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Constructs and relationships in the study of entrepreneurial intentions in university students

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ABSTRACT

The purpose of this article is to examine the main research findings on entrepreneurial intention among university students. Secondary information sources from indexed international journals were utilized. Results show that the model of Entrepreneurial Event and Theory of Planned Behavior are the approaches more used to measure the entrepreneurial intention and the necessity of adequately incorporating entrepreneurial self-efficacy in the entrepreneurial intention analysis in emerging economies. Furthermore, it is recommended adopting and validating the entrepreneurial intention models according to economic, social and educational context in developing countries, allowing the structuring of coherent educational strategies with university students population environment.

KEYWORDS
entrepreneurs, students' attitudes, comparative study, higher education, education and business

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Introduction

The entrepreneurship has established as one of most increasing research fields on social sciences in last decades, giving rise to the searching and validating research approaches that allow improving the business creation process understanding (Busenitz, Plummer, Klotz, Shahzad & Rhoads, 2014; Pulgarin & Cardona, 2016; Davidsson, 2016). From this necessity, there are significant findings about entrepreneurial intention study as one of approaches that improves the business creation process understanding (Bae, Qian, Miao & Fiet, 2014; Valencia, Montoya & Montoya, 2016), because it provides a mechanism to adequately explain the processes of identifying opportunities (Karimi, Biemans, Lans, Chizari & Mulder, 2016) and the development of entrepreneurship (Dehghanpour-Farashah, 2015; Liñán & Fayolle, 2015).

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The general principle of intention models is that the intention is the immediate antecedent of behavior (Heuer & Kolvereid, 2014), while in turn the intention is determined by attitudes, and attitudes are affected by external influences (e.g., demographic and situational variables) (Shapero & Sokol, 1982; Ajzen, 1991; Krueger, Reilly & Carsrud, 2000; Botsaris & Vamvaka, 2014) examining the environmental conditions that favor the transformation of a perceived opportunity in a new enterprise (Sánchez, 2011).

Among favoring conditions that direct the intention of creating a business to action, the role of entrepreneurial education as a factor that strengthens entrepreneurial skills has been highlighted (Fayolle & Gailly, 2015). Also, it improves and develops skills and abilities associated with business creation, which affects the students' attitudes (Izquierdo & Buelens, 2011), and has an influence on the direction of their future career, promoting their propensity to create a business at the end of their careers (Wilson, Kickul & Marlino, 2007). Therefore, research on entrepreneurial intentions has focused primarily on students from different educational levels, wide ranges of age and particular socioeconomic status conditions (Ferreira, Raposo, Rodrigues, Dinis & Do Paço, 2012).

Given the need to compile the way in which this phenomenon has been studied, this article arises in order to examine the main research findings on entrepreneurial intention among university students, from the review of published scientist studies on indexed international journals. That is why initially the importance of entrepreneurial intention and its focus on university students is contextualized, as well as the main models that have been used to analyze it. Subsequently, the methodology involved in the review of reliable secondary information sources from indexed international journals and oriented to the subject of interest. Finally, the main detected methodological approaches, models, constructs, variables and contributions in compiled researches in this research are set out.

Background

Facing the study of entrepreneurial intentions, it has developed two particular approaches; on the one hand, there is a large and growing literature on the individual level, i.e., the determinants of entrepreneurship in people (Lee, Wong, Der-Foo & Leung, 2011). This literature has extensive empirical evidence in favor, which states that occupational choice to become an entrepreneur depends on individual features, capacity and skills (Lanero, Vázquez & Muñoz-Adánez, 2014; Valencia-Arias, Gutiérrez, Montoya, Umba, & Montoya 2017), as well as the accumulated social capital by the individual (Dohse & Walter, 2012; Zhang, Cao & Zeng, 2014). On the other hand, there are oriented literature to research on the impact of context in a broadly way (e.g., macroeconomic and institutional conditions at regional level) (Delanoë, 2013; (Villa, Picón, Valencia-Arias & Jiménez, 2017) and regional rates about new business creation (Rocha & Sternberg, 2005; Dohse & Walter, 2012).

By focusing on the first line of study, oriented to research on individual entrepreneurship, shows that among developed models that explain how and why new companies start, models based on the emerging of entrepreneurial intention have been dominant in research literature about entrepreneurship (Krueger, Reilly & Carsrud, 2000; Xiang & Lei, 2013; Sun & Lo, 2012; Schlaegel & Koenig,

2014; Botsaris et. al. 2014). The entrepreneurial intention is defined by these models, as the state of mind in which a person's attention is focused on meeting an objective, in this case the creation of a company, which has some influence on future actions to be taken by the individual in order to achieve his goal (Prodan & Drnovsek, 2010). This individual approach of entrepreneurial intention is considered as a consolidated research field with a quickly development and a growing number of studies (Fayolle & Liñán, 2014; Montoya, Valencia & Montoya, 2016), which has led to be approached from related fields such as economics, sociology, management, psychology and even cognition (Küttim, Kallaste, Venesaar & Kiis, 2014).

In addition, researches on entrepreneurial intentions are made under the assumption that people are rational, and in this sense, the available information to make a systemic use of it, is taken (Casson & Della, 2007), when a decision is made, which suggesting that (a) the individuals' behavior is determined by their intention to carry out certain behavior, and therefore this intention is the most decisive factor to explain it; (b) the intention of a behavior is a function of the attitude toward the behavior, subjective norms, and perceived behavioral control; and (c) all other variables affect behavioral intention indirectly through attitude, subjective norm, and perceived behavioral control (Ajzen, 1991; Yang, 2013).

The entrepreneurial intention can be influenced by a group of considered variables in developed models, and are composed of several constructs, each of them are measured by indicators. These constructs are related as the behavioral as psychological characteristics (Valencia, Montoya & Montoya, 2015a). Regarding the behavioral approach, constructs: personal attitude, subjective norm and perceived behavioral control are included in most models (Hui-Chen, Kuen-Hung & Chen-Yi, 2014; Zapkau, Schwens, Steinmetz & Kabst, 2015), and their articulation contributes to understanding the entrepreneurial intention emerging to the business creation. Also, there is a connection between personal attitude and perceived behavioral control constructs (Lv, Chen & Chen, 2014; Karimi, Biemans, Lans, Chizari & Mulder, 2016). However, when models are designed, each factor can be correlated individually with a number of constructs (Ferreira, Raposo, Rodrigues, Dinis & Do Paço, 2012). In addition, the theoretical and empirical research have associated psychological characteristics with entrepreneurship (Skudiene, Auruskeviciene & Pundziene, 2010; Padilla-Meléndez, Fernández-Gámez & Molina-Gómez, 2014). In general, the main features found in the literature are: internal locus of control (Bernhofer & Han, 2014), risk taking propensity (Popescu, Maxim & Diaconu, 2015), self-confidence (Ghafari, Baboli & Sadr, 2014), achievement need (Milcha, Febrilia & Warokka, 2015), ambiguity tolerance (Altinay, Madanoglu, Daniele & Lashley, 2012) and the innovativeness (Dutta, Gwebu & Wang, 2015).

Additionally, the study of entrepreneurial intentions has a number of methodologies aimed to improve the understanding of the business intention (Fayolle, 2013), of which the most used and explanatory capacity according to the researchers' perspective in the field are: the Theory of Entrepreneurial Event, the Institutional Economic Theory and Theory of Planned Behavior (Díaz-Casero, Ferreira, Mogollón & Raposo, 2012), being the Theory of Planned Behavior (TPB) (Ajzen, 1991) the most used and explanatory capacity (Iakovleva, Kolvereid & Stephan, 2011; Lortie & Castogiovanni, 2015).

The Theory of Planned Behavior (TPB) is based on the premise that all human behaviors are planned and are preceded by the intention of the behavior (Iakovleva, Kolvereid & Stephan, 2011; Valencia, Montoya & Montoya, 2015b). According to this model, entrepreneurial intentions are derived from the perceived desirability, feasibility and a propensity to act on opportunities. Perceived desirability is defined as the desirability degree of starting a business, the perceived feasibility as the degree in which an individual feels able to do it, and propensity to act as personal willingness to act on own decisions (Lee, Wong, Der & Leung, 2011).

Giving its benefits, the model of Ajzen (1991) has been used to research the impact and effectiveness of entrepreneurship programs through the use of TPB, finding that these courses can improve levels of self-efficacy and entrepreneurial intention (Díaz-García, Sáez-Martínez & Jiménez-Moreno, 2015; Torres, Valencia-Arias, Bermúdez, Díez-Echavarría, Urrego & Maussa, 2017). This has led to the strengthening of new teaching methodologies to impact the business intentions from different strategies, among them are strengthening self-efficacy business through the use of problem-based learning (Bell, Dearman & Wilbanks, 2015; Valencia, Benjumea & Rodríguez-Lora, 2014). Additionally, Liñan & Fayolle (2015) propose the design of new teaching strategies to encourage entrepreneurial intention and the entrepreneurial skills of university students. In addition, the student population becomes a focus of interest, because it suggests that more and better business education positively affects the development of attitudes, skills and intentions on students to start new businesses (Piperopoulos, 2012). That is why business education has been promoted in different educational contexts as a path to promoting entrepreneurial culture and creating entrepreneurial mindsets (Valencia & Benjumea, 2013; Nitu-Antonie & Feder, 2015).

Additionally, learning dynamics can be improved in entrepreneurship courses through more interactive strategies such as: virtual learning objects (Arango, Gaviria & Valencia, 2015), formative research (Valencia, Macias & Valencia, 2015), mobile learning (Echavarria, Valencia & Bermudez, 2017), technological laboratories (Velez, Gutierrez & Valencia, 2015), virtual learning communities (Bermúdez, Chalela, Valencia & Valencia, 2017), digital narratives (Villa, Valencia & Valencia, 2016), university spin-off programmes (Cadavid, Díez-Echavarría & Valencia, 2017), among others.

Furthermore, it is considered that samples of university students are the most suitable, because students are considered as a potential entrepreneur population (Sánchez, Lanero & Yurrebaso, 2005) by the type of professional decisions they face (Krueger, 1993), consolidating entrepreneurial intention in university students is a priority sub-area of study in entrepreneurship research field.

Methodology

Initially, a search equation that identifies indexed academic literature on entrepreneurial intention among university students was defined. To this, it was considered as searching criteria equivalent terms to entrepreneurial intention (entrepreneurial intention - new venture intention - start up intention - new business intention - new firm intention) and equivalent terms for university students (student - scholar - undergraduate - learner - college - institution - school

- education). In addition, those terms were searched in the title, abstract and keywords as time restriction, it was defined the last 15 years of production in the field of knowledge (2000-2015), considering the following equation search:

(TITLE ((Intention W/4 Entrepr) OR (Intention W/4 New venture) OR (Intention W/4 "Startup") OR (Intention W/4 "New business") OR (Intention W/4 "New firm")) AND TITLE (Student OR Scholar OR Undergraduate OR Learner OR college OR Institution OR school OR education)) OR (KEY ((Intention W/2 Entrepr*) OR (Intention W/2 New venture) OR (Intention W/2 "Startup") OR (Intention W/2 "New business") OR (Intention W/2 "New firm")) AND KEY (Student OR Scholar OR Undergraduate OR Learner OR college OR Institution OR school OR education))*

When initial results were obtained, it was verified that these results made reference to the subject of study and it proceeded to the creation of a database for debugging information, in order to systematically defining the items that would be part of the comparative analysis proposed in this article.

Among the filters that were defined for the selection of the researches, it was taken into account that met the following aspects:

1. Collecting primary information through quantitative or qualitative (excluding literature reviews and reflections).

2. The study was focused on university students

3. Reliability in the statistical analysis used to test hypotheses

4. Researches, where constructs or variables related to entrepreneurial intention have been identified or used any model of entrepreneurial intention in developing the study.

5. Researches that reflect advances in entrepreneurial intention research field

Finally, it was searched the selected items corresponding to different university populations around world, in order to have a broader view of findings on the subject, so in this article studies with university students in Ghana, Spain, Portugal, United Kingdom, United States, Brazil, Australia, Mexico, Canada, Romania, Czech Republic, Russia, France, Ukraine, Germany, Norway, Colombia, Turkey, South Africa, Nigeria, among others were analyzed. Given all the above criteria, 20 publications that have a greater affinity with defined filters were taken, allowing a heterogeneous contrast of several published and indexed studies on entrepreneurial intention in recognized worldwide databases.

Analysis of results and discussion

Comparing the methodological aspects of the selected items, it can be observed that the most commonly used instrument in the sample is the survey (see Table 1), which is usually self-administered. And is widely used as a research technique because allows collecting quickly and efficiently data (Casas-Anguita, Repullo-Labrador & Donado-Campos, 2003). In addition, surveys are suitable as exploratory as descriptive and analytical studies, providing the necessary data to test various hypotheses (Kelley, Clark, Brown & Sitzia, 2003).

Studies with university students target population have been selected, so this population is considered as representative (Harrison & List, 2004) and sight like entrepreneurial potential (Sánchez, Lanero & Yurrebaso, 2005), specifically, the process of university training leads students to working life, so their preferences at the end of their studies reflect if they have entrepreneurial intention (Medina-Brito, Bolívar-Cruz & Lemes-Hernández, 2014).

Finally, it is noted that the applied statistical analysis in the analyzed studies focuses on structural equation modeling, regression and correlation analysis. For example, structural equation models allow to test alternative models to existing data, in order to ascertain the role and importance of the mediating variables (as the personal attitude is, etc.). In the analysis of results, usually, the adequacy of measuring instruments and assumptions are initially checked, and subsequently the hypothesis of the relationships (direct or indirect) between the constructs are tested (Maes, Leroy & Sels, 2014).

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Table 1. Comparison of methodological issues.

Author(s), Year	Instrument	Analyzed population	Statistical analysis used to test hypotheses
Krueger, Reilly & Carsrud (2000)	Surveys	University students	Linear regression and comparison of adjusted R2
Souitaris, Zerbinati & Al-Laham (2007)	Surveys	University students	Correlation and stepwise hierarchical regression tests. Unidirectional ANOVA

Zampetakis (2008)	Surveys	University students	Analysis of a structural equation model (SEM) using maximum-likelihood estimation method
Díaz-Casero, Ferreira, Hernández & Barata (2009)	Surveys	University students	Statistical techniques for cross-tabulation and Pearson's Chi-square tests
Naktiyok, Nur & Caglar (2009)	Surveys	University students	Regression analysis
Iakovleva, Kolvereid & Stephan (2011)	Surveys	University students	Analysis of a structural equation model (SEM)
Piperopoulos (2012)	Surveys and Interviews	University students	Descriptive statistics
Marqués, Ferreira, Gomes & Rodrigues (2012)	Interviews	University students	Analysis of a structural equation model (SEM)
Valencia, Cadavid, Echeverri & Awad (2012)	Surveys	University students	Descriptive statistics and measures of association with Cramer's V analysis
Karimi, Biemans, Lans, Chizari, Mulder & Mahdei (2013)	Surveys	University students	Analysis of a structural equation model (SEM)
Liñán, Nabi & Krueger, (2013)	Surveys	University students	Analysis of a structural equation model (SEM) using partial least squares (PLS)
Pihie & Bagheri (2013)	Surveys	University students	Analysis of a structural equation model (SEM)
Zhang, Duysters & Cloodt (2014)	Surveys	University students	Maximum likelihood regression was used
Maes, Leroy & Sels (2014)	Surveys	University students	Analysis of a structural equation model (SEM)
Yurtkoru, Kuşcu & Doğanay (2014)	Surveys	University students	Regression analysis
Khalili, Reza Zali & Kaboli (2015)	Surveys	Individuals from three countries	Analysis of a structural equation model (SEM)
Umar & Abubakar (2015)	Surveys	Students	Analysis of variance (ANOVA) ad correlation

Tshikovhi & Shambare (2015)	Surveys	University students	Simple linear regression analysis
Denanyoh, Adjei and Nyemekye (2015)	Surveys	University students	Descriptive statistics and Pearson's correlation
Zapkau, Schwens, Steinmetz, & Kabst (2015)	Surveys	university students and professionals	An analysis of a structural equation model (SEM) was applied

Source: Compiled by authors based on bibliographic review

On the other hand, compared with analyzed entrepreneurial intention models, it is observed that to explore the relationship between entrepreneurial intention and its backgrounds, several theoretical models have been introduced. Particularly, the model of Entrepreneurial Event (MEE) of Shapero (1982) and the model of Theory of Planned Behavior (TPB) of Ajzen (1991) present the basic cognitive relation of the precedent of the intention, and in the existing literature have been solidly tested and validated (Zhang, Duysters & Cloodt, 2014). Indeed, the most of the constructs and variables that are analyzed in selected items, are based on these models or appear to influence or mediate them (see Table 2).

Table 2. Comparison of constructs and results.

Author(s), Year	Constructs or variables	Principals results of the study
Krueger, Reilly & Carsrud (2000)	TPB-MEE: entrepreneurial intention. TPB: personal attitude, subjective norms, normative beliefs and perceived behavioral control. MEE: perceived desirability, perceived feasibility and propensity to act. Other variables: perceived self-efficacy and expected benefits.	With regard to TPB, the influence of the attitude and perceived behavioral control are supported in entrepreneurial intention. Subjective norms are related to the attitude and perceived behavioral control. Normative beliefs are related to subjective norms, the expected benefits with the attitude, and self-efficacy with perceived behavioral control. Regarding the MEE, the influence of the perceived feasibility, perceived desirability and perceived propensity to act are supported in entrepreneurial intention.

Souitaris, Zerbinati & Al-Laham (2007)	TPB-MEE: entrepreneurial intention. TPB: personal attitude, subjective norms and perceived behavioral control. Other variables: entrepreneurship programs and their effect on learning, inspiration and resource utilization.	The attitude is validated, subjective norms and perceived behavioral control are positively and significantly correlated with entrepreneurial intention. Entrepreneurship programs is related to an increasing in the intention and subjective norms. There was no significant correlation between learning and some of the variables of the TPB. Inspiration is significantly correlated with subjective norms and intention.
Zampetakis (2008)	TPB-MEE: entrepreneurial intention. MEE: perceived desirability. Other variables: pro-activity, creativity, models and gender.	Creativity and pro-activity have a positive relationship with the perceived desirability. It has a positive effect on entrepreneurial intention. Having a parent business owner it is significantly related to the students' pro-activity, the perceived desirability and entrepreneurial intention. No statistical differences were found between genders.
Díaz-Casero, Ferreira, Hernández & Barata (2009)	TPB-MEE: entrepreneurial intention. MEE: perceived desirability and perceived feasibility. Other variables: gender and influences of family history.	The gender of the person does not influence in the perceived desirability nor perceived feasibility, but has influences in entrepreneurial intention. In one of the analyzed samples, having family members who are entrepreneurs, this influences, the perceived desirability of creating a business and entrepreneurial intention.
Naktiyok, Nur & Caglar (2009)	TPB-MEE: entrepreneurial intention. Other variables: self-efficacy (in six dimensions: development of new product opportunities or market, creating an innovative environment, beginning investor relations, definition of key objectives, dealing unexpected challenges and development of critical human resources).	There is a positive relationship between self-efficacy and entrepreneurial intention. The dimensions of self-efficacy that have significant and positive effects on entrepreneurial intention are the development of new products and market opportunities, creating an innovative environment, defining key objectives and deal with unexpected challenges.
Iakovleva, Kolvereid & Stephan (2011)	TPB-MEE: entrepreneurial intention.	The TPB is a very consistent model with a strong explanatory power and is proven. Students from developing countries have significantly higher intentions than students in developed countries.

	TPB: personal attitude, subjective norms and perceived behavioral control.	Finally, students from developing countries obtain higher results on intentions and its precedents (attitudes, subjective norms and perceived behavioral control) than students from developed countries.
Piperopoulos (2012)	TPB-MEE: entrepreneurial intention. Other variables: entrepreneur perspective and influences.	The results highlight the significant differences in entrepreneurial intention of first-year students and last-year students, where last-year students have negative perception towards that intention. With regard to the influence, only the percentage of students with an entrepreneurial family and the percentage with a parent as a public servant is analyzed.
Marqués, Ferreira, Gomes & Rodrigues (2012)	TPB-MEE: entrepreneurial intention. TPB: personal attitude, subjective norms and perceived behavioral control. Other variables: psychological aspects (achievement need, ambiguity tolerance, locus of control), family history and education on entrepreneurship.	There is a positive relationship between attitude and intention with a high level of significance. According to subjective norms have a negative weight and low contribution to the intention. Perceived behavioral control has a positive relationship with intention. There was a negative relationship between entrepreneurial intention and family history, which may indicate that participant students do not have a positive experience on the business activities of their relatives.
Valencia, Cadavid, Echeverri & Awad (2012)	TPB-MEE: entrepreneurial intention. TPB: risk tolerance, perceived desirability and perceived feasibility.	The association between factors perceived desirability and perceived feasibility of entrepreneurship is reported. In addition, an association between perceived feasibility and entrepreneurial intention is reported. Results suggest a weak association between risk tolerance with the perceived desirability and perceived feasibility.
Karimi, Biemans, Lans, Chizari,Mulder & Mahdei (2013)	TPB-MEE: entrepreneurial intention. TPB: personal attitude, subjective norms and perceived behavioral control. Other variables: model to follow.	Attitude, subjective norms and perceived behavioral control significantly influence the intention. The role models positively influence the attitude, subjective norms and perceived behavioral control. However, those models do not influence the intention. Men tend to be more influenced by the attitude to form their intention and women by subjective norms.

		Regarding the perceived behavioral control there is no difference.
Liñán, Nabi, & Krueger, (2013)	TPB-MEE: entrepreneurial intention. TPB: personal attitude, subjective norms and perceived behavioral control. Other variables: capacities/ abilities, social assessment, knowledge of the business environment and close assessment.	All the TPB constructs were validated as important in entrepreneurial intention, directly or indirectly. The influence of subjective norms on intentions is indirectly through attitude and perceived behavioral control. Transcultural consistency is demonstrated in the model of entrepreneurial intention and it is suggested that the role of culture may be important in the entrepreneurial intention.
Pihie & Bagheri (2013)	TPB-MEE: entrepreneurial intention. Other variables: entrepreneurial self-efficacy and self-regulation.	It is proved that the self-efficacy and the self-regulation have an impact on entrepreneurial intention. Moreover, self-efficacy influences the self-regulation, i.e., the self-efficacy has direct and indirect effect.
Zhang, Duysters & Cloodt (2014)	TPB-MEE: entrepreneurial intention. MEE: perceived desirability and perceived feasibility. Other variables: entrepreneurial education, entrepreneurial previous exposure, gender, type of university and type of studies.	The perceived desirability has a significant positive effect on the intention, but the perceived feasibility does not have. The previous entrepreneurial exposure has a significant negative impact on the intention. This is due to previous exposure of the surveyed students, mostly refers to negative experiences. It is proven that women have less entrepreneurial intention than men. On the other hand, if all students receive business education, students of technological universities have more intention than those from other universities.
Maes, Leroy & Sels (2014)	TPB-MEE: entrepreneurial intention. TPB: personal attitude, subjective norms, perceived behavioral control, behavioral beliefs, normative beliefs and beliefs of control. Other variables: gender.	The effect of gender on entrepreneurial intention was mediated through personal attitude and perceived behavioral control, but not through social norms. In behavioral beliefs, indicators of achievement are significantly more important predictors of attitude for men and the balance indicators are significantly more important predictors for women. In control beliefs, as internal control as external control attributes are more important for women than for men.
Yurtkoru, Kuşcu & Doğanay (2014)	TPB-MEE: entrepreneurial intention. TPB: personal attitude and perceived behavioral control.	Personal attitude and perceived behavioral control have an effect on entrepreneurial intention. The relational support has a significant effect on attitudes. It was found that the educational and relational support had a

	Other variables: contextual factors (relational support, educational support and structural support).	significant effect on perceived behavioral control. Finally, the structural support has no impact on any of the constructs.
Khalili, Reza Zali & Kaboli (2015)	TPB-MEE: entrepreneurial intention. Other variables: entrepreneurial skills, social norms and confidence of innovation.	Social norms, entrepreneurial skills and confidence of innovation have a positive effect on entrepreneurial intention. Social norms were observed as a situational factor and entrepreneurial skills as individual factors influenced by that situational factor.
Umar &Abubakar (2015)	TPB-MEE: entrepreneurial intention. MEE: risk propensity. Other variables: self-efficacy, locus of control and innovativeness.	The self-efficacy and innovativeness have a positive relationship with intention. In addition, innovation has a positive relationship with risk propensity Also, a negative relationship between entrepreneurial intention with the locus of control and risk propensity is given.
Tshikovhi & Shambare (2015)	TPB-MEE: entrepreneurial intention. TPB: personal attitude. Other variables: business knowledge	The attitude has a stronger relationship on the intention than business knowledge. In addition, the attitude is a mediating variable between business knowledge and intention.
Denanyoh, Adjei & Nyemekye (2015)	TPB-MEE: entrepreneurial intention. Other variables: contextual factors (family support, educational support and structural support).	Entrepreneurial intention has a positive relationship with contextual factors: family support, educational support and structural support.
Zapkau, Schwens, Steinmetz & Kabst (2015)	TPB-MEE: entrepreneurial intention. TPB: personal attitude, subjective norms and perceived behavioral control. Other variables: entrepreneurial previous exposure to parent's entrepreneurship models, entrepreneurial previous exposure prior work experience.	The applicability of the TPB is supported to explain entrepreneurial intention. In addition, the parent's model and work experience influence the TPB constructs, so indirectly influence intention.

Source: Compiled by authors based on bibliographic review.

Table 2 shows that the TPB model has demonstrated consistency and transcultural high explanatory capacity. Its constructs have a direct or indirect relationship with intention, where personal attitude is the construct that has had the greatest influence, followed by perceived behavioral control and ultimately subjective norms, which have an indirect influence through attitude and perceived

behavioral control. Added to this, variables such as work experience, role models and entrepreneurial skills have been studied as mediators between the main constructs and intention.

Regarding the MEE constructs, it has that perceived desirability construct has a great influence on the entrepreneurial intention and is influenced by variables such as creativity, pro-activity and role models. Therefore, the construct risk propensity is also related to the intention but not in the same proportion as the desirability, and is influenced by innovation. Despite this, the role of perceived feasibility construct is not consistent, since in some studies its relationship with intention is tested, but not in others.

Finally, other variables included in the articles are demographic (e.g., gender or education), psychographic (e.g., personality or their interests), cognitive (e.g., skills and abilities), among others. It has been shown that some of them have direct influence on intention or indirectly through the TPB and MEE constructs. For example, some studies show the direct influence of gender on intention, in other studies that influence is mediated by constructs such as attitude, social norms or control of planned behavior, and even there are times when it has not been shown to be related with intention. Similarly, sometimes entrepreneurial education has a direct, indirect or no impact on intention. Finally, advances in entrepreneurial intention field as a result of presented study in each article were examined (see Table 3).

Table 3. Advances in entrepreneurial intention field of each article.

Author(s), Year	Advances in entrepreneurial intention field
Krueger, Reilly & Carsrud (2000)	The importance of including cognitive aspects in entrepreneurial intention models is presented. Another point that is highlighted is the applicability of the models and implications of them in research, education, public policies and business planning are presented. In general, a vision of the models as tools for other issues and the importance of evaluating the transition from intention to action is given.
Souitaris, Zerbinati & Al-Laham (2007)	It is set out that inspiration is the only benefit of entrepreneurship programs affecting entrepreneurial intention, which has theoretical implications for the role of emotions in entrepreneurship. It also contributes to the theory of planned behavior to confirm the link between the three precedent and the intention. Furthermore, the effect of an exogenous "influence" (education) on the constructs and entrepreneurial intentions is tested. Finally, the study also contributes to research on the business education to disclose the effect of the benefits for students from the entrepreneurship program.
Zampetakis (2008)	No differences were found between gender and entrepreneurial intention, which can be explained by the context of the study and the possible role of disciplinary differences of respondents. In addition, the study contributes to the research of entrepreneurship, indicating personality variables can play an important role in the development of theories of entrepreneurial process. Finally, the results of this study reinforce the idea that business education should focus not only on the technical aspects of entrepreneurship but the person as a whole.

Díaz-Casero, Ferreira, Hernández & Barata (2009)	Regarding entrepreneurial intentions, it is observed that gender can play a role in them, according to the context in which it is located. However, there is no precedent influence of family history and gender in the perception of feasibility. It is necessary to note that the presence of family members who are entrepreneurs, have influence in perceptions of desirability and in the intention to create a business to one of the analyzed samples.
Naktiyok, Nur & Caglar (2009)	Useful results in terms of socio-psychological perspective for entrepreneurship are arisen. There is a positive relationship between entrepreneurial intention and entrepreneurial self-efficacy, so the concept of self-efficacy deserves more attention in the research on entrepreneurship. The obtained conclusions must be analyzed on the fact that the study was in a culture where collectivism and uncertainty control are high.
Iakovleva, Kolvereid & Stephan (2011)	Developing countries should focus on the development of institutions that may support entrepreneurial efforts. At the same time, developed economies may have to accept that business intentions depend on the dynamism of an economic environment and possibly the behaviors of risk perception.
Piperopoulos (2012)	The research presents findings on the shortcomings of public higher education programs, culture and the predominant structure in Greece. The research results suggest that entrepreneurial intentions and students' aspirations are deteriorated in the passing years of university studies.
Marqués, Ferreira, Gomes & Rodrigues (2012)	It may be noted that effects of subjective norms in the intention are given in a more indirect way through the influence of personal attitudes and perceived behavioral control. Additionally, the results do not support any impact on business education in the actual intention formation among surveyed students.
Karimi, Biemans, Lans, Chizari,Mulder & Mahdei (2013)	Role models influence entrepreneurial intention but indirectly, through the constructs of the TPB. Regarding gender and subjective norms, these are considered more important for women students in determining their intention by their affiliation and relational nature needs; while personal attitude is considered more relevant to men students by their independence and achievement nature needs.
Liñán, Nabi, & Krueger, (2013)	An integrated and inter-cultural approach that had not been taken into account is proposed. The role of cultural and social nuances on the precedent of entrepreneurial intention is set out. General results suggest the transcultural applicability of the intention model of the TPB. Finally, solid ideas about what is behind the entrepreneurial intention model with the inclusion of skills, knowledge of the entrepreneurial environment and social and nearby valuation are set out.

Pihie & Bagheri (2013)	The self-efficacy is the strongest predictor of intentions of business career of university students. Moreover, the self-regulation of students also plays a key role in their decision to become an entrepreneur. Furthermore, it contributes to one of the first empirical supports for the structural model of self-efficacy, self-regulation and the intention proposed by Bandura (2012).
Zhang, Duysters & Cloodt (2014)	Results have implications for educators, potential entrepreneurs and policymakers. Educators should try to strengthen entrepreneurship education, especially for undergraduates and those with technological careers. With proper education, potential employers can recognize opportunities, finding financial resources and organize efficient equipment. Such education stimulates the intention and enhances the ability of entrepreneurs to manage and grow new businesses.
Valencia, Cadavid, Echeverri & Awad (2012)	A systemic model of entrepreneurial intention is proposed. The introduction of an output multinomial variable to explain entrepreneurial intention rather than a dichotomous variable, helping to improve the explanatory power of the model. Consideration of different types of students increases the entrepreneurial intention of the explanatory power of the model, i.e., the coefficients of association between factors, and intention increase when the population is divided according to special features such as level of studies, entrepreneurship training level and study area.
Maes, Leroy & Sels (2014)	Gender differences in entrepreneurial intentions can be explained by perceived behavioral control and personal attitude factors, but not by social norms. On the other hand, it gives a perspective of gender differences in the reasons to start a business career, giving an idea of why women want or not to opt for an entrepreneurial career. Previous studies can be biased, by not differentiating gender constructs, so it was shown that there are differences between them.
Yurtkoru, Kuşcu & Doğanay (2014)	The need to strengthen the enabling environment for business creation in educational contexts of entrepreneurship is arisen, so that educational content encourage creativity and dynamism. On the other hand, it should be complemented with training for seeking funding. It was found that entrepreneurial education has a significant relationship with perceived behavioral control.
Khalili, Reza & Kaboli (2015)	Entrepreneurial skills have a positive effect on the intention, which correspond to the perceived self-efficacy. The social norm connotes subjective norms and is mediated by the attitude and social image. It is suggested applying questionnaires with higher rates, and measure mediating variables between constructs (such as demographic and situational variables).
Umar & Abubakar (2015)	The evidence suggests that entrepreneurs are risk takers. On the other hand, innovativeness and self-efficacy are part of the determinant factors of intention.

Tshikovhi, & Shambare (2015)	The environment of entrepreneurs have influence on the training of entrepreneurs. Results shows evidence that specialist groups are actually more influenced than other groups towards entrepreneurship.
Denanyoh, Adjei & Nyemekye (2015)	The key role of education in developing entrepreneurial intention is confirmed. Therefore, it could say that entrepreneurship can be improved as a result of a learning process. Another significant factor in the study is the structural support, and is clearly evident that for encouraging entrepreneurship, all stakeholders in the entrepreneurial ecosystem in each country are required.
Zapkau, Schwens, Steinmetz, & Kabst (2015)	The results suggest that it cannot consider the previous business exposure as one-dimensional, but taking into account differences in the type and perceived quality of the exhibition is suggested.

Source: Compiled by authors based on bibliographic review.

Table 3 shows that in theoretical terms, the entrepreneurial intention remains a topic of interest in the research field, where there are still many issues that have not explored and require attention. One of them refers to the study of the possible reasons which is given a difference of intention between developed and developing countries. Similarly, conclusions of the different studies of entrepreneurial intention must be interpreted in the light of social, cultural, political and economic context, in which they were made and even new research can address this aspect further.

Additionally, the importance of including different variables that mediate between the constructs of most studied intention (TPB and MEE) models is presented. Indeed, there is not clarity about the role of gender and entrepreneurship education in business creation. Therefore, to delve into the reasons why conflicting results are presented in these variables would be a significant step in the field. Similarly, cognitive and socio-psychological aspects that have not been addressed should be included and achieve greater models with explanatory capacity. Generally, the diversity of issues that should be included when the determinants of entrepreneurial intention are analyzed and the need to delve into its most important aspects are shown.

Conclusions

It has been observed that the trend, in terms of methodological design, when evaluating entrepreneurial intention in university students is quantitative type, opting for self-administered survey as the instrument for collecting information, preferred by the possibility of collecting large information volumes and ease of access to the target population without involving great logistical efforts (taking into account that the studies are focused on universities and individual cities).

With regard to the most common techniques analysis, the structural equation models, correlation and regression analysis are used; of these options are recommended for future studies, the structural equation models, as it is a multivariate statistical technique that allows testing and estimating causal relations from the collected statistical data (Valencia, Gonzalez & Castañeda, 2016; Gutiérrez, Correa, Henao, Arango & Valencia-Arias, 2017). Thus, allowing to test alternative models to existing data in order to ascertain the role and

importance of the mediating variables that are established according to the defined object of study in the study of entrepreneurial intention.

Facing with the models used to study the factors and variables involved in the study of entrepreneurial intention, the Model of the Entrepreneurial Event (MEE) by Shapero (1982) and the model of Theory of Planned Behavior (TPB) by Ajzen (1991) are highlighted as the most prevalent in the academic literature of entrepreneurship, since much of the analyzed constructs and variables in the reviewed researches in this paper are based on these models. This is given by the coherence of their variables and high explanatory power that have been reported in different cultural contexts. However, even the need to incorporate mediating variables (for example, work experience, knowledge in entrepreneurship, creativity, family support) among the main constructs and intention, since these variables allow better understanding of the entrepreneurial intention in observed social structures with particular characteristics, related to the educational, social and economic context.

On the other hand, it is noted that the subdivision of the study population from special characteristics (gender, training, discipline, knowledge, level of studies) shows particular outcomes that are of interest to understand the variations of entrepreneurial intention, according to demographic, psychological and cognitive characteristics associated with a particular population group, which in turn allows better planning of strategies to promote entrepreneurship among university students.

The study of entrepreneurial intention continues being consolidated as a topic of interest in the research field of social sciences, so the need to explore new themes and approaches in this area of research, like the need of contextualizing and adequately adapting entrepreneurial intention models to the particular context of emerging economies, by improving validation and interpretation according to the particular needs of their educational, social and economic context. In addition, it is suggested to incorporate cognitive and socio-psychological aspects that have not been addressed in traditional models, in order to achieve new adaptations of models with greater explanatory power in developing countries.

Among the future proposed approaches by comparative research, the need to include entrepreneurial self-efficacy among the factors that should be incorporated in the analysis of entrepreneurial intention in developing countries it is highlighted. This factor has presented significant results from the sociological and psychological entrepreneurial approach, showing that greater entrepreneurial self-efficacy is associated with better performance enterprising university students, promoting assertive decision making and higher risk tolerance.

Most training programs in university entrepreneurship have focused on encouraging entrepreneurial intention through training and mainstreaming of knowledge in entrepreneurship in the curricula, but this strategy has not been adequately articulated with the context conditions (market labor, identifying business opportunities with growth potential, expansion of market size, available financial resources), which has caused such entrepreneurial intention is

discouraged when interact with the business sector, being one of the reasons why that does not make the transition from the intention to create business into action. This phenomenon and the study of the factors that lead to take this step are still a tendency in entrepreneurship research field.

Disclosure statement

No potential conflict of interest was reported by the authors.

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