Testing mediating effects of individual entrepreneurial orientation on the relation between close environmental factors and entrepreneurial intention

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Abstract

Purpose – Drawing on the literature on entrepreneurial intention (EI), this paper develops and tests a model that aims to explain student EI by considering the valuation of entrepreneurship and the venture failure stigmatization in the closer environment of the respondent and the role of individual entrepreneurial orientation (IEO) through direct and indirect effects.

Design/methodology/approach – The paper uses a survey method for data collection. As such, this study was conducted by considering a sample of 1,155 undergraduate students from different majors. Structural equation modeling is used to validate the theoretical model.

Findings – The findings suggest that a positive closer valuation of entrepreneurship facilitates students' EI. In turn, a closer stigma of entrepreneurial failure hinders students' EI. More importantly, IEO has a significant mediating role in both of these relationships. The findings offer important theoretical and practical implications for the field of entrepreneurship education and entrepreneurial behavior.

Originality/value – The paper offers a new insight relating environmental cognitive elements and their impact on EI, besides how IEO represents a determinant role shaping these relations. The proposed model is original and makes a connection between two widely validated constructs and evidences the relationship that may exist between the orientation and the real intention of setting up a business. Moreover, IEO has rarely been addressed for verifying interaction effects. This paper is one of the very first studies that applies the IEO (individual-level of entrepreneurial orientation) as a mediating variable.

Keywords Individual entrepreneurial orientation, Entrepreneurial intention, Close environmental factors, Closer valuation, Closer stigma of entrepreneurial failure

Paper type Research paper

Introduction

Research on entrepreneurial intention (EI) has expanded considerably and generated a useful body of knowledge focused on different themes (Liñán and Fayolle, 2015). Notwithstanding these efforts, entrepreneurs continue to induce curiosity and interest due to their fascinating and unusual behavior, and individual entrepreneurial intent has proven to be an ongoing subject of study in the field of entrepreneurship (Thompson, 2009). Exogenous and intrinsic individual variables are considered to explain students' EI; however, the interaction between personal competencies, environmental cognitive elements and individual entrepreneurial orientation (IEO) is an area where major research is still needed (Fayolle and Liñán, 2014; Liñán *et al.*, 2011b).

Despite the volume of studies and variety of results, a further discussion is necessary, because some findings are not congruent in terms of perceptions and entrepreneurial intent of

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university students (Lima *et al.*, 2015) nor in terms of the direct effect of closer environment valuations from family, friends and colleagues on EI (Gieure *et al.*, 2019; Liñán *et al.*, 2011b). To do so in future studies, scholars emphasize the need of considering: (1) variables related to students' personal entrepreneurial skills; (2) specifically, the influence of IEO on students' EI requires a further examination (Koe, 2016); (3) sampling that considers students of different majors (Henley *et al.*, 2017); (4) some other geographical contexts where personal attitudes and environmental cognitive elements can explain the entrepreneurial intent differently (García-Rodríguez *et al.*, 2015). This study contributes to find out more about the intention of university students for becoming entrepreneurs as a plausible career option through the IEO and about the underexplored variable at the individual level, which reflects key entrepreneurial competencies such as innovativeness, proactiveness and risk-taking. Furthermore, this research considers a sample that takes into account many students of different undergraduate programs in an emerging economy.

Currently, entrepreneurship education is increasingly emphasized in higher education institutions from the belief that individuals' entrepreneurial competencies can be developed (Fayolle *et al.*, 2006; Liñán and Fayolle, 2015; Nabi *et al.*, 2018); however, it is not clear how universities should work on the development of these entrepreneurial competencies in their curricula. Likewise, universities are not clear if their academic programs should be geared to the development of entrepreneurial skills such as the ability to innovate, proactiveness and risk-taking behavior or if team-teaching efforts should be directed toward the development of entrepreneurial intent in undergraduate students (Martins *et al.*, 2018). Thus, the use of validated scales to assess students' entrepreneurial orientation would be quite valuable in the design of programs and methodologies in teaching entrepreneurship (Bolton and Lane, 2012). This study considers both IEO and EI constructs; hence, contributing to the understanding of this complex phenomenon of entrepreneurship from different perspectives. First, this study analyzes the direct relation of the valuation of entrepreneurship and the venture failure stigmatization in the closer environment of the university students and how IEO plays an important role in shaping these relations. Second, it is worth remembering that individuals with an entrepreneurial spirit can be distinguished from those who simply have an entrepreneurial orientation as it is not the same to have an entrepreneurial attitude as it is to have the clear intention of creating your own business (Thompson, 2009). Therefore, this study connects two widely validated constructs and evidences the relationship that may exist between the orientation and the real intention of setting up a business. Third, in spite of the broad contribution of entrepreneurial orientation to the study of entrepreneurship, the IEO construct has not been fully scrutinized in entrepreneurial intent studies. The proposed model is one of the first studies applying the IEO (individual-level of entrepreneurial orientation) as a mediating variable.

Finally, the findings have certain implications in the field of entrepreneurship education: for instance, by supporting universities on how to approach and manage their curricula, addressing questions such as the stigma of entrepreneurial failure and the role of closer environment in promoting or hindering the EI of young university students.

The paper is structured as follows. Section 2 presents a comprehensive background of existing research, which leads to the formulation of hypotheses. Section 3 explains the research design and data. Section 4 explains the results of the structural equation modeling (SEM) analysis, and Section 5 provides an interpretation of the findings, which leads to a series of theoretical and practical implications.

Theoretical framework, previous studies and hypotheses

Some models with a cognitive basis have been used for explaining IE; for instance, Shapero's model of the entrepreneurial event (SEE) proposed by Shapero and Sokol (1982) and the

theory of planned behavior (TPB) postulated by Ajzen (1991) been the most adopted in the entrepreneurial intention research. Both models consider that the social environment acts as a determinant key to entrepreneurial activity.

In Shapero's model, the social environment is framed within the contextual factors whose interaction makes an influence on the perception that an individual has the intention for establishing a new venture. Thus, the response of the individual to contextual factors depends on the desirability perceived, that is, the personal attractiveness of starting a business and on the feasibility perceived, which indicate a perceptual measure of personal capacity to create a business (Segal *et al.*, 2005; Shapero and Sokol, 1982).

In turn, Ajzen's model explains that the contextual factors influence EI, through attitudes toward a specific behavior (Krueger *et al.*, 2000; Veciana *et al.*, 2005). These attitudes comprise three components, namely, perceived behavioral control, attitude toward the behavior and the perceived social norms. As a social environmental factor, perceived social norms are a measure of perceived social pressure for carrying out (or not) a specific behavior or act (Ajzen, 1991); in this case, a new business is started. In other terms, it measures the perceptions, positive or negative, that the closer environment has over the possibility of becoming an entrepreneur (García-Rodríguez *et al.*, 2015; Liñán and Chen, 2009). The closer environment is formed by family, friends and colleagues who have the ability of influencing and persuading the individual; this capacity increases when the group's closeness increases (Sequeira *et al.*, 2007).

As observed, Shapero's contextual factors and Ajzen's model overlap to some extent; and most importantly, they agree that behaviors would be the result of environmental factors. In this sense, Liñán *et al.* (2011b) integrate the environmental factors into a model of EI, by considering two informal elements: the perception that reference groups may or may not approve the decision for becoming an entrepreneur and the valuation of entrepreneurship in the individual's closer environment. In the matter of this second element, the authors observe from an approach of informal institutional factors (North, 1990) that it influences entrepreneurial activity at facilitating or obstructing attitudes related to business creation. Several authors assessed the institutional approach as a framework for analyzing the influence of informal environment factors on entrepreneurship (Alvarez *et al.*, 2011; Noguera *et al.*, 2013; Urbano and Alvarez, 2014; Vaillant and Lafuente, 2007; Veciana *et al.*, 2005). In this sense, this paper focusses on the analysis of the role played by two specific close environmental factors: the valuation of entrepreneurship and the stigma of entrepreneurial failure at the individual's closer environment. To do so, the article considers the closer valuation of entrepreneurship from the measure proposed by Liñán *et al.* (2011b) and adds the measure of stigma of entrepreneurial failure. Both measures consider the closer environment of the respondent, understood as the immediate family, friends and colleagues.

Closer valuation of entrepreneurship and entrepreneurial intention

Social pressure from the closer environment can become a trigger for the development of an entrepreneurial career (Iakovleva *et al.*, 2011). For instance, the family's opinion can influence notoriously entrepreneurial phenomena in terms of recognition of opportunities, the attainment of main resources and the decision to create a business (Aldrich and Cliff, 2003; Carr and Sequeira, 2007; Pruett *et al.*, 2009). Equally important, the opinions of close friends also play an important role as a relational support and influence the individual's decision to become an entrepreneur (Ambad and Damit, 2016; Nanda and Sørensen, 2010). In turn, although the opinion of colleagues apparently occupies a position of less relevance compared with family and close friends, their favorable assessment in terms of entrepreneurship can influence the individual's entrepreneurial intent (Nanda and Sørensen, 2010).

Thus, the influence of closer valuation of entrepreneurship contributes to the generation of a favorable or unfavorable perception in the development of a new business (Santos *et al.*,

2016; Scherer *et al.*, 1991). In particular, this valuation of entrepreneurship can increase EI through aspects such as perceived personal support, self-confidence in the ability to successfully start a business and the desirability toward an entrepreneurial career (Rimal and Real, 2003; Santos *et al.*, 2016). As such, the opinions of the close social environment about entrepreneurship influence the motivational factors that determine EI as shown by Liñán *et al.* (2011b), who found that this close valuation exerts a stronger influence over personal attitude toward the behavior.

Therefore, the following hypothesis is presented:

H1. Closer valuation of entrepreneurship is positively associated with entrepreneurial intention.

Closer stigma of entrepreneurial failure and entrepreneurial intention

Venture failure stigmatization has profound influences on the success of entrepreneurial efforts (Cacciotti and Hayton, 2015), and the social stigma arising from failure can be a traumatic experience for entrepreneurs (Cope, 2011). To the extent that failure is considered intolerable and the stigma of failure extends to personal and social spheres, potential entrepreneurs will be less likely to seek entrepreneurial opportunities (Cardon *et al.*, 2011; Landier, 2005; Nabi *et al.*, 2018). Thus, the stigma of entrepreneurial failure, which is a consequence of social norms (Cannon and Edmondson, 2005; Simmons *et al.*, 2014), has implications in the perception of risk and therefore in the level of entrepreneurial activity (Abell and Baumol, 2006; Pruett *et al.*, 2009). In this sense, the greater the stigma generated by the closer environment, the greater the expected social pressure by them and the systematic influence in the willingness of individuals to begin new ventures or participate in activities involving risks (Armour and Cumming, 2008; Simmons *et al.*, 2014). In short, according to the aforementioned literature, the social stigma of failure can generate a negative perception among young entrepreneurs regarding entrepreneurship, and this perception influences the behavior of individuals, limiting their intention to execute new ventures. Thus, the following hypothesis is presented:

H2. Closer stigma of entrepreneurial failure is negatively associated with entrepreneurial intention.

Individual entrepreneurial orientation and entrepreneurial intention

Over the years, entrepreneurial orientation (EO) has emerged as a major construct within the strategic management and entrepreneurship literature (Basso *et al.*, 2009; Rauch *et al.*, 2009). EO, originally proposed by Miller (1983), was subsequently developed by Covin and Slevin (1991). It refers to the entrepreneurial strategic posture that characterizes the behaviors in which a manager engages to discover and exploit entrepreneurial opportunities (Lumpkin and Dess, 1996) and regarding the conduct and competencies to carry out a new business project (Martens *et al.*, 2016). Essentially, EO is a one-dimensional construct that remains as a vibrant research topic (Covin and Wales, 2019); several studies have confirmed and validated that innovativeness, proactiveness and risk-taking are the most representative dimensions of this construct (Dai *et al.*, 2014; Rauch *et al.*, 2009; Robinson and Stubberud, 2014).

On the one hand, EO has been widely addressed in the organizational context; therefore, its focus has been mainly directed toward business and strategic management (Rauch *et al.*, 2009; Wales *et al.*, 2013); on the other hand, an organization can be defined as a result of individuals' behavior (Bolton and Lane, 2012; Robinson and Stubberud, 2014); therefore, the EO can refer to either the firm- or individual level (Ferreira *et al.*, 2017; Kraus *et al.*, 2019). Individuals' proclivity toward entrepreneurship tends to present values associated with innovativeness, proactiveness and risk-taking simultaneously (Goktan and Gupta, 2015).

Entrepreneurial individuals' traits differ from their conservative counterparts, as they are more open to novelties and to generate creative ideas (Gupta *et al.*, 2016; Krauss *et al.*, 2005). Consequently, it is now believed that individuals who behave entrepreneurially will be more inclined to start their own business (Bolton and Lane, 2012). Hence, while the individual possesses innovativeness, proactiveness and a propensity for risk-taking, it is expected that he/she intends to carry out a business as evidenced by Koe (2016), Robinson and Stubberud (2014) and Ibrahim and Lucky (2014), who all report a positive and significant relationship between IEO and EI.

Creative and innovative individuals are always alert to entrepreneurial opportunities and are more prone to entrepreneurial intent (Gurel *et al.*, 2010; Marques *et al.*, 2013). Regarding proactiveness, the empirical evidence indicates that a proactive personality has proved to be a determinant in the EI in several geographical contexts (Kumar and Shukla, 2019; Prabhu *et al.*, 2012). Proactive students are also inclined to EI and more likely to take advantage of opportunities as detected by Mustafa *et al.* (2016). In turn, individuals with a preference for risk-taking exhibit greater EI in contrast to risk-averse individuals (Barbosa *et al.*, 2007; Sánchez, 2013; Segal *et al.*, 2005) because they feel more confident of their ability to fulfill the roles and tasks necessary to be successful as entrepreneurs (Zhao *et al.*, 2005). Thus, the following hypothesis is proposed:

H3. Individual entrepreneurial orientation is positively associated with entrepreneurial intention.

The mediating role of individual entrepreneurial orientation

The interaction between individuals and their social environment plays a critical role in the development of EI (Gieure *et al.*, 2019; Liñán *et al.*, 2011a). To the extent that the close social environment of the individual (i.e. reference groups) has a positive or negative perception of entrepreneurship, it is expected that the individual's EI will be impacted favorably or unfavorably (Engle *et al.*, 2010; Liñán *et al.*, 2011b; Santos *et al.*, 2016). Because reference groups influence individuals' behavior (Ajzen, 1991; Akerlof and Kranton, 2000), this influence, through risk-taking, innovativeness and proactiveness, can finally be reflected in the intention to carry out a new business. As highlighted in previous studies, entrepreneurially oriented individuals are likely to have different mental schemas compared with those who are not, and empirical evidence suggests that entrepreneurial individuals exhibit distinguishable personality and psychology traits that influence their decision-making (Gupta *et al.*, 2016; Krauss *et al.*, 2005).

Equally significant, cognitive and psychological characteristics of the entrepreneur influence motivation toward an entrepreneurial behavior as well as personal attributes, such as innovativeness and propensity to risk exposure, make individuals more prone to entrepreneurial activities (Marques *et al.*, 2013). An orientation toward entrepreneurial behavior may provide the basis for entrepreneurial decisions and actions (Wiklund and Shepherd, 2005); therefore, it can influence the conviction of the individual to identify and develop business ideas in a context in which the opinion of the close social environment intervenes. In other different words, individuals with the ability to innovate are quite more confident in achieving the success of their ideas. Likewise, those who have a high grade of proactivity are quite better able to manage resources and make first decisions than others. These resources can be directed toward innovative and successful projects. In addition, individuals more likely to take risks will also have more entrepreneurial intent, even in contexts of uncertainty and considering failure as a possibility. As a consequence, the IEO helps individuals on translation of the right capabilities to take advantage of positive perception of the closer environment into increase EI. Furthermore, individuals with entrepreneurial skills are quite better able to adapt to not-so-favorable situations and handle them easily (Kolvereid and Isaksen, 2006).

Thus, the effect of the closer environment opinions on EI will be mediated by IEO. It seems plausible, therefore, to assume that the association between a positive closer valuation of entrepreneurship and EI will be higher among students oriented entrepreneurially. Otherwise, the association between closer stigma of entrepreneurial failure and EI will be lower among students oriented entrepreneurially.

Building upon these findings, hypotheses H4 and H5 are proposed further.

First of all, to test the mediation, it must be shown that the predictor variables (closer valuation of entrepreneurship and closer stigma of entrepreneurial failure) are related to the mediator (IEO). Thus, H4a and H5a will test these relationships. Then, it should also be shown that the strength of the relationship between predictor variables and EI is significantly affected when the mediator is added to the model (H4b and H5b).

As discussed earlier, it is expected that a closer valuation of entrepreneurship also is related to IEO in a positive way. As well as, the relation between closer valuation and EI will be significantly greater when IEO is included. Therefore, the following hypotheses are proposed:

H4a. Closer valuation of entrepreneurship is positively associated with individual entrepreneurial orientation.

H4b. Individual entrepreneurial orientation positively mediates the relationship between closer valuation of entrepreneurship and entrepreneurial intention.

In turn, regarding the interaction effects between closer stigma of entrepreneurial failure, EI and IEO, it is expected that the entrepreneurial orientation acts as a buffer of the relation between closer stigma of entrepreneurial failure and EI. Thus, if on the one hand a negative and significant relation of the closer stigma of entrepreneurial failure could be observed on EI (hypothesis 2), on the other hand, it is expected that there will be no negative effect of the closer stigma of entrepreneurial failure on IEO, therefore, confirming the mediating role of the IEO in a positive way. Thus, the following hypotheses can be addressed:

H5a. Closer stigma of entrepreneurial failure is positively associated with individual entrepreneurial orientation.

H5b. Individual entrepreneurial orientation positively mediates the relationship between closer stigma of entrepreneurial failure and entrepreneurial intention.

Figure 1 presents the theoretical model and proposed relationships.

Methods

Sample and procedure

Data were collected by a research team in a private but very long stablished university, located in Medellin, Colombia, during the second semester of 2017 and the first semester of 2018. According to the research design, it was used a convenience sampling technique. Although this technique is not probabilistic and it prevents generalization, its use is prominent in educational research contexts (Cohen *et al.*, 2017; Henley *et al.*, 2017; Lourenço and Jayawarna, 2011), due to the facility in its implementation and the difficulty for constructing representative samples of the population (Bryman *et al.*, 2018). Thus, the information obtained is part of an annual survey implemented by this university with undergraduate students who are enrolled in "training in entrepreneurship." The university has incorporated courses designed to promote entrepreneurial spirit among students of different academic majors. This is the case with *Iniciativa y Cultura Empresarial* (Entrepreneurial Initiative and Culture), a subject that transverses the undergraduate programs offered by the university and is part of the core institutional training program.

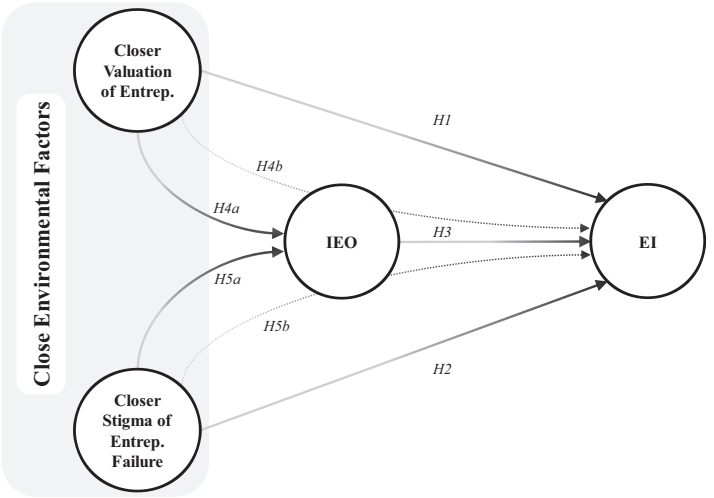

Figure 1.
Proposed model

Therefore, all students at the university have to enrol in at least one subject that provides them with knowledge about entrepreneurship. 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. The responses allow the identification of students' propensity regarding different aspects of entrepreneurship and are compiled in different sections. The information for the constructs of IEO, EI, closer valuation and stigma of failure are taken into account, as well as the questions that reflect demographic variables such as age and gender.

For this study, a sample of 1,155 observations is used. Respondents comprised 51% women and 49% men, and 82.3% of the population was between 18 and 22 years old. Those in their first six semesters comprised 78.2% of the sample. The school with the most participants was the School of Management (36.7%) followed by the School of Engineering (32.5%), School of Humanities (11.7%), School of Economics and Finance (7.1%), School of Law (6.8%) and the School of Sciences (5.4%).

Variables of the model

Entrepreneurial intention. EI is a well-tested construct. Despite its varied measurement in the literature, the most frequent measure has had a reflexive approach by implementing Likert-scale variables (Bullough *et al.*, 2014; Kumar and Shukla, 2019; Liñán and Chen, 2009; Rosique-Blasco *et al.*, 2018; Shirokova *et al.*, 2016). This approach allows capturing individual intention to create a new business as well as his/her conviction to do so in the future.

According to the aforementioned, Armitage and Conner (2001) considered three different dimensions from which EI can be defined, namely, desire or preference, self-prediction and intentional behavior. Particularly, this last dimension has received more attention from researchers (Iglesias-Sánchez *et al.*, 2016; Kautonen *et al.*, 2015; Liñán and Chen, 2009; Rosique-Blasco *et al.*, 2018) as it exhibits better results in terms of intentionality. In this sense, six items are considered from Liñán and Chen (2009) and complemented with one related to

the availability and financial feasibility of the individual from Thompson (2009) as shown in Table I. Respondents used a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) to rate these items.

Internal consistency between the measurements of the variable is guaranteed by the reliability coefficient; thus, Cronbach's alpha equals 0.948, which is above 0.7, indicating good reliability (Hair *et al.*, 2010). Additionally, the measures of composite reliability (CR) and average variance extracted (AVE) of 0.961 and 0.779, respectively, are greater than 0.70, denoting satisfactory internal consistency (Helms *et al.*, 2006). Construct validity is supported in the factor loadings, which are above 0.70, while the Kaiser–Meyer–Olkin

Item	Component 1	2	3	α
Entrepreneurial intention				0.948
I am ready to do anything to be an entrepreneur	0.861			
My professional goal is to become an entrepreneur	0.909			
I will make every effort to start and run my own firm	0.931			
I am determined to create a firm in the future	0.921			
I have very seriously thought of starting a firm	0.913			
I have a firm intention to start a business someday	0.911			
I am willing to invest my savings to have my own firm	0.717			
Individual entrepreneurial orientation				
Risk-taking				0.842
I like to take bold action by venturing into the unknown	0.735			
I am willing to invest a lot of time and/or money on something that might yield a high return	0.750			
I tend to act "boldly" in situations where risk is involved	0.728			
Innovativeness				0.853
I often like to try new and unusual activities that are not typical but not necessarily risky		0.731		
In general, I prefer a strong emphasis in projects on unique, one-of-a-kind approaches rather than revisiting tried and true approaches used before		0.810		
I prefer to try my own unique way when learning new things rather than doing it like everyone else does		0.847		
I favor experimentation and original approaches to problem-solving rather than using methods others generally use for solving their problems		0.852		
Proactiveness				0.827
I tend to plan ahead on projects			0.848	
I usually act in anticipation of future problems, needs or changes			0.674	
I prefer to "step-up" and get things going on projects rather than sit and wait for someone else to do it			0.735	
Closer valuation of entrepreneurship				0.747
My immediate family values the activity as an entrepreneur over other activities and careers	0.840			
My friends value the activity as an entrepreneur over other activities and careers	0.866			
My colleagues value the activity as an entrepreneur over other activities and careers	0.736			
Closer stigma of entrepreneurial failure				0.849
The stigma of entrepreneurial failure from my family is very important to me	0.832			
The stigma of entrepreneurial failure from my friends is very important to me	0.912			
The stigma of entrepreneurial failure from my colleagues is very important to me	0.883			

Table I.
Factor loadings and reliability coefficients

(KMO) statistic is 0.925. The Bartlett's test of sphericity is significant at a confidence level of 99%; thus, the values of the partial correlation coefficients are small, and consequently, the scale is valid.

Individual entrepreneurial orientation. In this research, each dimension of IEO is measured using the results obtained by Bolton and Lane (2012) and replicated in recent studies (Kraus *et al.*, 2019; Martins *et al.*, 2018). Thus, respondents were asked to indicate their measure of preferences for three items of risk-taking assumption, three items of proactiveness and four items of innovativeness, using a seven-point Likert scale. In this sense, the analysis of principal components results in three components – risk, innovativeness and proactiveness – where the factor loadings of the items considered for each component are above 0.7 as shown in Table I. Successively, the KMO statistic exhibits values of 0.699, 0.809 and 0.714 for the assumptions of risk, innovativeness and proactiveness, respectively. These results are supported by Bartlett's test of sphericity, which is significant at a 99% confidence level, demonstrating the validity of the application of a factorial analysis.

The internal reliability of the factorial scale of each dimension is supported by the Cronbach's alpha statistic, which is higher than 0.70 for the three cases considered, validating the internal coherence of these measures. It is noteworthy that the accumulated percentage of variance explained exhibits values above 0.50 for the three measures (Hair *et al.*, 2010) (AVErisk = 0.544, AVEInnovativeness = 0.659, AVEProactiveness = 0.571), like the CR (CRrisk = 0.782, CRInnovativeness = 0.885, CRProactiveness = 0.798).

Because IEO is constructed formatively as a second-order aggregate construct, the existence of multicollinearity across formative dimensions is possible (Diamantopoulos *et al.*, 2008; Khedhaouria *et al.*, 2015). To check the multicollinearity of the construct, the variance inflation factor (VIF) is used, whose value should be below 3.30 (Diamantopoulos and Siguaw, 2006). The results presented in Table II indicate acceptable levels of multicollinearity between the dimensions of the IEO. Additionally, the weight of the dimensions of the construct obtained explains that the effect of each dimension on the construct must have a significant influence (Hair *et al.*, 2010). This significance is evident because the standardized regression weight (SRW) is significant and higher than 0.8, except for innovativeness, which is at the threshold of influence.

Closer valuation of entrepreneurship. To identify the closer valuation of entrepreneurship, the items proposed by Liñán *et al.* (2011b) are considered. Respondents were asked to indicate the level of valuation of entrepreneurship that they perceive from family, friends and colleagues using a seven-point Likert scale.

The results of the exploratory factor analysis show a KMO statistic higher than 0.650 and the Bartlett's test of sphericity to be significant at a confidence level of 99%, supporting the validity of the construct. In turn, the Cronbach's alpha is equivalent to 0.747, the AVE is greater than 65% and the CR is above 70%, endorsing the internal consistency of the construct.

Closer stigma of entrepreneurial failure. Subsequently, the psychometric properties of the measurement scale are evaluated in terms of reliability and validity. As a first step, the analysis considers the correlation between items and the item-to-total correlation, where the results must be above 0.3 for interitem correlations and 0.5 for the item-to-total correlations

Statistic	IEO dimensions		
	Risk-taking	Innovativeness	Proactiveness
R^2	0.504	0.407	0.471
VIF	2.015	1.688	1.891
SRW	0.890**	0.771**	0.856**

Note(s): ** Indicates significance at 0.01

Table II. Multicollinearity statistics and weights for dimensions

(Hair *et al.*, 2010). The results shown in Table III indicate that all correlations are above 0.5 internally and with regard to the total. Additionally, the Cronbach's alpha statistic is higher than 0.7 as shown in Table I while the CR and the AVE show values of 0.909 and 0.768, respectively, indicating satisfactory reliability.

In terms of validity, the factor loadings of items on the corresponding construct exceed 0.6, which indicates good convergent validity, that is, the scale is measuring its intended concept (Hair *et al.*, 2010). In turn, the discriminant validity suggests that the square root of the AVE for every construct should be greater than the intercorrelation estimates of such constructs (Chin, 1998; Hair *et al.*, 2010); in this case, the square root of AVE (0.876) is higher than all the intercorrelations present for the three items that make up the construct (see Table III). Additionally, the KMO statistic equals 0.700 and the Bartlett's test of sphericity is significant to a level of confidence of 99%, guaranteeing the standard level of internal validity.

Common method variance

Since data used for the variables in the research were collected using the same survey instrument for all participants, it emerges the possibility of common method variance (CMV), resulting in a systematic measurement bias (Podsakoff and Organ, 1986), and a false internal consistency expressed by a high correlation between the variables explained by a common source (Podsakoff *et al.*, 2003). One of the most commonly used techniques for addressing common method biases is the Harman one-factor test (Martins, 2016; Meade *et al.*, 2007). This technique, through an exploratory factor analysis, checks whether a general factor represents the most of the covariance between the measures (Podsakoff *et al.*, 2003). The results of the factor analysis on the measured items yielded six factors that explain 75.151% of the variance, whereby a substantial amount of common method variance does not appear to be present.

Another technique to determine the degree of such biases is the construction of a latent variable using a multitrait–multimethod (MTMM) approach. This technique allows modeling the variance in a measure as a function of true score variance, the variance due to method effect and the random error (Malhotra *et al.*, 2006). Therefore, it lets modeling of the true relationships between latent factors that are free of method biases and random errors, without the need of measuring additional variables that identify the effects of the common method (Malhotra *et al.*, 2006; Richardson *et al.*, 2009). The results of this technique are quite consistent with the results of the Harman test and suggest that there are no significant common method biases, because the common variance (44.890%) is below the 50% threshold.

Structural analysis

Currently, there are two approaches to estimate indirect effects in mediation models: regression and the SEM approach. Despite the popularity of the first approach, there are often

Table III.
Interitem correlations construct

Item	Correlation 1	2	3	4
The stigma of entrepreneurial failure from my family is very important to me	1			
The stigma of entrepreneurial failure from my friends is very important to me	0.597**	1		
The stigma of entrepreneurial failure from my colleagues is very important to me	0.531**	0.725**	1	
Closer stigma of entrepreneurial failure	0.781**	0.929**	0.845**	1

Note(s): Estimated Spearman correlations. ** Indicates significance at 0.01

difficulties associated with power, statistical suppression and the causal steps (Zhao *et al.*, 2010). In turn, the SEM approach, due to the multiple indicators of the constructs and the variety of model adjustment measures, allows to control the measurement error and is, therefore, considered superior to the first approach (Iacobucci *et al.*, 2007; Zhao *et al.*, 2010). Thus, in order to confirm the relationships proposed, the SEM approach is used under the stream of covariance; the estimation is carried out with AMOS software. In the covariance-based SEM, the covariances of the variables in the model are calculated in such a way that any derived solution includes only such covariances; therefore, it follows a common factor model approach that is adapted for reflecting the measurement models (Sarstedt *et al.*, 2016). Particularly, these reflexive measurement models are used in behavioral studies, where the psychometric analysis of factors related to attitudes and intensities is prominent; factors that in turn confirm a specific theory (Davcik, 2014). Additionally, since the sample size exceeds 250 observations, the choice of covariance-based SEM yields better consistency and precision of parameters, in contrast to variance-based SEM, being highly robust with respect to the violations of its underlying distribution assumptions (Davcik, 2014; Reinartz *et al.*, 2009).

SEM can be understood as a combination of confirmatory factor analysis and multiple regression (Schreiber *et al.*, 2006). This multivariate statistic displays the interrelations among latent constructs and observable variables in the proposed model as a succession of structural equations (Hair *et al.*, 2010). To verify the interaction effects (mediation), the bootstrapping approach is utilized (Hayes, 2009; Hayes and Preacher, 2014). The idea behind the bootstrap is to draw, with replacement, independent samples from a data set and to compute the statistic of interest in each of these samples (Zhang and Savalei, 2016). Thus, at a confidence level of 95%, it is examined whether the existence of nonmediation is possible, that is, the indirect effect is zero for several bootstrap samples.

According to the hypotheses H2 and H5b, a mediation with suppression in such segment of the model is expected, wherein the magnitude of the relationship between an independent and dependent variable becomes larger when a third variable is included (MacKinnon *et al.*, 2000). In other words, the sign associated with the indirect effect must be contrary to the direct effect sign. In turn, the total effect sign must be equal to the sign of direct effect. This could be due to the fact that the predictor variable (stigma of entrepreneurial failure) has two sources of variance that reflect two opposing channels by which it influences the outcome variable (EI): the indirect pathway (IEO) and the direct pathway (Little *et al.*, 2007).

Empirical findings

The model-fit indices suggest that the overall adjustment is correct. The GFI (0.887) and the adjusted GFI (0.859) explain how well the data fit to the proposed theoretical model. Additionally, the comparative fit index (CFI) with a value close to 1 (0.936) indicates a very good fit. With regard to RMSEA (0.069) and standardized RMR (0.065), both are within the range of accepted values and indicate a close fit of the proposed model in relation to degrees of freedom and the sample variances and covariance, respectively. The results of the relation between variables in the model are displayed in Tables IV and V. The analysis of the hypotheses presents significant values and confirms the previous relationships in the proposed model.

First, Hypothesis 1 shows that the closer valuation of entrepreneurship is positively related with students' EI ($\beta = 0.379$, $p < 0.01$), which supports this hypothesis. Second, the closer stigma of entrepreneurial failure impacts negatively the students' EI ($\beta = -0.065$, $p < 0.050$), supporting Hypothesis 2. Hypothesis 3, which examines the effect of the IEO on the EI, was supported as well ($\beta = 0.516$, $p < 0.01$). In turn, Hypothesis 4a and 5a, which contrast the direct effect of closer valuation entrepreneurship and closer stigma of entrepreneurial

Hypotheses	Estimate	SE	CR	*p*-value
H1: Effect of CVE on EI	0.379 (0.324)	0.045	8.420	0.000
H2: Effect of CSEF on EI	−0.065 (−0.051)	0.034	−1.920	0.050
H3: Effect of IEO on EI	0.516 (0.412)	0.048	10.747	0.000
H4a: Effect of CVE on IEO	0.547 (0.585)	0.036	15.335	0.000
H5a: Effect of CSEF on IEO	0.086 (0.083)	0.032	2.692	0.007

Table IV. Estimation of direct relations

Note(s): Closer Valuation of Entrepreneurship (CVE); Entrepreneurial Intention (EI); Closer Stigma of Entrepreneurial Failure (CSEF); Individual Entrepreneurial Orientation (IEO). The numbers in brackets ( ) are standardized regression weights. SE corresponds to Standard Error and CR to Critical Ratio

Hypotheses	Estimate	SE	LB	UB	T-T
H4b: Effect of CVE on EI mediated by IEO	0.283	0.034	0.010	0.345	0.001
H5b: Effect of CSEF on EI mediated by IEO	0.044	0.022	0.234	0.085	0.032

Table V. Estimation of mediating relations

Note(s): Closer Valuation of Entrepreneurship (CVE); Entrepreneurial Intention (EI); Closer Stigma of Entrepreneurial Failure (CSEF); Individual Entrepreneurial Orientation (IEO). The estimates are made using bootstrapping method. SE corresponds to Standard Error; LB is the lower bound of the confidence interval at the 95%; UB is the upper bound of the confidence interval at 95% confidence level; and T-T is the two-tailed significance level for indirect effects

failure on IEO, are significant and are accepted with a confidence higher than 99% ($\beta = 0.547$, $p < 0.01$, $\beta = 0.086$, $p < 0.01$).

Bootstrap results for indirect effects that indicate the mediation of IEO on the closer environment and EI relationship are shown in Table V. In this sense, IEO mediates the relationship between the closer valuation of entrepreneurship and the EI, given that the indirect effect in this relationship is significant ($\beta = 0.283$, where 0 is not a possible value between LB = 0.010 and UB = 0.345, and the two-tailed significance level is less than 5%, i.e. $0.01 < 0.05$); therefore, H4b was supported. Equally, H5b was also validated because the indirect effect of the relationship between the closer stigma of entrepreneurial failure and EI is significant ($\beta = 0.044$, where 0 is not a possible value between LB = 0.234 and UB = 0.085, and the two-tailed significance level is less than 5%, i.e. $0.032 < 0.05$). Finally, the total effect of the closer valuation of entrepreneurship is 0.662 while the total effect of the closer stigma of entrepreneurial failure on EI is −0.021.

According to these results, all steps to establish a mediation effect are fulfilled. In other words, it has been checked: first, there is a significant relation between the predictor and the outcome; second, the predictor variable is related to the mediator; third, the mediator is related to the outcome; and finally, the relation between the predictor and the outcome is significantly affected when the mediator is added to the model (Frazier *et al.*, 2004).

Discussion

The results indicate that the opinions of family, friends and colleagues influence individuals' decision to become an entrepreneur; hence, a closer valuation of entrepreneurship by reference groups impacts positively the individuals' EI. Such results corroborate with

previous findings that pointed out the main role of family, close friends and colleagues in terms of influence on the decision of young people to become entrepreneurs (Ambad and Damit, 2016; Nanda and Sørensen, 2010; Pruett *et al.*, 2009). Likewise, the venture failure and the possible closer stigmatization that this may cause negatively impact and limit the intention to start a business. The obtained findings reinforce previous empirical evidence (Cope, 2011; Simmons *et al.*, 2014) and extend knowledge about how to develop entrepreneurial skills such as innovativeness, proactiveness and risk-taking, which can reduce the fear associated with venture failure stigmatization.

Despite the fact that individuals with high IEO do not necessarily have the real intention of creating their own business (Thompson, 2009), they perceive the support of the close social circles in a better way and are more tolerant to a possible closer stigma of entrepreneurial failure. In other words, IEO shapes the relationship between the close environmental factors and the EI of university students. By considering student innovativeness, this could be understood as a driver of the EI because the individual is more certain about the likelihood of his business idea success and believes that his product or service is less likely to fail if it has a degree of innovation for the industry. Students' proactiveness can also be an essential component needed for resumption in case of an entrepreneurial failure. The most proactive individuals are also more self-confident, which is in line with previous studies (Lin *et al.*, 2014; Parker *et al.*, 2010); therefore, the closer stigma of entrepreneurial failure does not affect their confidence or EI. This is a remarkable finding considering the recent study by Nabi *et al.* (2018), who pointed out that failure and risk, particularly financial, are aspects that generate dissuasive emotions toward the entrepreneurial intent. Finally, the assumption of risks is a critical element in the acceptance that failure is a possibility and something normal in an entrepreneurial process. For an individual who assumes risks, the stigma of entrepreneurial failure does not affect his or her EI. These conclusions reinforce previous studies that pointed out that individuals with a propensity for risk-taking tend to be more comfortable dealing with situations that involve risks and, in fact, perceive objectively same situations as less risky than others do (Sitkin and Weingart, 2018). In addition, those who report a higher risk propensity judge themselves to be more capable of performing tasks related to entrepreneurship (Zhao *et al.*, 2005).

Finally, the fact that IEO acts as a critical mediating construct indicates that in the case of individuals with high levels of innovativeness, proactiveness and risk-taking propensity, the impact of reference groups' opinions about venture failure becomes less accentuated. This finding reinforces the idea that individuals with high IEO are self-efficacious, determined and more confident in their abilities; therefore, these individuals have a greater conviction to carry out a new business (Arenius and Minniti, 2005; Bolton and Lane, 2012).

Conclusion and implications

The purpose of this paper was to investigate the relationship between close environmental factors and the EI of university students, especially considering the mediating role of IEO. The study sought to verify whether the opinion of the closer environment affects the university students regarding their EI and how IEO can mediate this relationship in a positive way. Theoretically, this study provides new inputs that contribute toward a better understanding of the role of context variables such as the closer valuation of entrepreneurship and closer stigma of entrepreneurial failure on young people's EI. Equally important, the results highlight that the personal characteristics of potential entrepreneurs are undoubtedly relevant, that is, students with a high level of IEO may better assimilate the opinions of the closer environment even if they are negative.

The findings suggest that perceptions regarding closer environment values do have an influence on EI, but equally important, they also influence the individual's EO. In this sense,

there needs to be a supportive closer environment for the development of entrepreneurial skills such as innovativeness, proactiveness and risk-taking behavior. Furthermore, potential entrepreneurs with an entrepreneurial orientation will perceive themselves as capable of facing the stigma of entrepreneurial failure, accepting the conditionings but agreeing that their capabilities prevail over everything else, and they are certainly decisive to fully pursue the entrepreneurial intent, with a greater self-confidence.

One of the originalities of this study is the inclusion of the construct of EO at the individual level, in a model that considers factors of the closer environment and EI. Consequently, enabling to broaden the debate on the importance of promoting the development of competencies associated with behavior and toward entrepreneurship as a previous step to the intention. Entrepreneurial education can play a crucial role in this regard by providing not only technical competencies such as developing a business plan or training to access to venture capital investment but also new teaching methodologies to boost creativity, proactivity in decision-making and a proper risk-taking. Such a vision can accelerate a cultural change into students, when it amplifies the importance of EO that will positively foster the entrepreneurial intent.

The results have several theoretical and practical implications.

Theoretical implications

By bringing together and integrating different elements of entrepreneurship, such as EO, EI and close environmental factors, this study has important theoretical implications for the entrepreneurship literature. First, the manuscript empirically explores the use of the EO construct at the individual level and links it to other important constructs such as environmental factors and EI. Environmental factors were observed through the opinions of the reference groups not only as an informal factor that supports EI (Liñán *et al.*, 2011b) but also as a possible hindrance. Empirical findings identified that closer valuation of entrepreneurship and the closer stigma of entrepreneurial failure are essential parts in the formulation of the EI of undergraduate students. If previous research highlighted that the fear of entrepreneurial failure is an obstacle to intention and to business creation (Morales-Gualdrón and Roig, 2005; Sandhu *et al.*, 2011; Vaillant and Lafuente, 2007), then this study, sequentially, sheds light on the relationship between venture failure stigmatization and EI. Second, few studies have examined the entrepreneurial failure from the stigmatization by closer environment. Furthermore, no study has incorporated a scale of measurement for closer stigma of entrepreneurial failure. This study, in consequence, offers a theoretical contribution through the construct that measures the stigma of entrepreneurial failure at the closer environmental level. Third, the methodological design of this study allows to verify relationships not previously raised with a model consistent with the current literature and using a robust sample that statistically supports the findings. Not least, these results, moreover, offer empirical evidence by using a sample from a developing country, thereby responding to the need for studies in different socioeconomic contexts (Thompson, 2009) and supporting the few studies on the subject in the region (Henley *et al.*, 2017).

Practical implications

The two main practical recommendations are as follows. First, the present study provides meaningful lessons for universities with entrepreneurial education programs. It is widely known that policymakers are increasingly interested in expanding and developing effective new educational measures to promote and educate the business mentality (Obschonka *et al.*, 2017). Thus, the present findings offer useful information for the design of academic programs aimed at strengthening individuals' innovativeness, proactiveness

and risk-taking propensity. By developing IEO, students will be able to assimilate and better handle their immediate environment and positively use the opinions of the reference groups. It will be crucial to develop individuals capable of not only creating new companies but also with abilities to identify and generate opportunities in those already established. Equally important for universities, it is recommended to develop a curriculum that stimulates cognitive conditions regarding tolerance toward failure and, especially, venture failure stigmatization. Second, entrepreneurial motivation is driven by different emotional factors and the fear of failure stigmatization influences it in a negative direction. Thus, the support and motivation of the closer environment are crucial for the development of students' self-confidence. Therefore, reference groups must understand failure as a stepping-stone to boost future success in entrepreneurial activities as well as a framework to learn from mistakes and avoid them in future projects.

Limitations and future directions for research

The interpretation of the findings is subject to limitations. Nevertheless, there are several possibilities for future research in line with the results. First, the present study proposes an early approach to the IEO-EI relationship by considering both the direct and mediating effects; hence, more research will be needed to fully understand EO at the individual level and its role on EI. Second, although the relevance of the findings does not diminish, it must be highlighted that the construct stigma of entrepreneurial failure at the closer environment level is a new scale developed to measure venture failure stigmatization from the perspective of family, friends and colleagues. It is suggested that future research apply this scale in different cultures and using samples of potential entrepreneurs outside the university sphere. In this study, it was considered a nonprobabilistic and convenience sample. Therefore, similar studies could consider probabilistic techniques such as simple random sampling in different contexts, whose results may be subject to generalization, and they allow the examination of possible comparisons at cultural and regional levels. Finally, studies on entrepreneurship, not only EI, in general, need more longitudinal empirical evidence. These results shed light on the EO and intention of individuals; however, future studies could follow over time individuals with high levels of IEO to observe whether they start up their own business, which would contribute significantly to this field.

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