propensity to innovate, we begin from a definition of innovation adopted by (Baregheh, Rowley and Sambrook, 2009), according to whom innovation is doing things in a different way to create value. This definition implies that people

more prone to innovate know that there is a chance of failing several times during the process, as doing things outside of the standard make higher their chances of failing. Such results are consistent with the findings of (Farashah, 2015) and (Ostapenko, 2015), who maintain that people who are not afraid of the possibility to fail are willing to carry out processes in a different way, and those who are more afraid of risks tend to perform and carry out processes in a conventional way.

It was also observed that, the higher the fear of failure, the lesser the proactivity of the individual. Based on the definition of Riviezzo (2014), according to whom proactivity is the need to get ahead of the consumer needs to obtain a competitive advantage over the competitors, proactivity implies that there could be errors and mistakes during the process due to it being a work of prospective, also involving a certain degree of uncertainty. Therefore, proactivity is a personality characteristic of those individuals with certain degree of failure acceptance.

Implications for universities

This study highlights, for the one side, the need for further research that collaborates in the understanding of the entrepreneurship phenomenon, using the findings to create an environment that supports the entrepreneurial activity from the universities. On the other side, it offers relevant information for the design of academic programs oriented towards strengthening personal aspects of the students, aiming to promote self-confidence and tolerance to fear of failure as predictors of the EO of this collective. This research has shown the influence of university at stimulating the entrepreneurial spirit, given the chance to educate students so they are more confident in themselves, and visualize a possible failure as part of the process of formation in entrepreneurship, and from which they can learn important lessons for their future as entrepreneurs.

Other important issue is that universities bring professors the required training and suitable tools to motivate students and improve the rates of orientation towards entrepreneurship (trainers training). As it was highlighted in previous studies (see Iglesias-Sánchez et al., 2016), to achieve the above it is advisable to promote specific programs of training directed towards professors, with a particular emphasis in entrepreneurship and intraentrepreneurship as a skill. Also, promoting the exchange of experience between higher education professors and different actors of the entrepreneurial ecosystem by participating in conferences, meetings, and projects dedicated to entrepreneurship and small business (Lima *et al.*, 2015).

Decisions like those from the academia are precisely the ones that will allow progress, aiming to improve the quality of higher education, especially the one oriented towards entrepreneurship formation. Likewise, important will be the achievements in research that will promote real theoretical advances and didactic innovations in teaching starting from the generation of new knowledge.

Limitations and future lines of research

This paper is an exploratory study that researches the relationship of certain characteristics of the personality with the development of the EO of university students in the present. Therefore, it is not possible to assure that, in the medium and long term, individuals more prone towards taking risks, innovating and towards proactivity, will in fact become entrepreneurs. Future longitudinal research with similar objectives to those posed in this study would enlighten the understanding of

important aspects about personality characteristics and emotions of students, and the development of their orientation towards entrepreneurship.

On the other hand, even though it does not take away relevance in the findings, it must be highlighted that this study has been done with a specific sample of students in a particular university and results may vary in different contexts. Therefore, it would be interesting to replicate similar studies in different Colombian universities, but even more important, cross-country comparisons with Latin American universities. Thus, future research could use data from global surveys such as the Global University Entrepreneurial Spirit Students' Survey (GUESSS) that has included nine Latin American countries in the last edition (Álvarez, Martins and López, 2016).

Lastly, in this study only two aspects of the personality were considered as predictive variables of the EO. We will welcome studies that observe students' education towards entrepreneurship taking into account different personality characteristics, emotion and learning from failure.

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